Yokohama Platform Analytics

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Platform Analytics

Optimize processes and increase productivity with the Platform Analytics applications. These applications include Reporting, Performance Analytics, User Experience Analytics, and Process Mining. Present data through either the Core UI or the Platform Analytics experience.

Get started

Select one of these tiles to learn more about these applications, which help provide many different kinds of data to many different kinds of users.

Platform Analytics experience



Explore analytics with data visualization tools, dashboards, and KPIs, all accessible by natural language queries.

Now Assist in Platform Analytics



Ask questions about data in plain language and receive AI-powered responses, including Platform Analytics data visualizations.

Performance Analytics



Improve service delivery times and reduce costs using this set of business-analysis tools.

User Experience Analytics



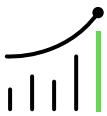
Get a dashboard view of how your users work with multiple ServiceNow applications, with full visuals of metrics, interactions, and more.

Process Mining



Analyze your data in automated process flows with this application and find ways to improve your enterprise's workflow efficiency.

Task Mining

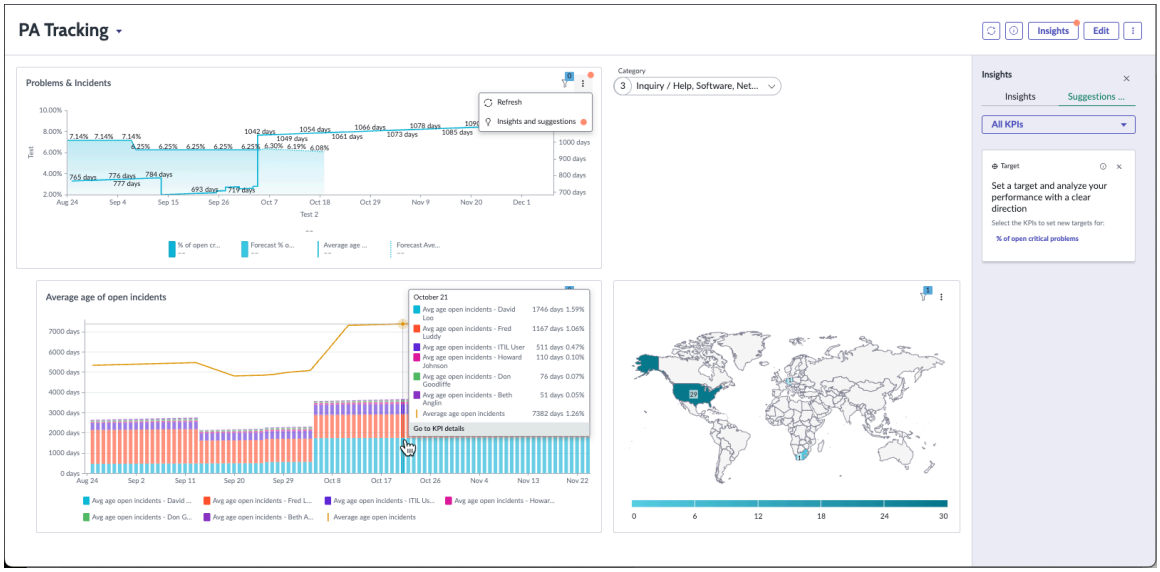


Identify task inefficiencies in work tasks by collecting and processing workstation data to provide insights into activities and interactions.

Platform Analytics experience

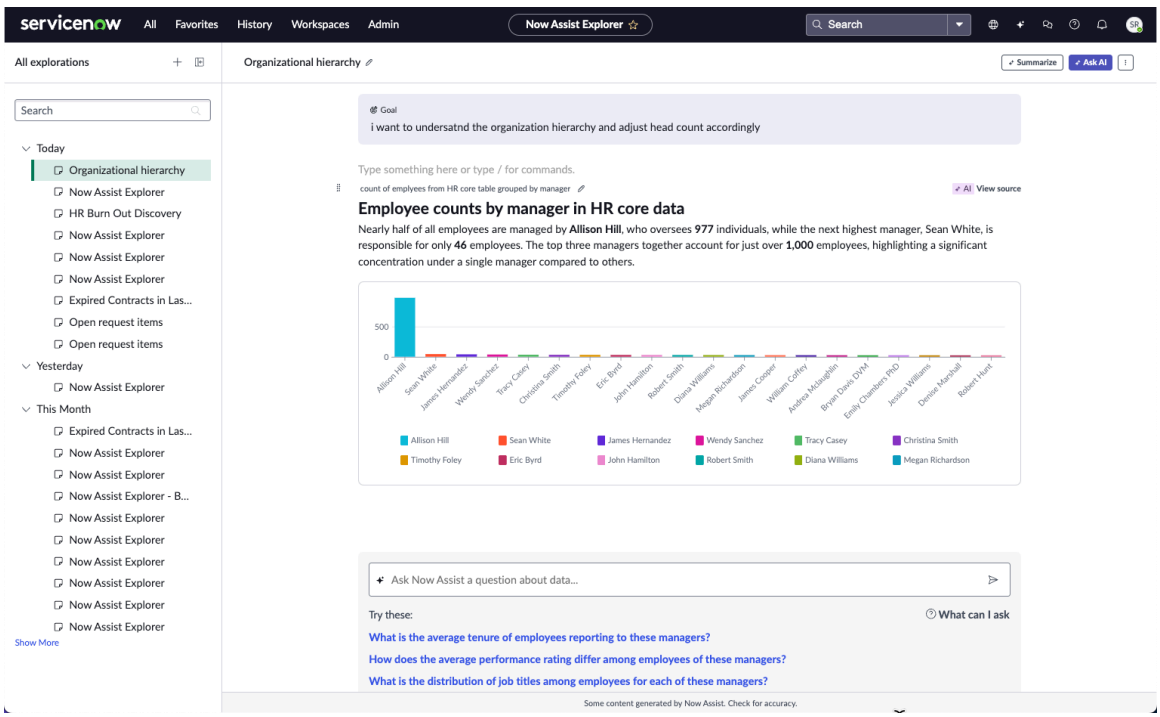
Explore the many options for showing data in data visualizations. Create, modify, and share dashboards. Filter the data that is shown on a dashboard. Receive insights on your dashboards about potentially significant events in the data. Explore indicators of process behavior with KPI Details, and be alerted to significant changes in these indicators through KPI Signals.

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Now Assist in Platform Analytics

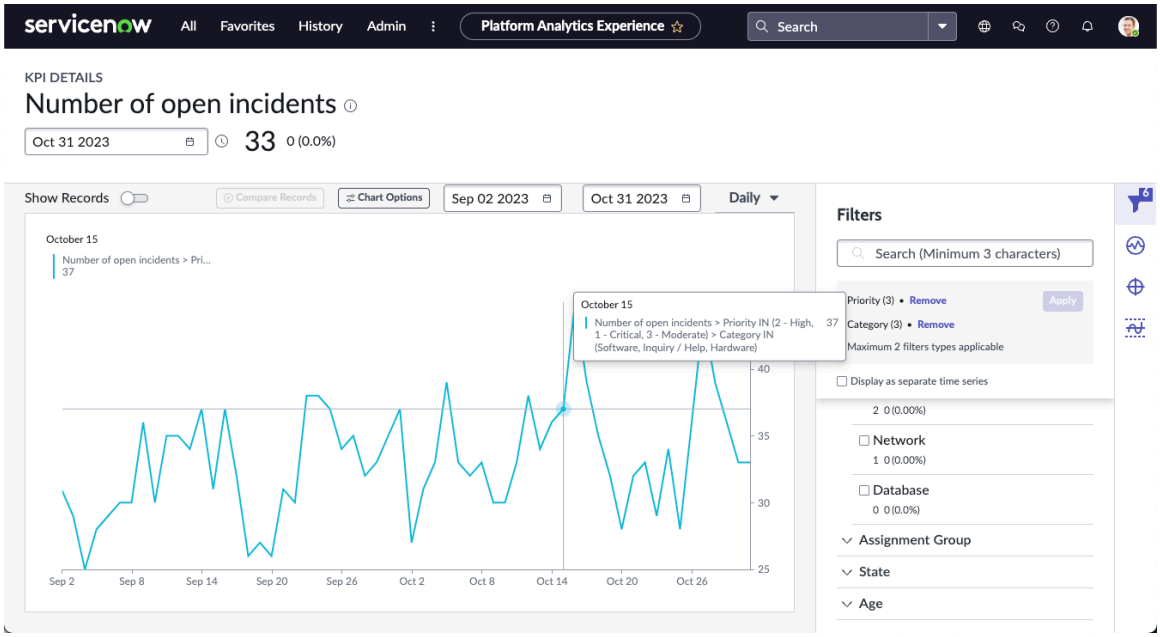
Leverage AI to generate insights into data. Ask for data visualizations in the Now Assist panel. Explore data on your own or with a collaborative group in AI Data Explorer, where you can have not only data visualizations but summaries and conversations.



Performance Analytics indicators

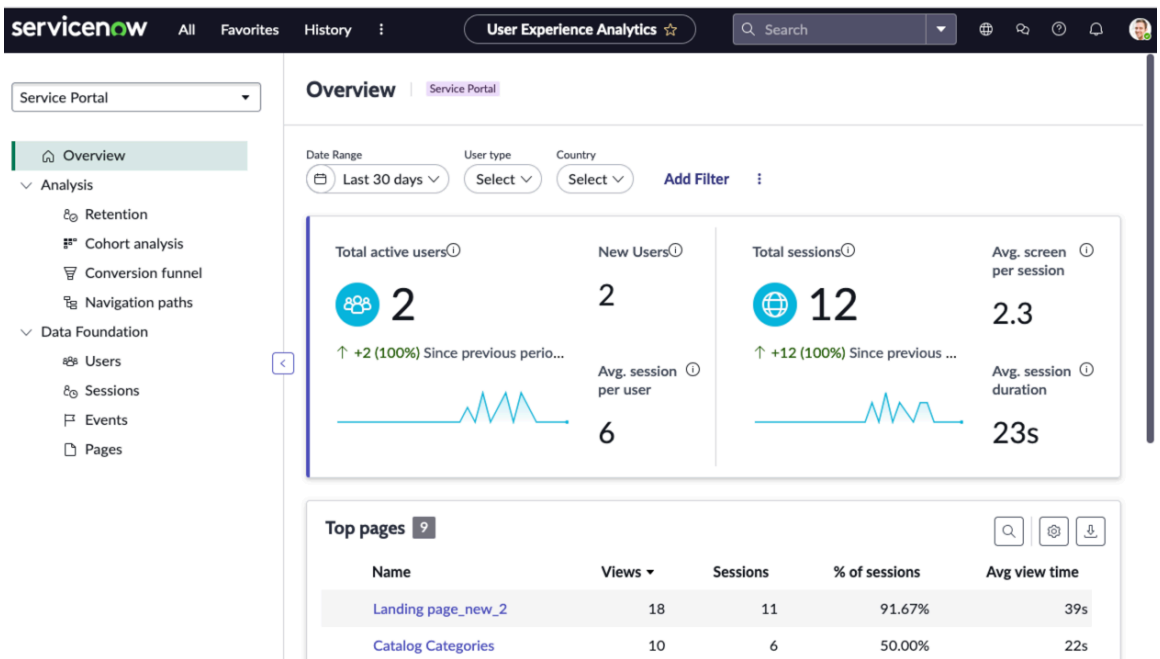
Learn how to help your business constantly improve. Plan and implement key performance indicators using Performance Analytics fundamentals. Go further by configuring advanced features, to work directly with data structures as an administrator.

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User Experience Analytics

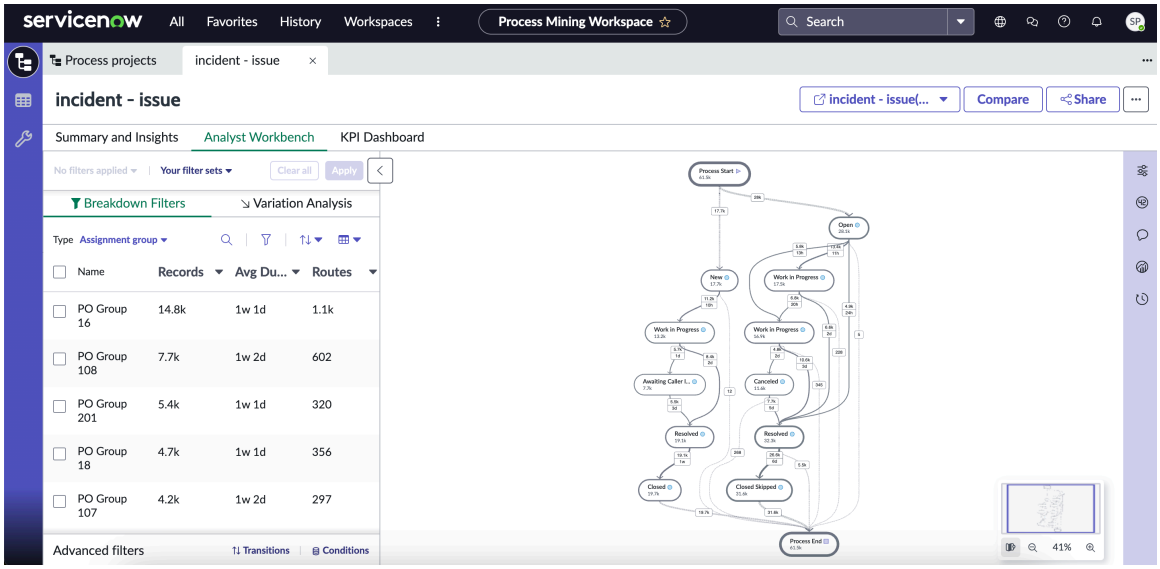
Learn about dashboard-based analytics on the usage of several ServiceNow applications. Administrators can get information on user engagement with both mobile and web applications, including user population, retention, and behavior.



Process Mining

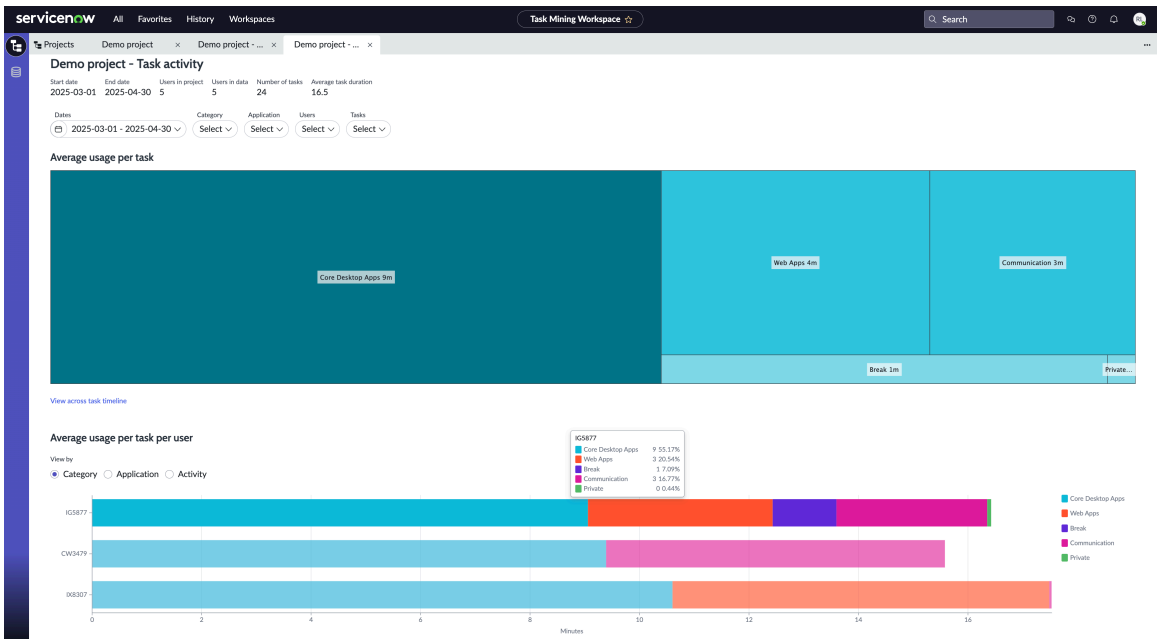
Discover ways to streamline your business, find bottlenecks and deviations in workflows, filter and compare processes, and more. A comprehensive listing of Process Mining key terms provides all the notable terminology and their definitions, to assist you in getting the most effective performance from your enterprise.

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Analysis in Task Mining

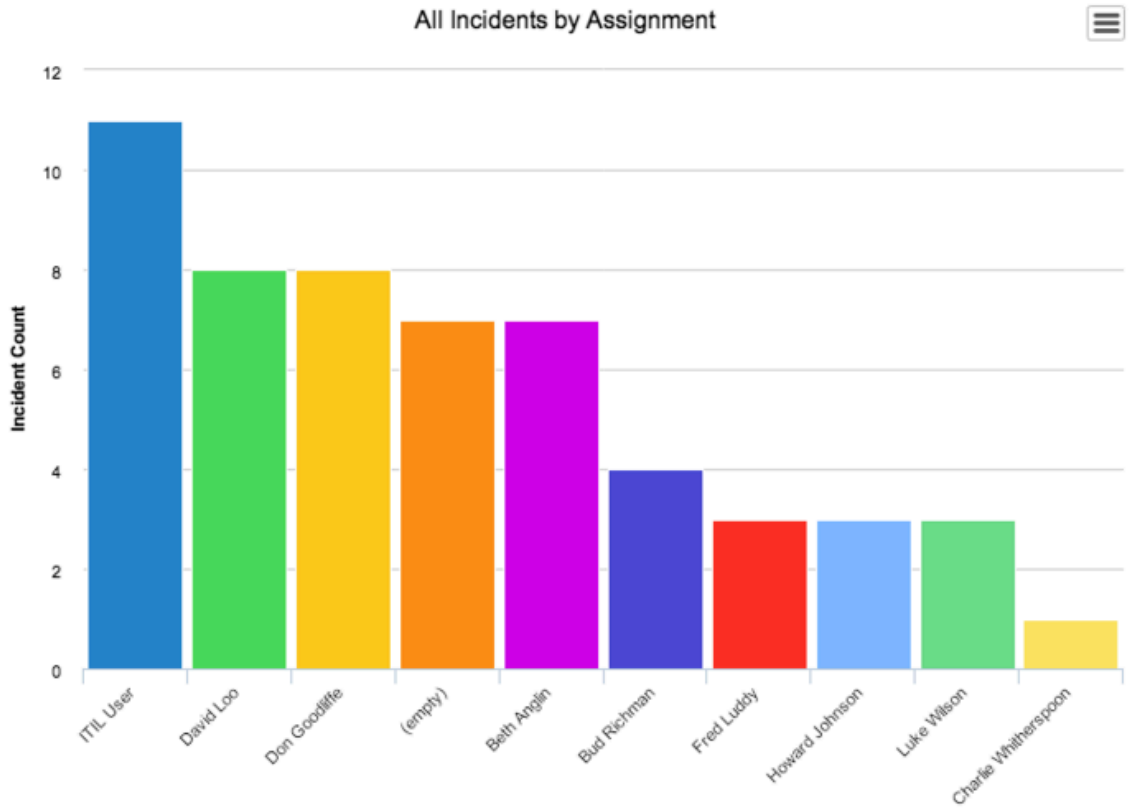
Learn how Task Mining helps process owners collect and analyze workstation activities to understand how tasks are performed, identify inefficiencies, and make data-driven decisions.



Reports and dashboards in the Core UI

Give administrators and other stakeholders the ability to work with real-time data reports and analyze trends, using Core UI dashboards. Create and define Performance Analytics widgets, and configure the quick-view dashboards that use those visualizations, to suit your data and your business goals. Use the Analytics Hub to perform in-depth data exploration, examine activity over time, compare scores versus benchmarks, and analyze other various targets and trends as optional add-ons.

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Applications and features

- Platform Analytics Migration Center
- Dashboards in Platform Analytics
- Data visualizations in Platform Analytics
- Use AI to explore data with AI Data Explorer
- Create visualizations conversationally in the Now Assist panel
- Performance Analytics indicators
- Indicator breakdowns
- Design your Performance Analytics solution with KPI Composer
- Explore your indicators with KPI Details
- Analytics solutions
- User Experience Analytics
- Process Mining
- Task Mining
- Reporting, dashboards, and Performance Analytics in the Core UI
- Identify workflow automation opportunities with Automation Discovery

Platform Analytics experience

Distribute and consume Platform Analytics through data visualizations and dashboards with optional filters. Explore KPIs and receive insights into significant events in the data.

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The Platform Analytics experience is a unified interface for visualizing data from multiple data sources. Access it in Unified Navigation at **All** > **Platform Analytics**.

Note:
To learn more about Platform Analytics and the Migration Center, see the Platform Analytics enablement toolkit on the ServiceNow Community.

The Platform Analytics experience has two main sections:

Analytics Center

This page displays all your bookmarked and company-certified dashboards and data visualizations. It also contains Analytics Q&A, a field where you can ask a question using natural language and be shown the relevant analytics in a visualization.

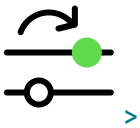
Library

The library is a set of pages listing all the Platform Analytics visual components that you can access, along with utilities that apply to these components. You can also create your own dashboards, data visualizations, and filters. With the appropriate roles, you can add the components you create to the shared library.

Note:
You can add an Analytics Center with tabs for library content to your own configurable workspace. For more information, see Creating Platform Analytics pages in your own workspace.

Platform Analytics Dashboards	Data visualizations	Platform Analytics filters
		
View all the dashboards you have rights to access, and filter them by those you've created, those you've bookmarked, and those that are certified. Create your own dashboards and potentially share them with others.	Create, update, certify, and share visualizations based on tables, indicators, or other data to share with others.	Filter lists and data visualizations on a dashboard by data value, by whether the value is true or false, or by date.

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KPI Details	KPI Signals	Reference
		
Delve into the information behind your Key Performance Indicator (KPI) scores. See trends, forecasts, and associated records. Experiment with different breakdowns and time aggregations.	Learn when a business process behaves in an unexpected way. Notify responsible users when a KPI score changes significantly.	Data caching, roles, and tables across the Platform Analytics experience

Platform Analytics Migration Center

When you migrate your Core UI data, your existing dashboards, reports, interactive filters, and Performance Analytics widgets are moved to Platform Analytics. When you activate the migration, the result is a single set of visualizations and unified filters for all data sources.

Note:

To learn more about Platform Analytics and the Migration Center, see the Platform Analytics enablement toolkit on the ServiceNow Community.

https://player.vimeo.com/video/1083649726?h=d39df02a2f&badge=0&autopause=0&player_id=0&app_id=58479

The Migration Center is only available when Next Experience is enabled. To enable Next Experience, set the value of the `glide.ui.polaris.experience` property to true.

Once migration is complete, you won't be able to add Core UI reports, PA widgets and filters to Platform Analytics experience dashboards. It is possible to add only migrated content and content created within Platform Analytics experience to these dashboards.

What is migrated

The migration process takes your dashboard content and migrates it from Core UI (Dashboards and visualizations in the classic environment) to the Platform Analytics library. You then access all of your analytics through a unified navigation menu. If you use indicators, you get tools to alert you of significant changes.

Note:
When you upgrade releases, the Migration Center automatically migrates any previously incompatible content that is now compatible.

What isn't migrated

The short answer is that almost everything is migrated. Most Core UI dashboard content is supported in Platform Analytics. Some content doesn’t have an analogous Platform Analytics feature and is migrated into containers, also called iframes. This is called Compatibility mode. For detailed information about content migrated into iframes and the few items that aren’t migrated at all, see Content not migrated or migrated in compatibility mode.

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What is the migration process

The migration process has the following steps.

Remove unused dashboards

Remove any unused dashboards and reports to promote a streamlined process.

- Navigate to pa_dashboards.list, select the dashboards you want to delete, and then select **Actions on selected rows** > **Delete**.
- Navigate to **All** > **Reports** > **Administration** > **All**, select the reports you want to delete, and then select **Actions on selected rows** > **Delete**.

Run the migration procedure

The procedure identifies what can be migrated directly into Platform Analytics and what is migrated in Compatibility Mode.

Review the migration results

You may identify dashboards or other content that you don't want to migrate, for example, unused dashboards, out-of-date visualizations, or filters that don't work as expected.

Activate the migration

Activation might be time-consuming, depending on how much content you are migrating.

Create custom content

You can use tools such as UI Builder to create custom content that meets the needs of content that doesn't migrate.

What happens to my menus

Before migration, users navigated to **Self Service** > **Dashboards** to view the dashboard overview and to **Reports** > **View / Run** to view the list of reports. After you activate the migration, all analytics content, including dashboards, data visualizations, filters, and KPIs are under **Platform Analytics** > **Library**.

Block Migration Options

You can disable the **Start Moving** and **Activate** Platform Analytics experience options. Create the system property `com.glide.par.coreui.migration.enabled` and set it to `False`. If you set the property to `False` before you migrate any content, both options are disabled. If you set the property to false after you migrate your content, only the **Activate** button is disabled.

If you want to start the migration and view what artifacts are in compatibility mode, and resolve any issues, set the property to `False` after you run the migration to prevent activation of Platform Analytics experience. If you want to prevent the migration process, set the property to `False` first.

For more information, see Add a system property.

Perform full data migration

Migrate your existing dashboards, reports, interactive filters, and Performance Analytics widgets to the Platform Analytics experience.

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Before you begin

Role required: To perform the full migration and activate Platform Analytics experience: admin. Users with other admin roles (pa_admin, report_admin, and dashboard_admin) have access to the Migration Center to evaluate the migration.

The Migration Center is only available when Next Experience is enabled. To enable Next Experience, set the value of the *glide.ui.polaris.experience* property to true.

About this task

This topic assumes that your instance is not a net new Xanadu or Yokohama instance. The Migration Center is only available on upgrading instances.

Run and test the migration on a single, non-production instance. After you're satisfied with the results of a full test migration, launch the migration on the production instance. Select **Try your content** to test the output on a limited number of dashboards.

Note:

If you change a Core UI dashboard after migration and migrate it again, the changed dashboard overwrites the originally migrated dashboard.

If you change a report, and perform full data migration again, the changed Core UI report overwrites the originally migrated content, and any changes you have made to the associated Platform Analytics experience visualization. Changed Core UI reports do not overwrite changes when you perform a partial migration of Core UI dashboards.

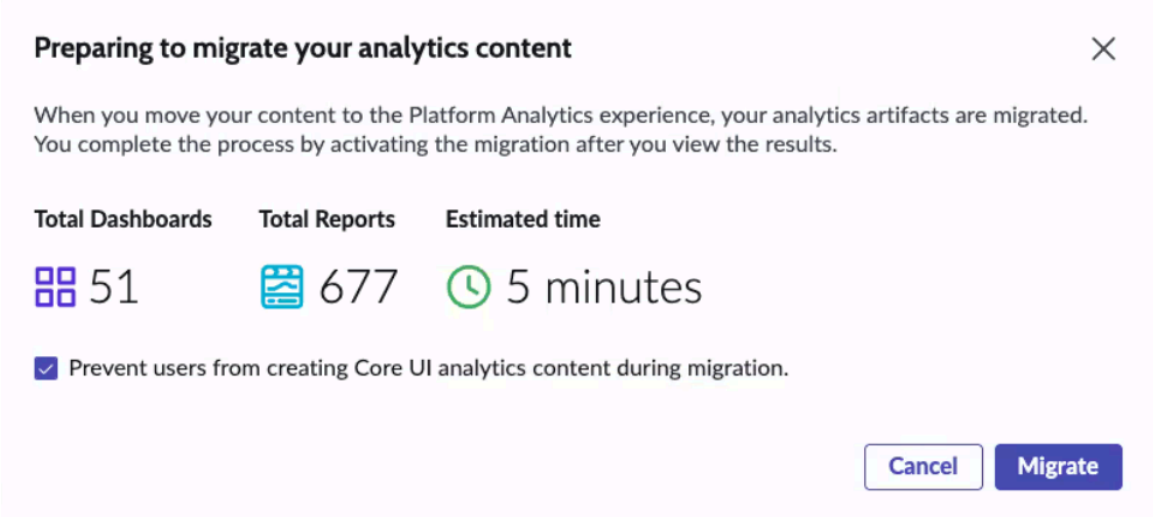
You cannot move the migrated material from a non-production instance to a production instance.

Dashboards with visualizations or other widgets migrated in compatibility mode may experience performance issues.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Migration Center**.
2. Review the information about the migration process under Learn about Platform Analytics Experience.
   The tabs provide more information about the migration process and what you can expect from Platform Analytics.
3. Select **Start moving** to migrate all of your content.
   The length of the migration process depends on the number of dashboards, reports, filters, and Performance Analytics widgets you have on your instance.

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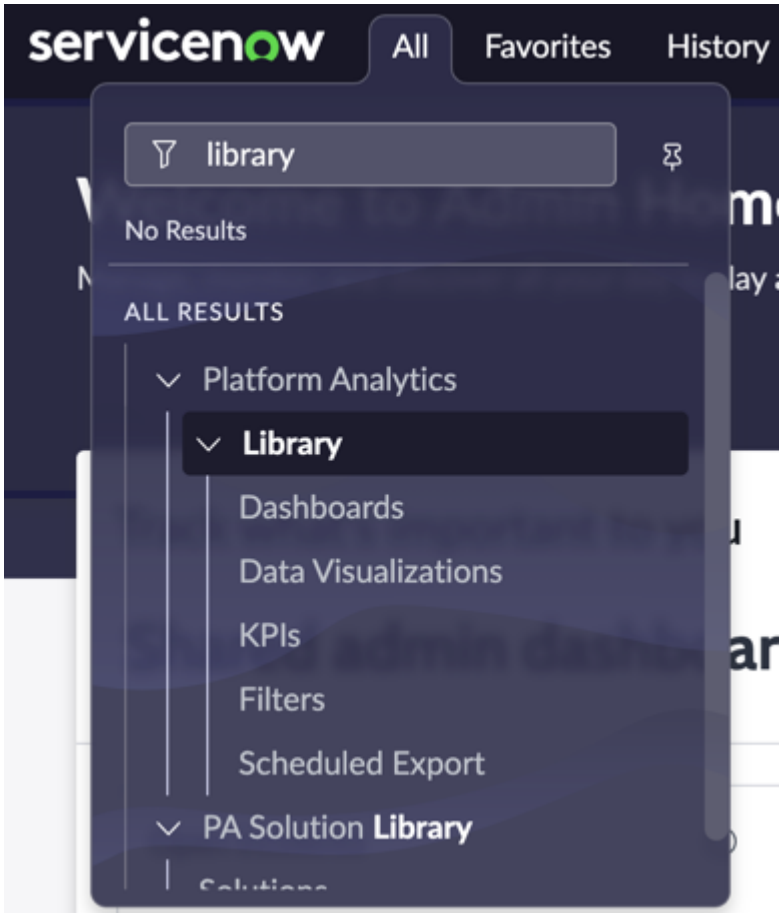


4. **Optional:** Select **Prevent users from creating Core UI analytics during migration**.
   New Core UI analytics content may need to be migrated at a later time.
5. Select **Migrate** to start the migration process.
6. Evaluate the results.
7. Select **Activate** to complete the migration process.
   The newly migrated content is not available in the Platform Analytics experience until you select **Activate**. Any menu item previously connected to Core UI dashboards and reports automatically redirects to the new migrated version.

Result

Your dashboards and other migrated content are now found under the library. Navigate to **All** > **Platform Analytics** > **Library**.

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What to do next
Evaluate full data migration

Evaluate full data migration

When you have completed the migration process, review the results.

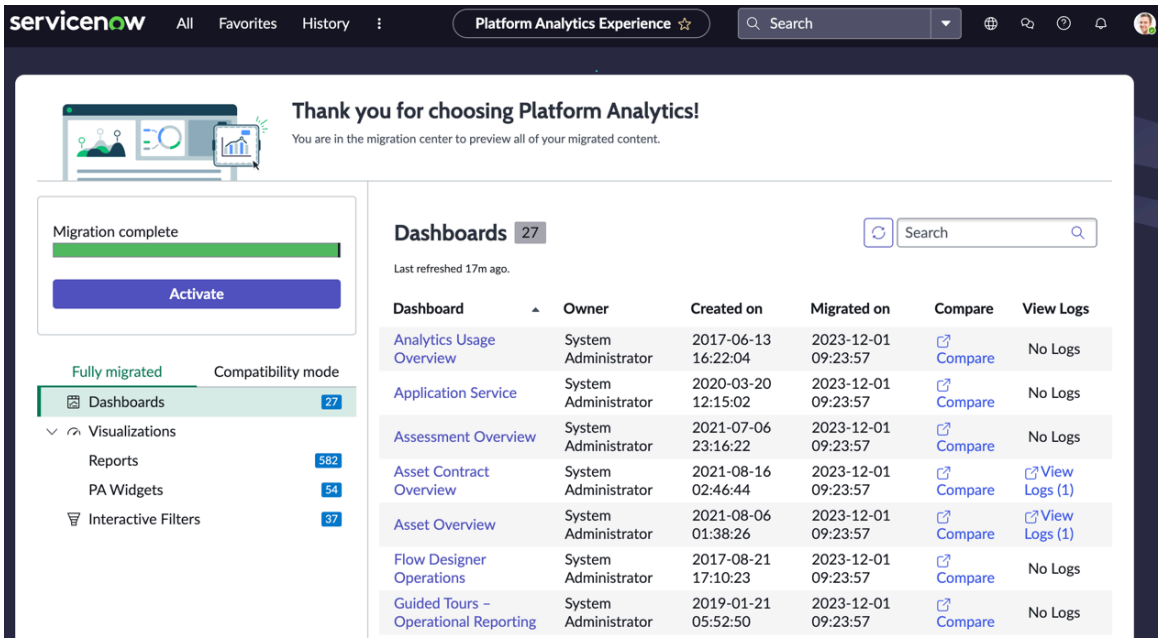
Before you begin
Role required: To perform the full migration and activate Platform Analytics experience: admin. Users with other admin roles (pa_admin, report_admin, and dashboard_admin) have access to the Migration Center to evaluate the migration.

About this task
As soon as your data has been migrated, you see the results of the migration. Review the fully migrated content and the content migrated in compatibility mode. You can compare all migrated content with the original Core UI versions.

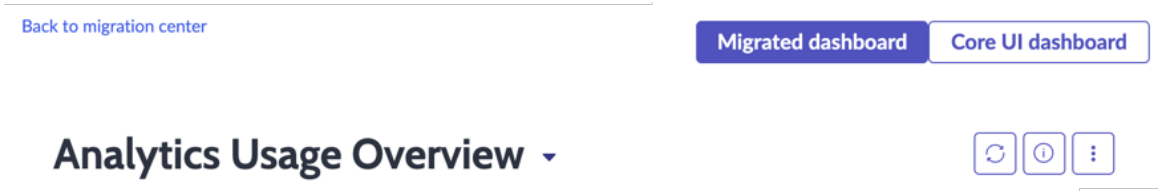
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Procedure

1. In the Migration Center, select an item from the Fully migrated column, Dashboards, Visualizations, Reports, PA Widgets, or Interactive Filters to review a list of all of the migrated items.



2. Choose the **Compare** link for any dashboard to see the Core UI and migrated content back to back.



3. Select the **Compatibility mode** tab to compare content in the Core UI dashboard and the content migrated in compatibility mode.
   Pay close attention to the dashboards with content blocks and **Other** content. These are likely to need further changes in the migrated dashboard to support those widgets.
4. Select View Logs links to review issues associated with each migrated element.
5. Select **Activate** to complete the migration process.
   Any menu item previously connected to Core UI dashboards and reports automatically redirects to the new migrated version.

   Both Core UI and Platform Analytics experience dashboards and visualizations sit side by side in the Platform Analytics library.

Relaunch data migration

Relaunch migration when Core UI content is changed after full data and when earlier unsupported functionality becomes supported in the Platform Analytics experience.

About this task

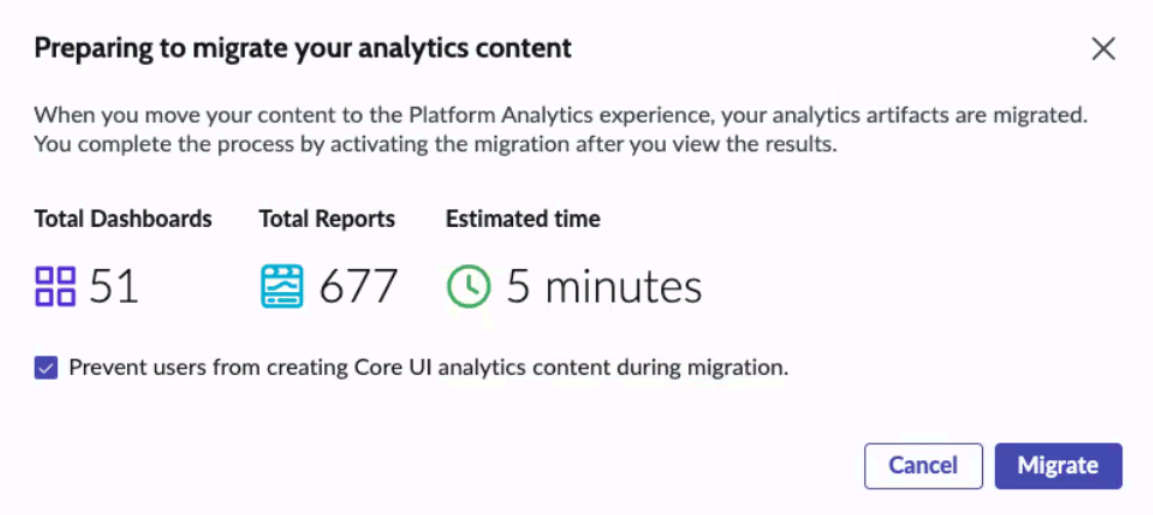
When there are modified artifacts, new content, or newly supported content to migrate, a banner is shown in the Migration Center with a button labeled **Migrate again**.

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Note:
When you upgrade releases, the Migration Center automatically migrates any previously incompatible content that is now compatible.

Before you begin
Role required: admin.

Procedure
1. Navigate to **All** > **Platform Analytics Administration** > **Migration Center**.
2. Select **Migrate again**.
   The length of the migration process depends on the number of new artifacts that you have on your instance.



3. **Optional:** Select **Prevent users from creating Core UI analytics during migration**.

Result
The changed and new content is migrated to Platform Analytics experience.

What to do next
Evaluate the newly migrated content. For more information, see Evaluate full data migration.

Migrated artifact locations

After data migration, your artifacts such as dashboards, visualizations, and filters, reside in different tables in your instance.

Users with the admin, pa_admin, report_admin, or dashboard_admin roles have access to the migrated artefact tables.

In addition to these tables, snpar_sched_export_v_scheduled_export_visualization is a virtual table for the scheduled export UI form.

Functionality	Core UI table	Platform Analytics experience table
Dashboards	pa_dashboards	par_dashboard
Dashboard groups	pa_dashboards_group	analytics_category
Reports	sys_report	par_visualization

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Functionality	Core UI table	Platform Analytics experience table
PA widgets	pa_widgets	par_visualization
Interactive filters	sys_ui_hp_publisher	par_component_filter
Scheduled reports	sysauto_report	sysauto_par, par_export_visualization, par_notification_email

Migration log locations

A set of logs is stored for each dashboard, report, filter, and dashboard element (widget) in the bridging tables.

Users with the admin, pa_admin, report_admin, or dashboard_admin roles have access to the Migration logs. You can view the logs from within the Migration Center or navigate to the associated list to review them.

Log	Type
par_coreui_migration_bridge_dashboard.list	Dashboard logs
par_coreui_migration_bridge_sysauto.list	Scheduled export logs
par_coreui_migration_bridge_widget.list	Migrated dashboard element logs
par_coreui_migration_bridge_component.list	Logs associated with reports, PA widgets, and filters when migrated outside of a dashboard

Note:
Logs may be empty as only negative events such as incompatibilities are logged.

Perform a partial migration of dashboards

Migrate a selection of your existing dashboards, reports, interactive filters, and Performance Analytics widgets to Platform Analytics. Migration works the same whether you choose to migrate some or all of your content. However, you can move some of your content to evaluate the process or when you have a large number of dashboards and want to migrate in segments.

Before you begin

Role required: admin or dashboard_admin.

About this task

Run and test the migration first on a single, non-production instance. After you're satisfied with the results, launch the migration on the production instance.

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Note:
When you perform a partial migration, artifacts such as reports, pa widgets, and filters are not saved in the Platform Analytics library. These artifacts are only migrated to the library when you perform a full migration.

When you perform a partial migration, the original Core UI dashboard is marked inactive and a new dashboard is created in Platform Analytics experience. Note that if you navigate to the Core UI dashboard, there is no redirect to the migrated dashboard after a partial migration.

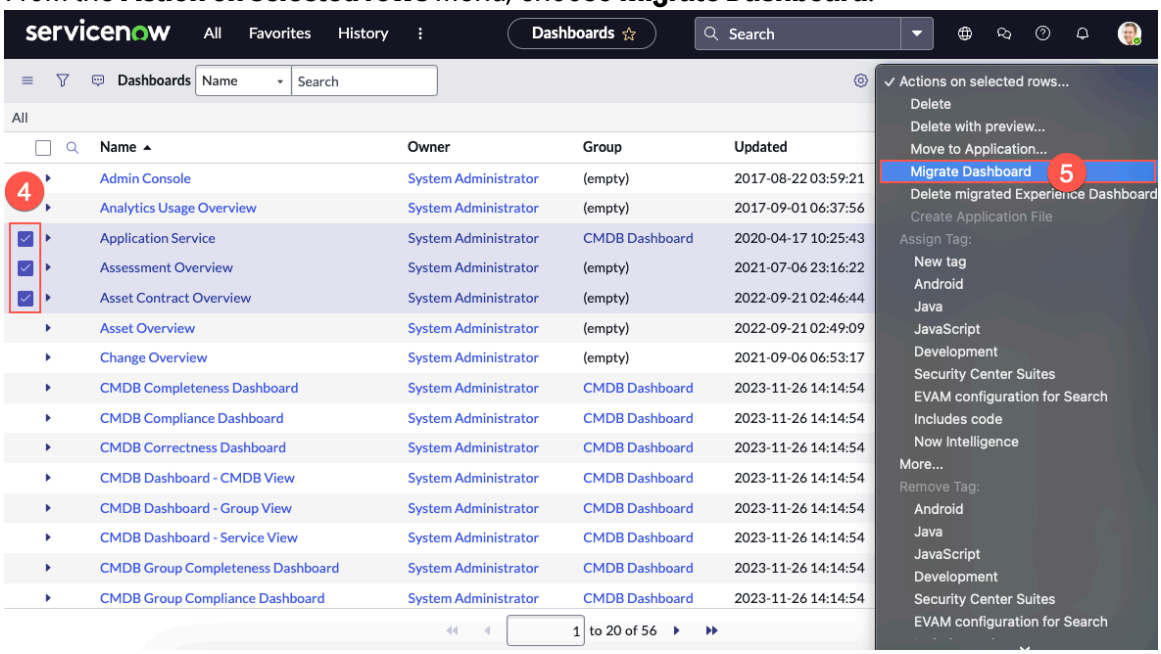
If you change a Core UI dashboard after migration and migrate it again, the changed dashboard overwrites the originally migrated dashboard.

You cannot move the migrated artifacts from a non-production instance to a production instance.

If you delete a migrated dashboard, that dashboard isn't migrated if full migration is performed on your instance. You can migrate it again using the steps in this topic. If you want to remigrate a Core UI dashboard, be sure to delete the existing migrated dashboard to avoid duplicating dashboard content.

Procedure

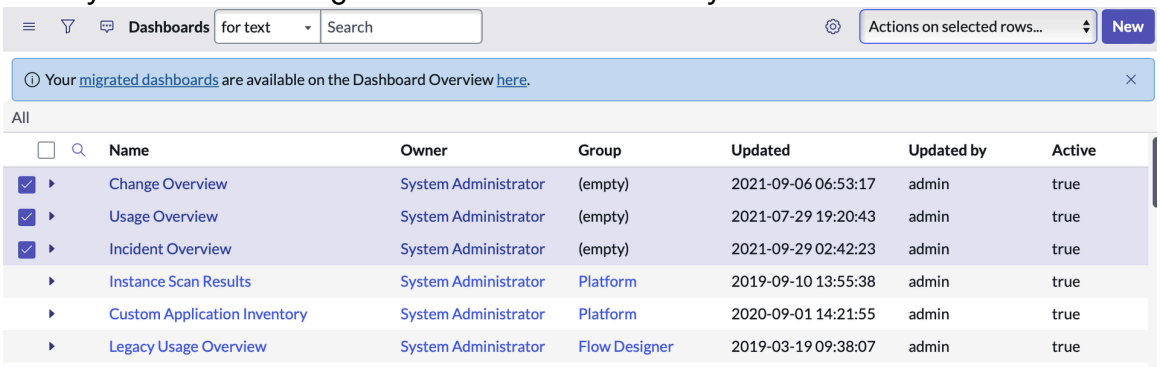
1. Navigate to **All** > **Performance Analytics** > **Migration Center**.
   If you're already familiar with the migration process, navigate to `pa_dashboards.list` and follow the instructions from step 4.
2. Review the information about the migration process under Learn about Platform Analytics.
3. Select **Try your content** to choose a subset of your data to Platform Analytics.
4. On the Dashboards list, select the dashboards you want to migrate.
5. From the **Action on selected rows** menu, choose **Migrate Dashboard**.



6. When the migration is complete, select the banner link to view the migrated dashboards on the dashboard overview.

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The first link takes you to the PAR Dashboards list. You can review the dashboards' forms there. The second takes you to the Dashboard Overview where you can view the migrated dashboards in the Analytics Center.



What to do next

Verify that the migrated dashboards have all the features of the Core UI dashboards, either as fully migrated content or as iframed content. For more information, see Content not migrated or migrated in compatibility mode.

Block migration of specific artifacts

Before you perform full migration, you can flag artifacts to be excluded from the migration process.

Before you begin

Role required: admin.

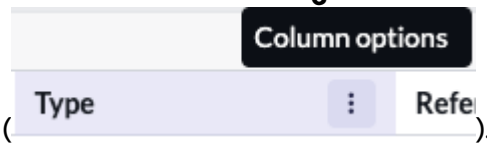
Procedure

1. Navigate to one of the following tables to select artifacts.

Table	Content
sys_report.list	Core UI data visualizations (reports)
pa_widgets.list	Performance analytics widgets
sys_ui_hp_publisher.list	Interactive filters
pa_dashboards.list	Responsive dashboards

2. Select the **Personalize List** icon ( ) to add columns to the list.
3. Move **Do not migrate in bulk** to the **Selected** column.
4. In the column **Do not migrate in bulk**, change the flag from false to true for the artifacts you want to exclude.
   You can select multiple consecutive or non-consecutive fields. For more information, see Edit multiple records in a list using the list editor .
5. **Optional:** If you can't change the flag, edit the list control for the column.

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a. Hover over the **Do not migrate in bulk** column title and expand the **Column options** (

).

b. Select **Configure** > **List Control**.

c. Change the List edit type field from `Disable list editing` to `Save data by rows`.

d. Select **Update**.
You can now change the flag in the **Do not migrate in bulk** column.

Result

When you perform a full data migration, the selected artifacts are excluded. You won't see the excluded content in the associated lists when you trigger the full migration.

What to do next

Navigate to **All** > **Performance Analytics** > **Migration Center** to proceed with migrating the other artifacts on your instance. For more information, see Perform full data migration.

Content not migrated or migrated in compatibility mode

Most dashboard content is migrated to the new Platform Analytics experience. However, some visualizations, aspects of visualizations, and filters are inserted in the migrated dashboard as embedded content (iframes), also known as compatibility mode. Some configurations are not migrated at all.

Note:
If you have already migrated to Platform Analytics experience, the Migration Center automatically migrates any previously incompatible content that is now compatible when you upgrade releases.

Not migrated

Generic dashboard configurations that are not migrated:

- Widget header and title colors
- Widget title alignment

Filters that are not migrated

- Group filter
- Debug filter
- Filter user preferences from dashboards
- Cascading filters that support the Choice > Choice configuration
- Filtered list content. For more information on List filters, see Create a filter in List.

Visualization configurations that are not migrated:

- Export to PNG/JPEG on the chart itself from dashboard.
- Report drilldown into another report on partial migrations.

  Report drilldown into another report is supported on full migration.

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- Progress bars for Percent Complete fields in Simple list visualizations.
- Restriction of dashboard access to specific roles.

Indicators/Breakdown Scorecard elements that are not migrated:

- Show Distribution
- Show Bullet chart

Calendar component elements that are not migrated:

- Year view
- Highlighting based on

Compatibility mode migrations

Migration in compatibility mode means that the original artifacts are inserted into the migrated dashboard in iframes. The original content is not changed or moved.

All custom interactive filters, custom content blocks, gauges, and gadgets are migrated in compatibility mode, as iframes.

All other content that is not a Performance Analytics widget, report, or interactive filter is migrated in compatibility mode, as iframes.

Note:
Dashboards with visualizations or other widgets migrated in compatibility mode may experience performance issues.

Custom interactive filters are migrated in compatibility mode, but may not work on the migrated dashboard. If the custom functionality is required, roll the dashboard back to the Core UI version.

Generic configurations

Generic visualization configurations migrated in compatibility mode:

- Sort by dot-walked fields
- Reporting on variables/questions
- List default drilldown view configured in Report Designer
- Breakdown element = empty for breakdowns based on choice field
- Sort by Performance Analytics breakdown based on choice field order
- Single score with compare X period back
- Pivot scorecard support for element filter
- Group by based on duration fields
- Different follow filters for related indicators on the Indicator scorecard and visualizations
- Hierarchy breakdown support on filters/data visualizations

List scorecard configurations

List scorecard configurations migrated in compatibility mode:

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- Show Key indicators
- Filter based on: Best Performing, Worst Performing, Improved, Deteriorated
- Different follow filters on additional indicators

Other scorecard configurations

Scorecard widgets with multiple widget indicators that have different time series aggregations are migrated in compatibility mode.

Reports

Reports migrated in compatibility mode:

- Control
- Trendbox
- Histogram
- Funnel
- Pyramid
- Geomap

Performance Analytics widgets

Performance Analytics widgets migrated in compatibility mode:

- Workbench
- Text Analytics
- Treemap
- Previous period charts
- Spider
- Funnel
- Pyramid
- Relative compare

Roll back migrated dashboards

Convert a migrated Platform Analytics dashboard back to a Core UI dashboard.

About this task

You can return unchanged Platform Analytics dashboards to the Core UI format, but the content is iframed. This is useful when a dashboard has custom charts, custom content blocks, or custom interactive filters.

Note:
It is not possible to roll back dashboards created in UI Builder (also known as technical or advanced dashboards).

Before you begin

Role required: dashboard_admin

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Procedure

1. Navigate to `par_dashboard.list`.
2. Check one or more boxes next to the names of dashboards on the list.
   Technical dashboards are identified with the phrase Advanced Dashboards in the Experience column. You cannot roll these back to Core UI dashboards.
3. Select Rollback from the **Action on selected rows** menu.

Result

The version of the rolled back dashboard that is shown as **Active** in the Dashboard library is the Core UI version, not the version of the dashboard migrated to Platform Analytics experience version.

Migrate non-responsive dashboards

Non-responsive dashboards that no one has opened migrate to the Platform Analytics experience with empty tabs. Open these dashboards in the Core UI before migration to populate them.

Before you begin

Role required: admin

Unopened non-responsive dashboards have empty canvas pages. This issue affects solutions dashboards as well as dashboards that users create. Opening the dashboard creates the canvas page that the Migration Center looks for. Once the canvas pages are created, re-trigger the migration to create the Platform Analytics experience version of the dashboard.

Procedure

1. Navigate to `pa_dashboards.list`.
2. Open each of the problematic non-responsive dashboards.
3. Perform full data migration to migrate these dashboards to Platform Analytics experience.

Dashboards in Platform Analytics

Dashboards are canvasses for organizing and sharing data visually. They contain data visualizations, filters, and other visual elements.

Overview of creating and populating Platform Analytics experience dashboards including library content, new visualizations, and filters.

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Get started

Explore  Guide to the layouts and content of a dashboard and how to find a dashboard in the library	Create, edit, share  Procedures for performing the most common dashboard tasks	Configure  Set refresh periods and other one-time settings as an owner or administrator
Proactive analytics Insights  Automate the extraction of insights from your indicator data sources	Technical dashboards  Create dashboards as UI Builder pages, with all of UI Builder's customizability and complexity. Developers only.	Reference  Roles and translatable fields

Troubleshoot and get help

- Ask questions and explore other resources for dashboards and Platform Analytics in general in the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Exploring Platform Analytics dashboards

Use Platform Analytics dashboards to access, organize, and share data in a visual format.

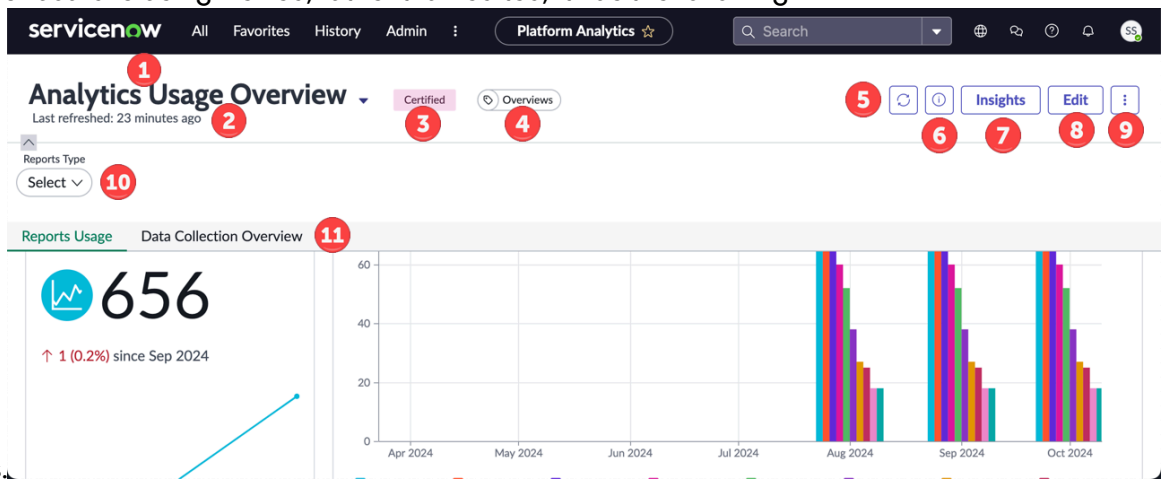
Finding dashboards

You can find the dashboards by opening the **All** tab to access Unified Navigation and entering `Dashboard` in the search bar. For more information, see Dashboards in the library.

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Dashboard components

When the dashboard is being viewed, rather than edited, it has the following components.



1. Dashboard title
2. Refresh information

   Indicates how long ago the dashboard was refreshed. Admins can configure refresh intervals. For more information, see Configure Platform Analytics dashboard settings.
3. Certification badge

   Certification indicates that the dashboard is company-approved and recommended for use.
4. Category badge

   Categories are terms or phrases describing one ore more dashboards provided by its creator or the analytics_categories_admin.
5. Refresh button

   Select to refresh all of the visualizations on the dashboard.
6. Details button

   Select to show ownership and sharing information about the dashboard. To learn more, see Configure Platform Analytics dashboard details.
7. Insights button

   Shows configured insights cards. For more information, see Proactive analytics insights on dashboards.
8. Edit button

   Enables users who own or who have been given edit rights to edit the content on the dashboard.
9. More actions button

   Opens menu to create a dashboard, duplicate, share, and print the dashboard, clear the filters, as well as bookmark, and delete the dashboard.
10. Top stage

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Elements in this section are visible no matter which tab has focus. Filters in this section apply to visualizations on all of the tabs.

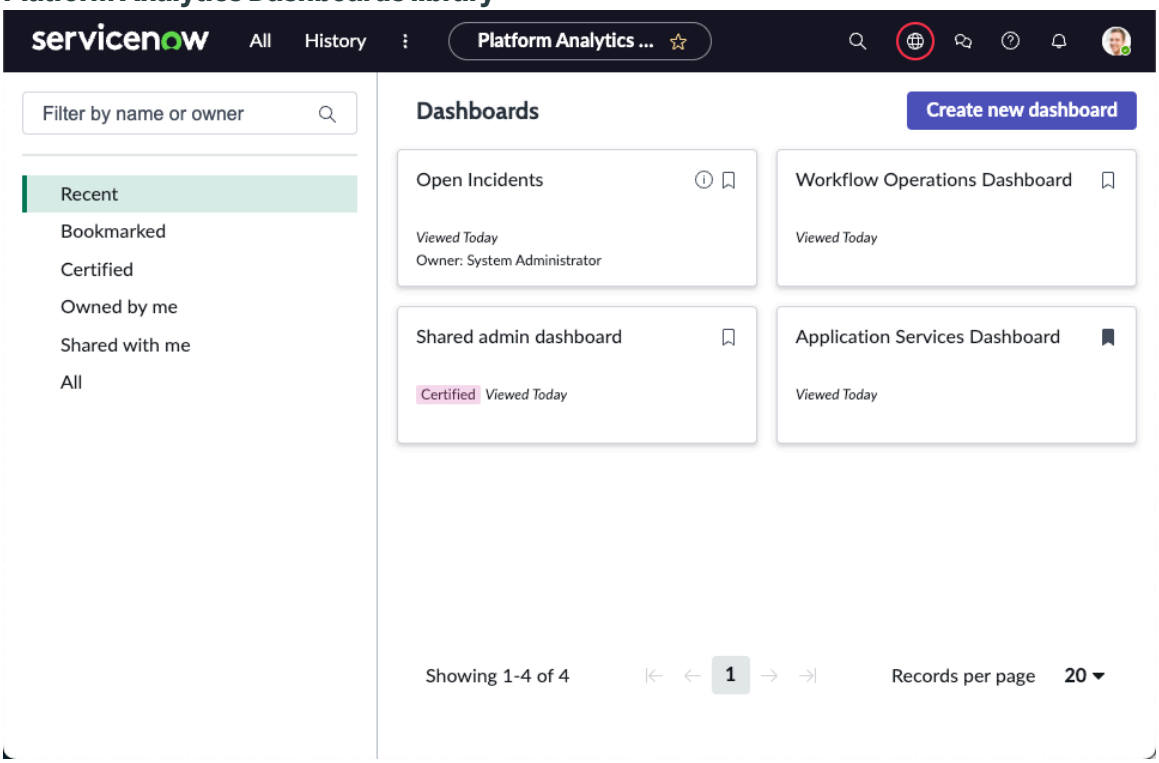
11. Tabs

    Tabs help you to manage information on your dashboard and keep related information in the same place.

Dashboards in the library

To find dashboards in Platform Analytics, navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.

Platform Analytics Dashboards library



Dashboards overview tiles

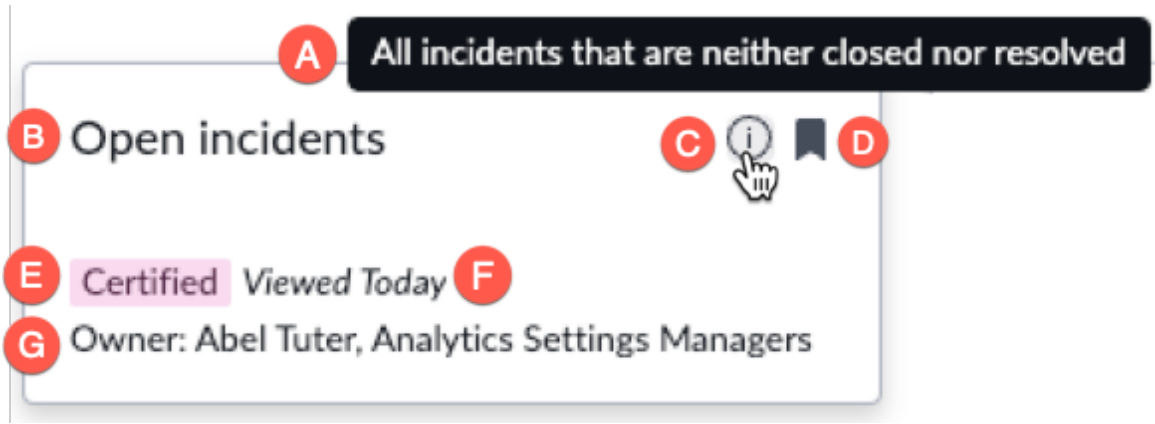
Each section of the Dashboards page shows up to 20 dashboard tiles at a time. You can filter the tiles on the Dashboards tab to show:

- **Recent** shows the most recent dashboards that you've viewed. The tile shows when you last opened the dashboard.
- **Bookmarked** shows only your bookmarked dashboards. Bookmark dashboards that you have access to so that you can find them easily here. For more information about bookmarking dashboards, see Bookmark a Platform Analytics dashboard.
- **Certified** shows only the dashboards that an administrator has certified. For more information, see Certify a Platform Analytics dashboard.
- **Created by me** shows the dashboards that you've created.
- **Shared with me** shows dashboards that other users have shared with you.
- **All** shows all the dashboards that you have access to.

Dashboard tiles show the following information:

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- A A description, in a tooltip, if a description has been written
- B The title of the dashboard
- C An information icon, present only if a description has been written for the dashboard, which opens the description tooltip A
- D A bookmark icon, which is solid if the dashboard is bookmarked and clear if it is not
- E A certification badge, if the dashboard is certified
- F In the **Recents** view only, the date when the dashboard was last viewed
- G, The names of the dashboard owners, both users and groups



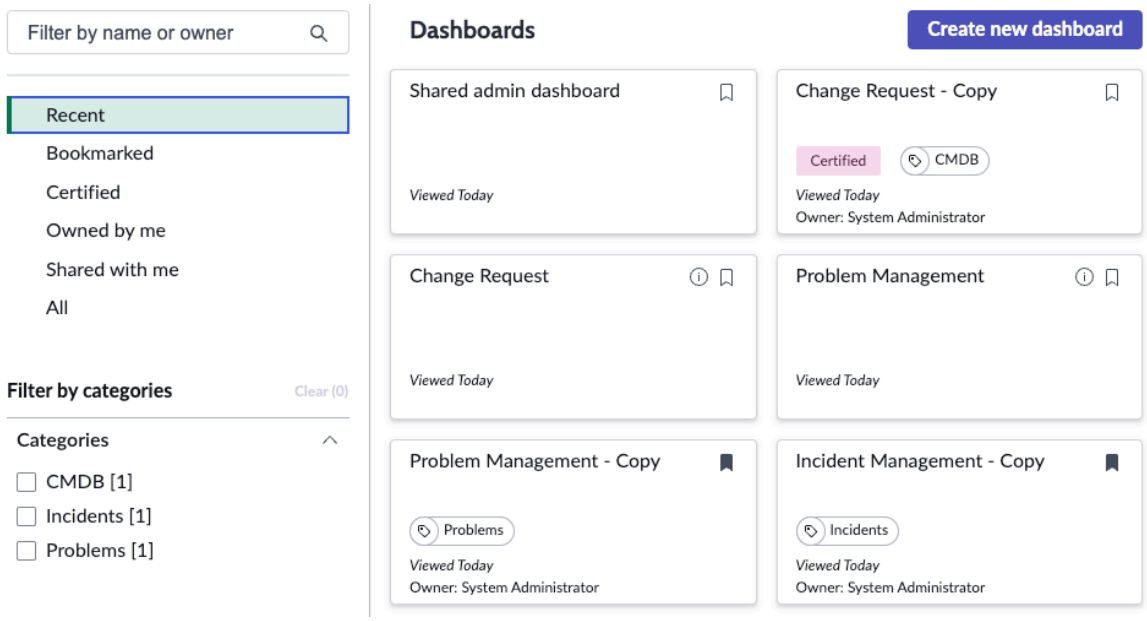
Finding Next Experience dashboards

You can located dashboards in the library's dashboard overview and using the picker on an individual dashboard.

Dashboards in the library

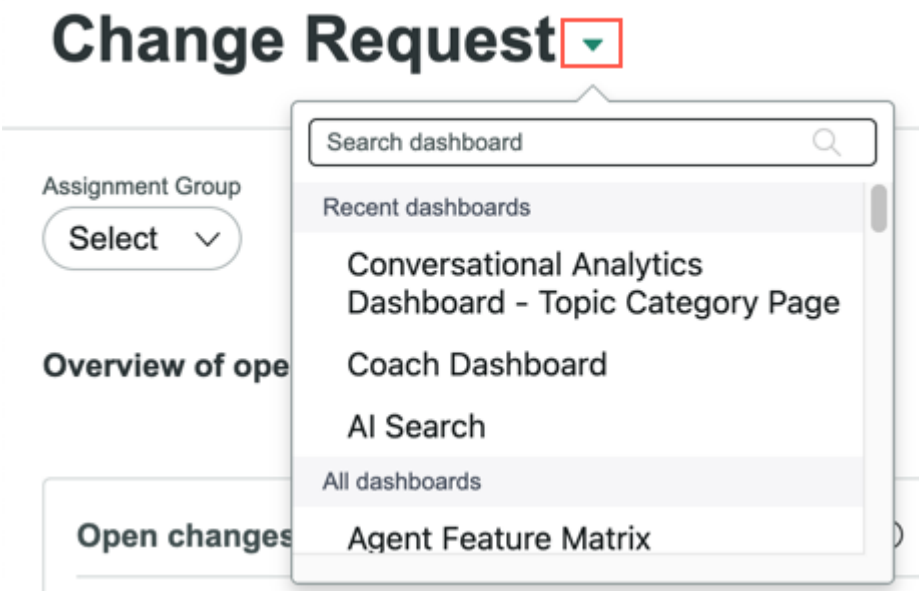
In the Dashboard library you can filter dashboards by searching for the name or owner. You can also filter by category, or by Recent, Bookmarked, Certified and those owned by you or shared with you.

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Dashboard picker

On individual dashboards, you can select dashboards from a list. The three most recently viewed dashboards are at the top of the list. Select the **Change dashboard** icon next to the a dashboard's title and search for the dashboard you want to see.



Related topics

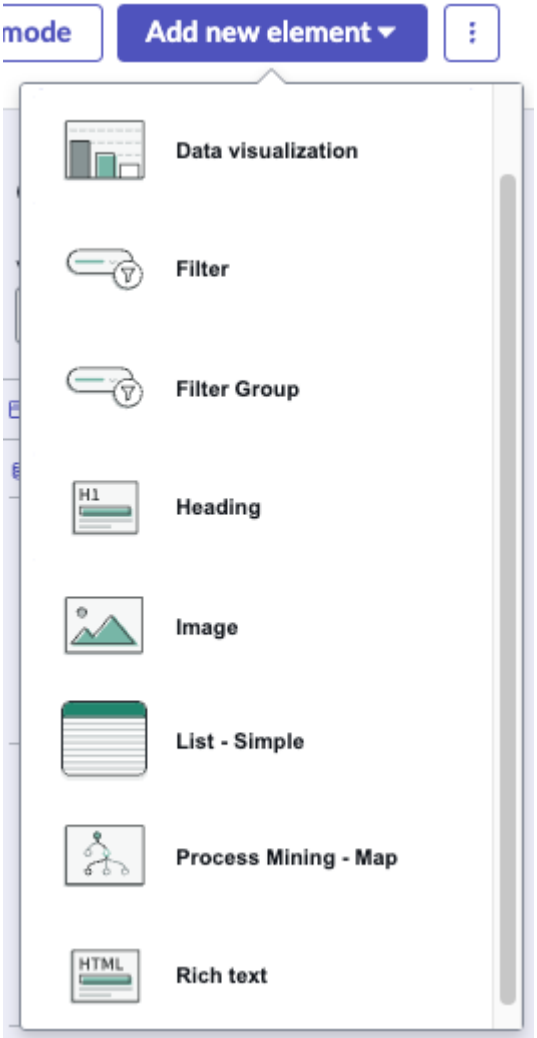
Platform Analytics experience dashboard categories

Dashboard elements

Elements refer to the visual objects you can place on a dashboard, including filters.

Dashboards contain a combination of visual elements to show data.

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Analytics list

TBD

Data visualization

Data visualizations enable you to present a visual representation of current instance data or temporary data that you've imported. Data visualizations include visualizations that you create in the dashboard designer and data visualizations from the library.

> **Important:**
> You cannot place reports or Performance Analytics widgets on a Platform Analytics dashboard. You must create data visualizations instead.

Filter

Filters enable users to filter the visualizations on a dashboard based on specified criteria. You can put filters either on the individual tabs or above the tabs so that the filter applies to elements every tab. Filters include both data filters and domain filters. You can create filters in the dashboard designer or select them from the library.

Filter group

A set of filters that you can apply simultaneously. Use when you have multiple filters that can apply to multiple visualizations.

Heading

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Headings provide a place for text at the top of a dashboard or section of a dashboard. Formatting for headings is limited to six heading levels.

Image

Image elements hold static or animated images on the dashboard.

List - Simple

Simple lists show table data that you can customize for the dashboard audience.

Process Mining - Map

Map the different states that are part of your process and the transitions between those states. See which states the objects of the process are in and the speed with which they change state. Requires an existing Process Mining project.

Rich text

Rich text elements hold text that you can format either as text or as html, including font selection, text size, highlighting, and hyperlinks. To edit HTML markup, open the HTML editor from the Configuration panel and select the Code tags < > icon.

Default element dimensions

Each element has a default height and width when you place it on the stage to configure. Select and drag an element's handlebar to resize it.

Filter

six columns by three rows

List, Multipivot, and Indicator Scorecard visualizations

48 columns by 18 rows

All other components

11 columns by 11 rows

Differences between Core UI and Platform Analytics dashboards

When the unified analytics property is enabled, Core UI dashboards and dashboards in Platform Analytics can coexist in your instance. Use this reference to distinguish between them.

Both Core UI and Platform Analytics dashboards enable you to show visual components in a shareable canvas. When the *com.glide.par.unified_analytics.enabled* property is enabled, all dashboards are available.

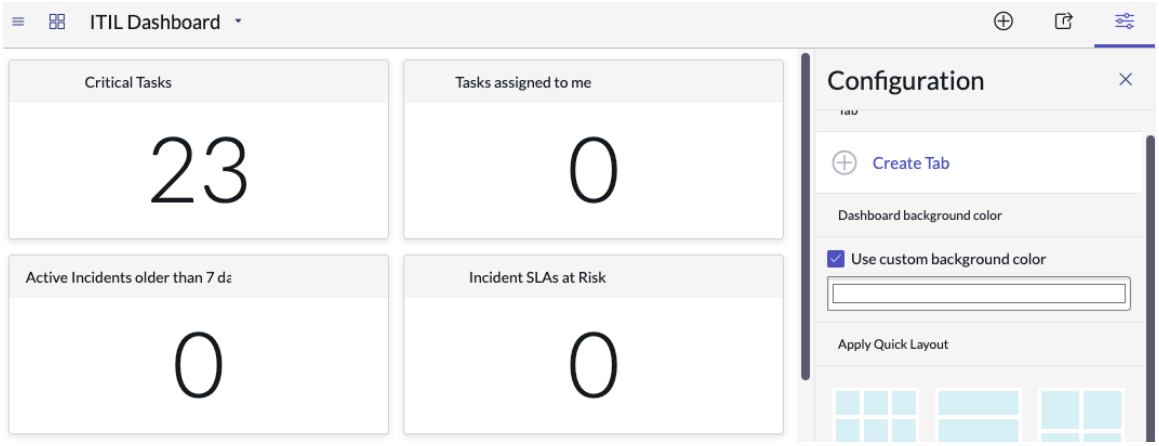
On migrated instances, your Core UI data, existing dashboards, reports, interactive filters, and Performance Analytics widgets are moved to Platform Analytics. The result is a single set of visualizations and unified filters for all data sources. For more information, see Platform Analytics Migration Center.

Core UI dashboards

Core UI dashboards are those created in the classic UI featuring visualizations created in Report Designer and Performance Analytics content created using PA widget forms.

Dashboard example

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Menu path

All > **Self-Service** > **Dashboards**

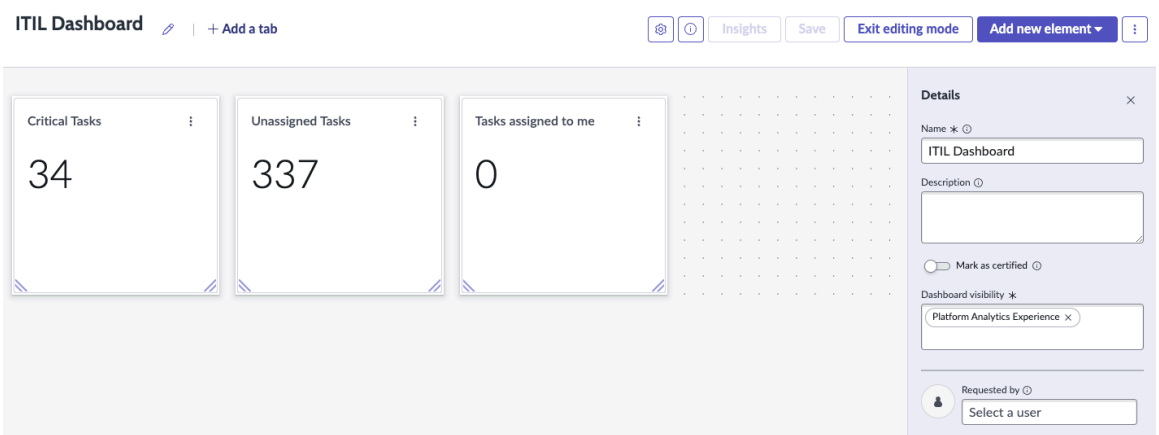
Platform Analytics dashboards

Platform Analytics dashboards are created using either UI Builder or the inline dashboard editor. These dashboards support all objects in the element library, such as data visualizations, filters, and rich text. In a tabbed dashboard, these contents can be placed in a tab or above the tabs. Filters placed above the tabs apply to content on all the tabs.

When you create Platform Analytics dashboards, you can add any existing element that you have rights to, or create a new element from within the dashboard. These elements include data-agnostic visualizations based on indicators, table data, MetricBase data, and User Experience Analytics.

Platform Analytics dashboards also provide Proactive Insights that support more informed decision making. Insights explore correlations and highlight potential changes and issues before they turn into problems. For more information, see Proactive analytics insights on dashboards.

Dashboard example



Menu path

All > **Platform Analytics** > **Library** > **Dashboards**

Different approaches to dashboards

Depending on your needs, you have four different ways to present a collection of data visualizations and filters.

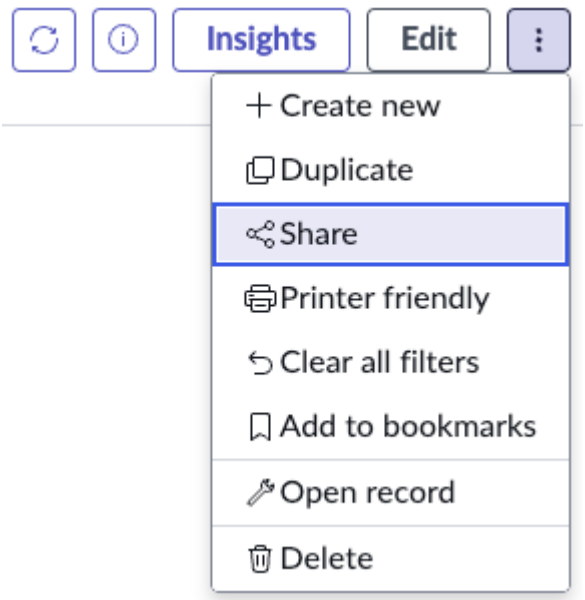
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- Create the data visualizations and the dashboards entirely inside the Platform Analytics experience. This approach does not require a developer role or special technical knowledge, and probably should be explored before you try a more complex solution.
- Create data visualization components in a generic UI Builder page, along with filters and other components. This approach gives you the most freedom as a developer, but also requires the most configuration.
- Create the data visualizations and the dashboards inside the Platform Analytics experience, but then place the dashboards inside UI Builder pages using the Dashboard page template. This approach lets you use the convenience and special features of the Platform Analytics experience to create dashboards, data visualizations, and filters in your own experiences/ workspaces. This approach also gives you the freedom to customize the page configuration partially. For more information, see Creating Platform Analytics pages in your own workspace.
- Create a technical dashboard and populate it inside UI Builder. This approach is almost the same as creating your own UI Builder page from scratch, but the dashboard is available in the dashboard library, has dashboard details, and can be shared like other dashboards. For more information, see Technical dashboards.

Creating dashboards and other common dashboard tasks

See how to create, edit, share, and delete Platform Analytics dashboards, along with other common tasks. Most tasks are launched from the same menu.

The majority of tasks you need to perform on a dashboard are available in the dashboard's **More actions** menu , including the creation of another dashboard.



Anyone can duplicate, print, or bookmark any dashboard to which they have access. If you have filters on the dashboard, you can clear all their values in one action. If you own a dashboard, you can also share or delete it. When you share a dashboard, you can let the user with whom you share the dashboard edit it or share it with more users. Dashboard administrators (dashboard_admin role) and ServiceNow AI Platform admins can perform any of these actions on any dashboard, or open the underlying PAR Dashboard [par_dashboard] record.

Create a dashboard with the in-line editor

In the Platform Analytics experience, you can create shareable dashboards with data visualizations, filters, and other elements. You can create elements and add existing elements from the inline editor.

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Before you begin

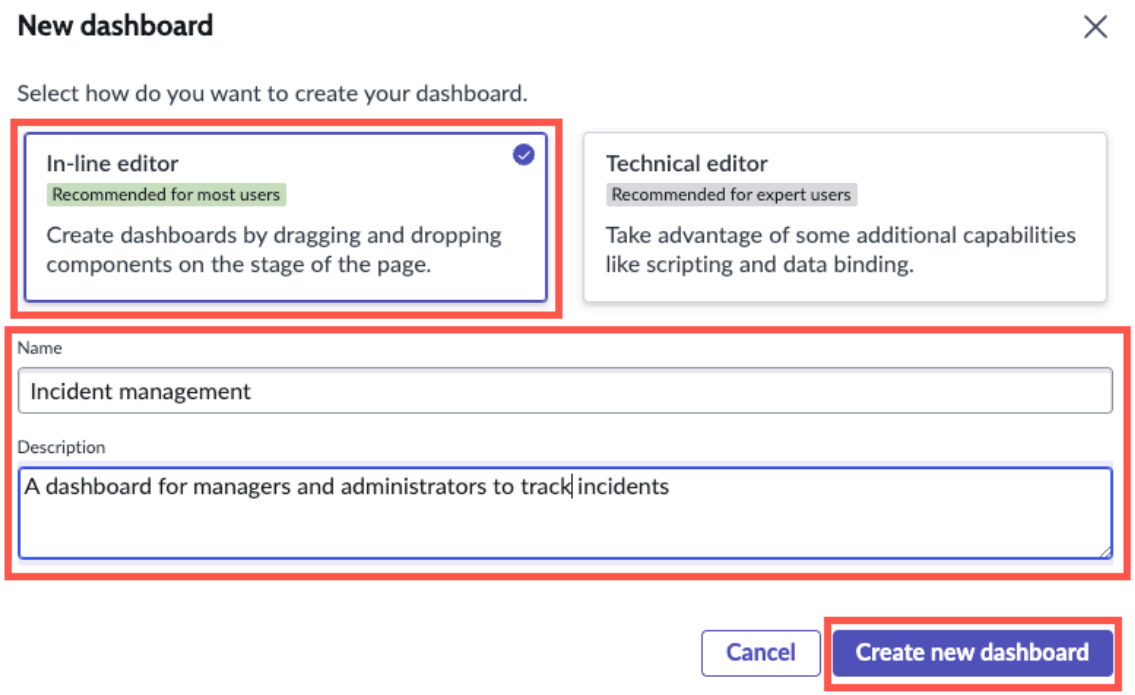
Save your work regularly.

Role required: Any user with an internal role can create dashboards with the inline editor.

Note:
Data visualizations based on table data are automatically shared with users that you share a dashboard with.

Procedure

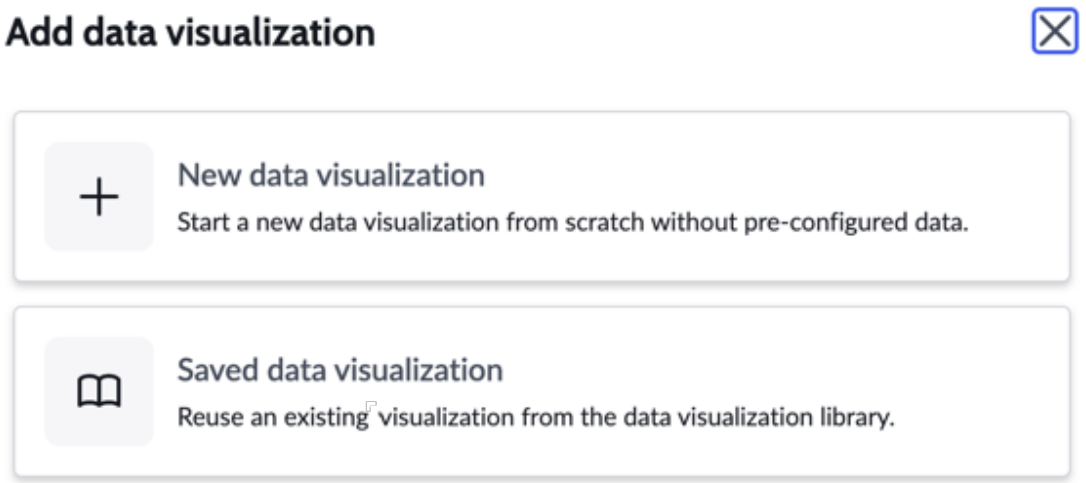
1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Select **Create new dashboard**.
3. Select the **inline editor** tile and give the dashboard a name and a description.
   If you want to use scripting, data binding, and other advanced capabilities, select the **Technical editor** tile to continue in UI Builder. This editor is available only to users who can access UI Builder (ui_builder_admin role). If you do not have this role, go to step 6. For more information about the technical editor, see Technical dashboards.
4. Select **Create new dashboard**.



5. Choose **inline editor**.
   The Technical editor option opens a page in UI Builder that is treated as a dashboard, with a list of available components. Creating dashboards in UI Builder is recommended for developers. For more information, see UI Builder and Create a technical dashboard in UI Builder.
6. Give the dashboard a meaningful name and description.
7. Select **Add new element** to add content to the dashboard.
   See Exploring Platform Analytics dashboards for information about what you can add to a dashboard.

   When you add a data visualization, select **New data visualization** to create a visualization from scratch or **Saved data visualization** to choose one from the library. When you add a filter, select **New filter** to create the filter without preconfigured data or **Saved filter** to reuse an existing filter.

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8. Select the information icon (ⓘ) to open the Details panel and provide a name and description for your dashboard.
9. Arrange the data on the canvas to make it useful.
   You can click and drag from the corners of the elements to resize them on the canvas.
10. Select **Add a tab** to create room for more information on additional tabs.
11. Select **Save** early and often.
    The dashboard inline editor doesn't automatically save your dashboard when you're creating it. Be sure to save your work regularly.

What to do next

- Edit Platform Analytics dashboard elements
- Configure Platform Analytics dashboard details

Edit Platform Analytics dashboards

You can edit dashboard and dashboard tab information in the inline editor. If the dashboard has been shared, any changes you make are applied globally.

Before you begin

You can edit the details of the dashboards you've created. When you edit the content of dashboards created in the technical editor, you're redirected to UI Builder.

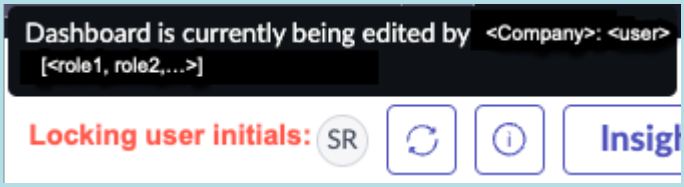
Role required: dashboard_admin for all dashboards, or any role for dashboards that you own or ones that you have been given the right to edit. See Platform Analytics dashboard roles for more information about viewing and editing rights on dashboards.

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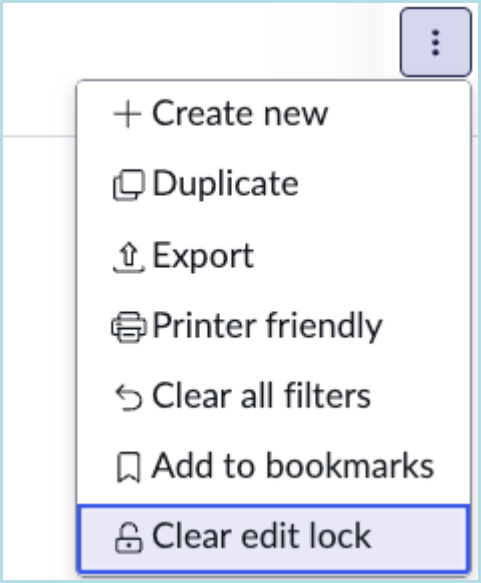
About this task

Important:

By default, dashboards are subject to edit lock. Only one person at a time can have the same dashboard in edit mode. If you are viewing a locked dashboard, you will not have an **Edit** button even with edit rights. You will see the locking user's initials next to the **Refresh** and **View dashboard details** icons. Hover on the initials to see the user's name, company, and roles.

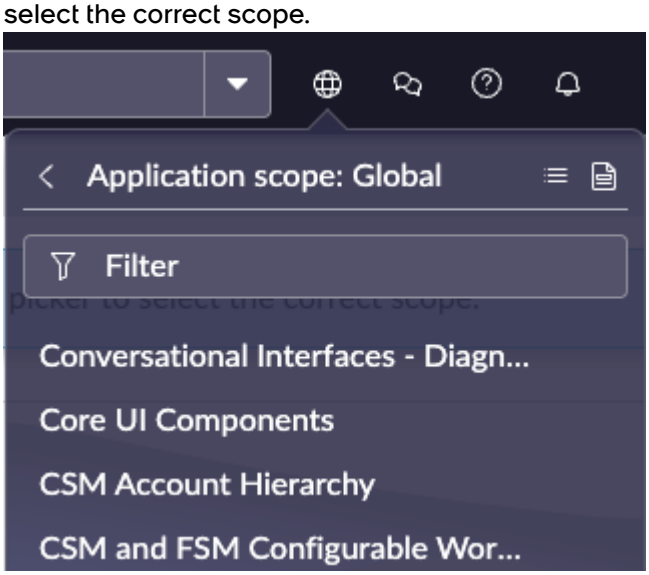


The **More actions** menu includes the option to clear the edit lock. Use this option with caution.



Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Select the dashboard that you want to edit.
   If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



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3. Perform any of the following actions.

Edit Platform Analytics dashboard elements

You can edit the contents of a dashboard or dashboard tab, including data visualizations and filters. Because dashboards are shared, any changes you make are applied globally.

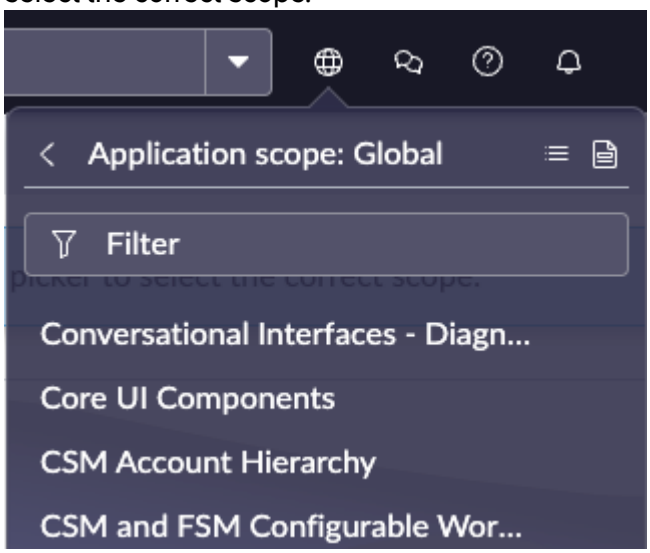
Before you begin

You can edit the details of dashboards created in the inline editor and in the technical editor in the configurable workspace. When you edit the content of dashboards created in the technical editor, you're redirected to UI Builder.

Role required: dashboard_admin for all dashboards, or any role for dashboards that you own or ones that you have been given the right to edit. See Platform Analytics dashboard roles for more information about viewing and editing rights on dashboards.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Select the **Dashboard** tab and select the dashboard you want to edit.
   If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



3. Perform any of the following actions on the element.

Related topics

Share a Platform Analytics dashboard

Add images to Platform Analytics dashboard cards

Distinguish the cards in the dashboard overview with uploaded images.

Before you begin

Role required: ui_builder_admin to enable the image preview; dashboard_admin to add the image.

About this task

Add an image to the cards in the Platform Analytics dashboard overview.

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Procedure

1. Enable the image preview in the Dashboard overview component.

   a. Navigate to **Now Experience Framework** > **UI Builder**.

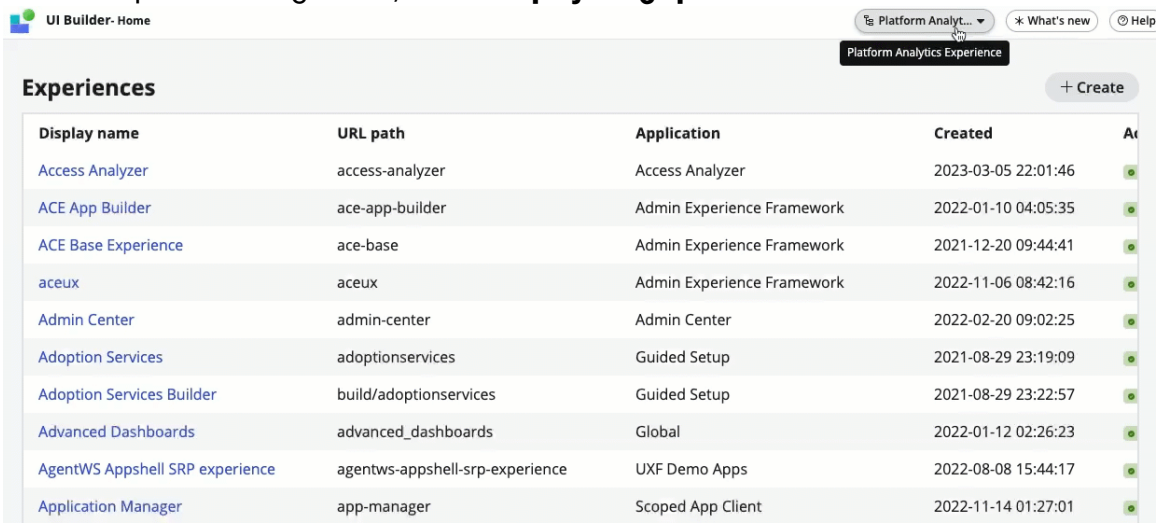
   b. Change the application scope to Platform Analytics.

   c. Select the Platform Analytics experience.

   d. Open the Dashboard Library (Default) item.

   e. In the outline, select **Dashboard overview 1**.

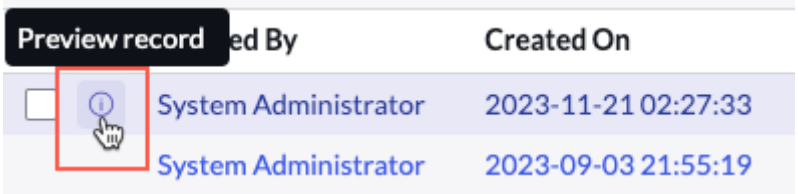
   f. In the component configuration, select **Display image preview**.



Display name	URL path	Application	Created	Ac
Access Analyzer	access-analyzer	Access Analyzer	2023-03-05 22:01:46	
ACE App Builder	ace-app-builder	Admin Experience Framework	2022-01-10 04:05:35	
ACE Base Experience	ace-base	Admin Experience Framework	2021-12-20 09:44:41	
aceux	aceux	Admin Experience Framework	2022-11-06 08:42:16	
Admin Center	admin-center	Admin Center	2022-02-20 09:02:25	
Adoption Services	adoptionservices	Guided Setup	2021-08-29 23:19:09	
Adoption Services Builder	build/adoptionservices	Guided Setup	2021-08-29 23:22:57	
Advanced Dashboards	advanced_dashboards	Global	2022-01-12 02:26:23	
AgentWS Appshell SRP experience	agentws-appshell-srp-experience	UXF Demo Apps	2022-08-08 15:44:17	
Application Manager	app-manager	Scoped App Client	2022-11-14 01:27:01	

2. Navigate to `par_dashboard_user_metadata.list`.

3. Select the **Preview record** icon ( ) next to the dashboard that you want to add an image to.

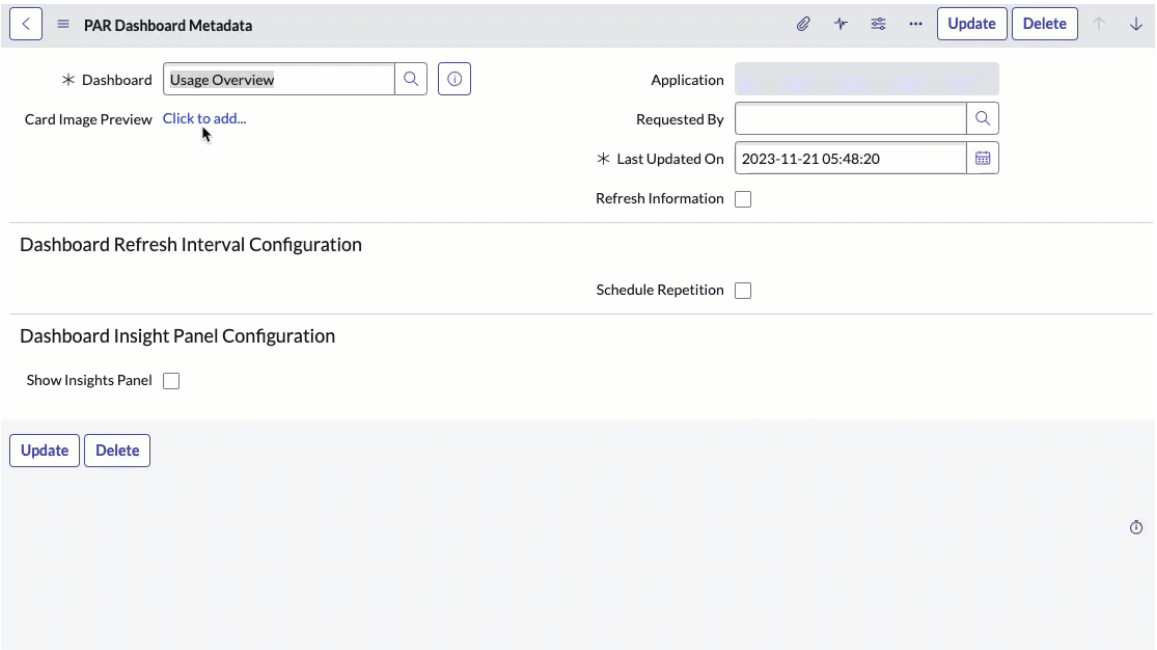


4. Select **Open Record**.

5. Next to Card Image Preview, select **Click to add** to choose a card background image.
   There's no limit on the size of the image that you can upload, but the card thumbnail area is 260 pixels wide by 110 pixels high.

6. Choose an image file and select **OK**.
   The image appears on the form for the dashboard.

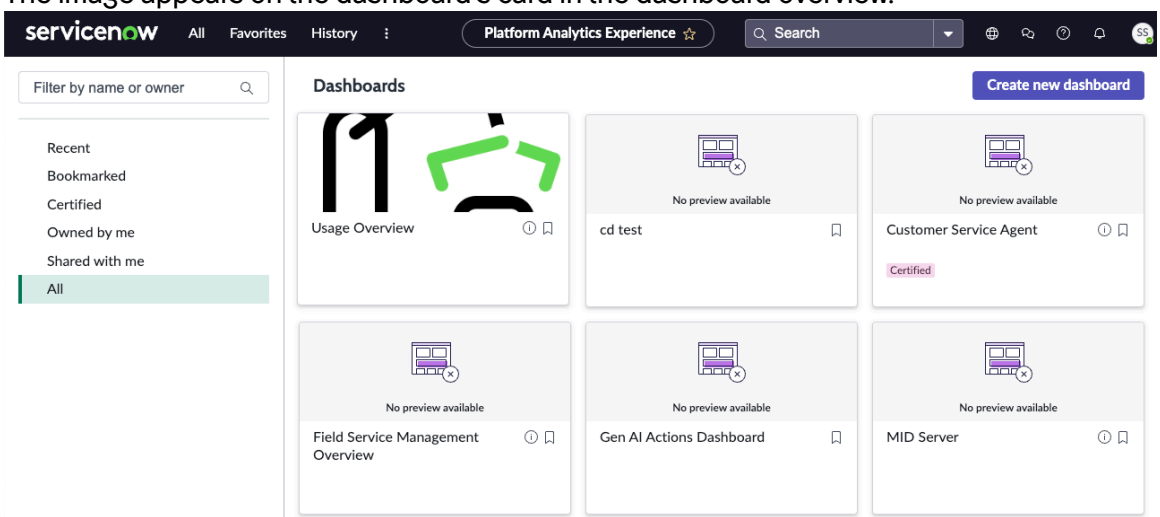
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7. Select **Update**.

Result

The image appears on the dashboard's card in the dashboard overview.



Share a Platform Analytics dashboard

Share a dashboard with other users, groups, or roles to create a shared view of data that you can use to collaborate. You can grant viewing rights or both viewing and editing rights.

Before you begin

https://player.vimeo.com/video/1062163149?h=25296c447d&badge=0&autopause=0&player_id=0&app_id=58479

Role required: You can share any dashboard that you created. You can share dashboards that have been shared with you, if sharing is allowed. If you have the right to edit a dashboard that has been shared with you, you can pass that right along to whomever you share it with. Users with the admin or dashboard_admin role can share all dashboards.

A role with read access to the Roles [sys_user_role] table is required to share a dashboard with roles.

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Note:
Data visualizations based on table data are automatically shared with users that you share a dashboard with.

Edit rights granted by sharing a dashboard do not apply to the underlying data visualizations on the dashboard. View rights granted do not apply to that dashboard's visualizations outside of the dashboard itself.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**
2. Select the dashboard you want to share.
3. Select the **More actions** button () and choose **Share**.
   The Share Dashboard dialog opens.
4. In the **Grant access to** field, enter the names of one or more users, groups, or roles you want to share the dashboard with.
   To share the dashboard with roles, you need read access to the Roles [sys_user_role] table.
5. To allow the people you share the dashboard with to share the dashboard as well, select **Allow recipients to add, edit, or delete sharing permissions associated with this dashboard**.
   When you add a user, group, or role as a viewer, they can only share the dashboard as a viewer. When you add a user, group, or role as an editor, they can share the dashboard as a viewer or as an editor.

   Important:
   The right to share a dashboard or data visualization includes the right to add, edit, and delete sharing rights for any user, group, or role on that dashboard or data visualization. A user cannot use this ability to give themselves or others edit rights if they were not originally given edit rights.

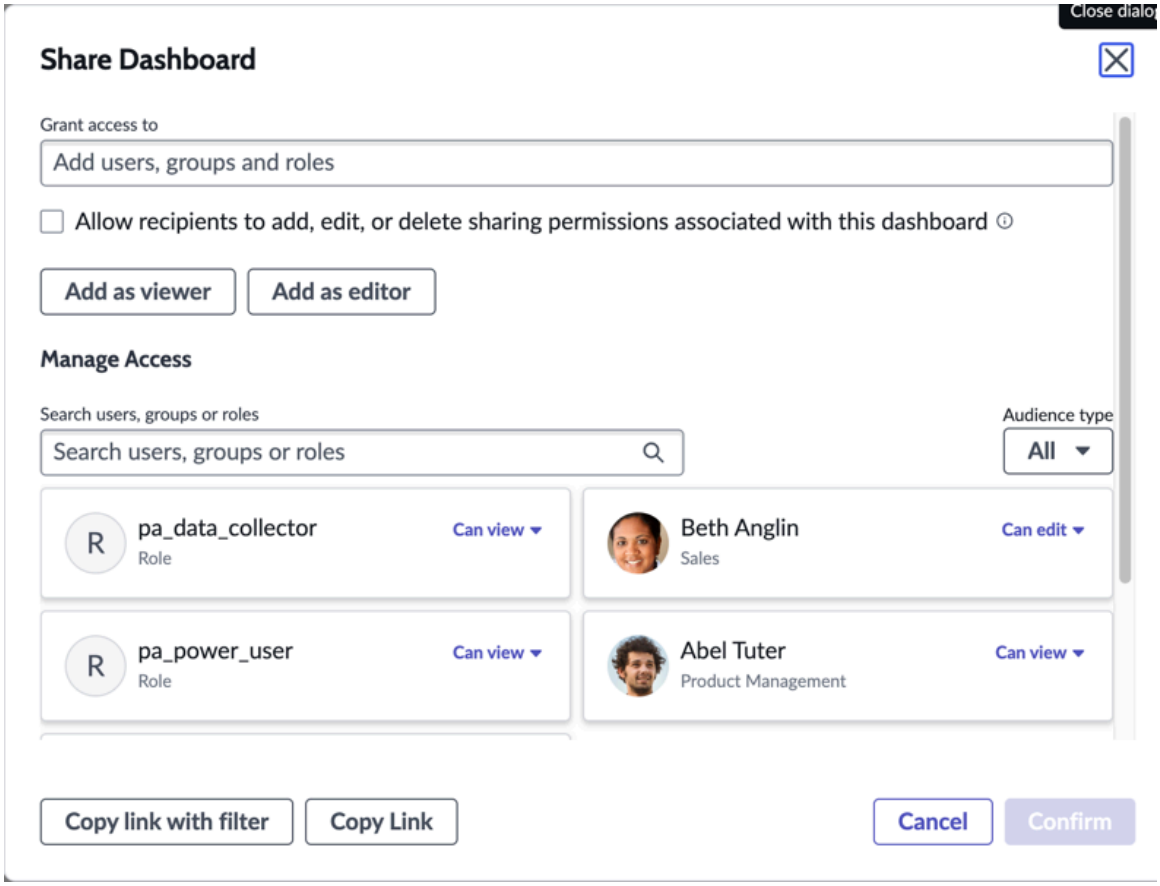
6. Select one of the following options.

Option	Description
Add as viewer	Grant only viewing rights to the users, groups, or roles you are sharing the dashboard with. They cannot edit it.
Add as editor	Grant editing rights to the users, groups, or roles you are sharing the dashboard with. You must be in the same application scope as the dashboard to add a user as an editor.

7. **Optional:** Select **Copy link with filter** or **Copy link** to copy the dashboard's URL to the clipboard.
   The URL points to the tab that was open when you opened the **Share dashboard** dialogue. **Copy link with filter** also applies the filters as they're configured on the dashboard or dashboard tab.
8. Select **Confirm**.

Result
The roles, groups, and users you have shared the dashboard with appear when you reopen the dialog, along with the rights you have given them.

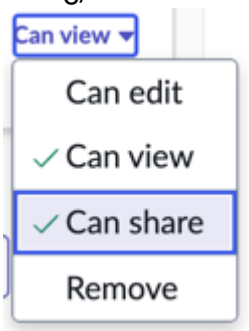
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Tip:
The users, groups, and roles with which a dashboard is shared are also visible in the dashboard details. For more information, see Configure Platform Analytics dashboard details.

What to do next

You can change the rights of whom you have shared the dashboard with in the Share Dashboard dialog, under the Can view/Can edit list for each user, group, or role.



Duplicate a Platform Analytics dashboard

Duplicate a dashboard created in the inline editor so that you can share a modified version with different users.

Before you begin

Role required: At least one role, as well as access to the dashboard.

Note:
This task only applies to dashboards created in the in-line editor. To work with dashboards created in UI Builder, see UI Builder.

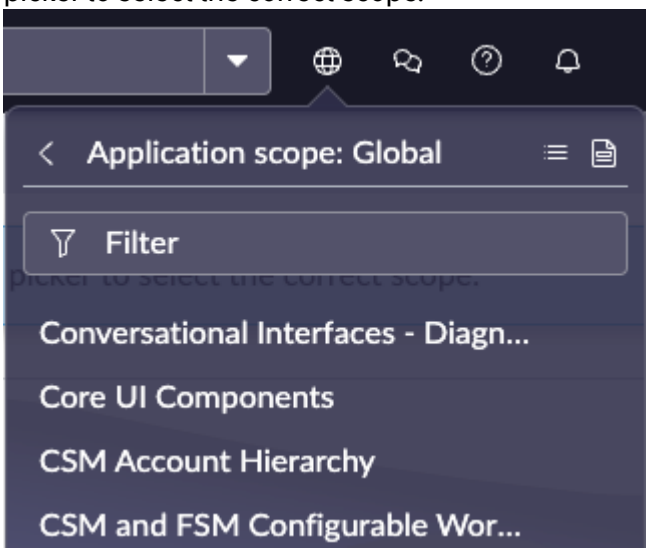
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About this task

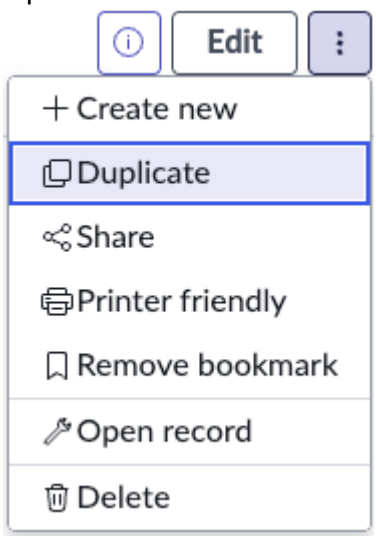
When you duplicate a dashboard, you copy all settings and details of the original. Content that exists locally on the original dashboard is duplicated onto the new dashboard. If the original dashboard contains references to content in a library, such as a shared visualization, the references are duplicated. The role requirements for editing an element in a library apply to the latter.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Select the dashboard that you want to duplicate.
3. **Optional:** If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



4. Open the More actions menu ( ) and select **Duplicate**.



5. Give the duplicate a unique name and select **Duplicate**.

Result

The dashboard is copied with the new name. The appearance of the dashboard is identical to the original.

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Important:
The new duplicate is automatically saved.

Duplicate a dashboard tab

Duplicate a dashboard tab created in the in-line editor so that you can add related important content. When you add your first tab to a dashboard, there's a new part of the layout below the title and above the tabs. Add elements above the tabs that are visible no matter which tab has focus.

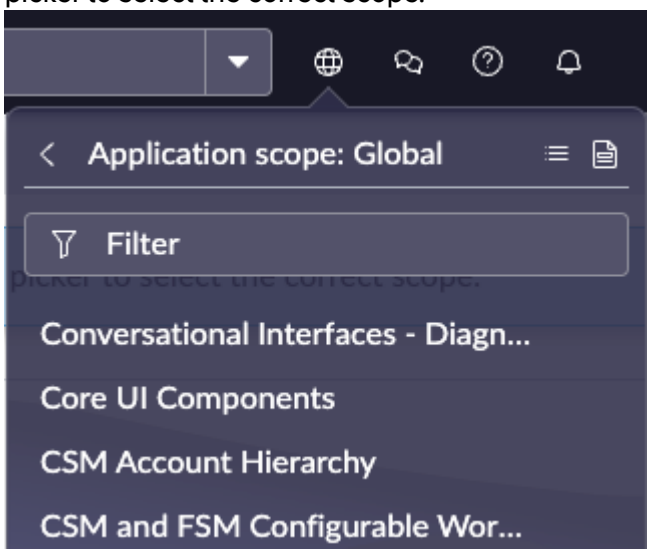
Before you begin

Role required: At least one role, as well as edit rights to the dashboard.

Note:
This task only applies to dashboards created in the in-line editor. To work with dashboards created in UI Builder, see UI Builder.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Select the dashboard with a tab that you want to duplicate.
3. **Optional:** If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



4. Select the **Edit** button (Edit) to put the dashboard into edit mode.
   If you don't see the **Edit** button, either you don't have permission to edit the dashboard, or it is in edit lock.
5. Select **Add a tab**.
   This link is next to the dashboard's title.
6. Open the More actions menu ( ) on the original tab and select **Duplicate**.
   Select the pencil icon ( ) to rename the tab.
7. Give the duplicate a unique name and select **Duplicate**.

Result

The dashboard tab is copied with the new name. All other aspects of the dashboard remain the same.

Important:
The new duplicate tab is saved automatically.

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Print a Platform Analytics dashboard

To print a dashboard, create a printer-friendly copy and print that copy from your browser.

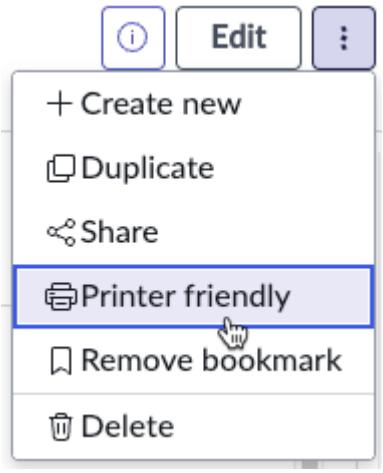
Before you begin
Role required: Any

About this task

Note:
For security reasons, List visualizations in the printer-friendly version of a dashboard include only the first several lines of the visualization.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**
2. Open the dashboard that you want to print.
3. From the More actions menu ( ), select **Printer friendly**.



A printer-friendly copy of the dashboard opens in a new browser tab.

4. Use your browser functionality to export or print the printer-friendly dashboard copy.

Export a Platform Analytics dashboard

Export a Platform Analytics experience dashboard to PDF or Microsoft PowerPoint.

Before you begin
Role required: Any, if the user has access to the dashboard.

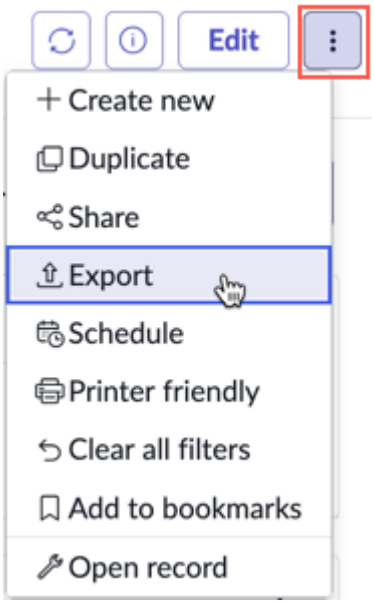
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Note:

- This task only applies to dashboards created in the inline editor. Technical dashboards do not have the **Export** option in the **More actions** menu. For more information, see Technical dashboards compared to inline dashboards.
- Pivot, calendar report, geomap, and indicator scorecard visualizations are not supported for export. Lists are not supported for export to PowerPoint. These visualization types will not appear in the exported file.
- Only the supported data visualizations and Lists (PDF) are exported, not Headings or Rich Text or any other element.
- Content is not necessarily exported in the order it appears on the dashboard.
- Depending on your entitlements, you may be able export a dashboard conversationally through the Now Assist panel. See Export dashboards and data visualizations from the Now Assist panel.
- Dashboards exported to PowerPoint include the title above and the description below each visualization in an editable format if this information is provided in the source visualization.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Select the dashboard that you want to export.
3. Select the dashboard's **More actions** menu and choose **Export**.

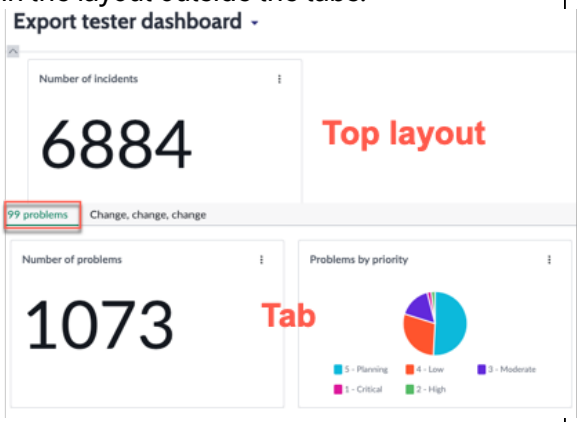


4. In **File type**, select PDF or PowerPoint.

   a. If you are exporting to PDF, specify the page format and orientation.
   Any filter values set on the dashboard at the time of export apply to the export.

   b. If you are exporting to PowerPoint, you can set the following options:

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Option	Description
Export all tabs	If the dashboard has more than one tab, you can select whether to export them all or only a subset. Default: On
Export all visualizations in the top layout	If the dashboard has more than one tab and you are not exporting them all, you can set whether to export any visualizations that are in the layout outside the tabs. 
Select tabs:	If you are not exporting all tabs, select each tab to export.
Export with applied filters	You can select whether to apply to the export any values that have been set in filters on the dashboard. For example, say your dashboard has an Incident Category filter and a single-score visualization showing the number of incidents. With nothing chosen in the filter, the visualization shows 6884 incidents. With the Software category chosen in the filter, it shows only 5278 incidents. Now you export the dashboard with Software chosen in the filter. If **Export with applied filters** is on, the slide for that visualization shows 5278 incidents; with it turned off, it shows 6884. Default: On

Note:
For PowerPoint, the export creates a separate slide for each visualization in the dashboard, not one slide for each tab on the dashboard.

5. Choose the delivery method, **Download file** or **Send via email**.

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Delivery method	Result
Download file	When the export is complete, you are prompted to download the export.
Send via email	Choose the users to send it to. You can select only users on your instance. Security constraints may restrict who you can email. You must specify a subject, and you can add a message.

6. Select **Export**.

Result
The dashboard with selected tabs and filters is exported to a PDF or PowerPoint file and delivered by the chosen method.

Schedule the export of dashboards and data visualizations

Automate the export and mailing of dashboards and data visualizations. Help colleagues build presentations, share information with external users, or track data over time.

Before you begin
Role required:

- par_scheduler, or any role that contains it, to create or edit the scheduled export of any dashboard or visualization that you can access.
- sn_par_sche_export.par_scheduler_admin to delete the scheduled export of a dashboard or data visualization.
- viz_admin to create, update, or delete the scheduled export of any data visualization on the instance
- dashboard_admin to create, update, or delete the scheduled export of any dashboard on the instance.

To view the list of scheduled exports, navigate to **All** > **Platform Analytics** > **Library** > **Scheduled Export**. This list contains all scheduled exports including Core UI dashboards and reports and Platform Analytics experience dashboards and data visualizations.

About this task
You can export multiple dashboards and data visualizations together in one scheduled email. Supported export formats depend on what you are exporting and whether you are exporting it as part of a dashboard or as a standalone data visualization.

Supported export formats

Data visualization or dashboard element	Supported dashboard export formats	Supported data visualization export formats
Calendar reports, Indicator scorecards, Pivot tables, Geomap	None	None
Lists	PDF	PDF, Microsoft Excel (.xls or .xlsx), Embedded LIST

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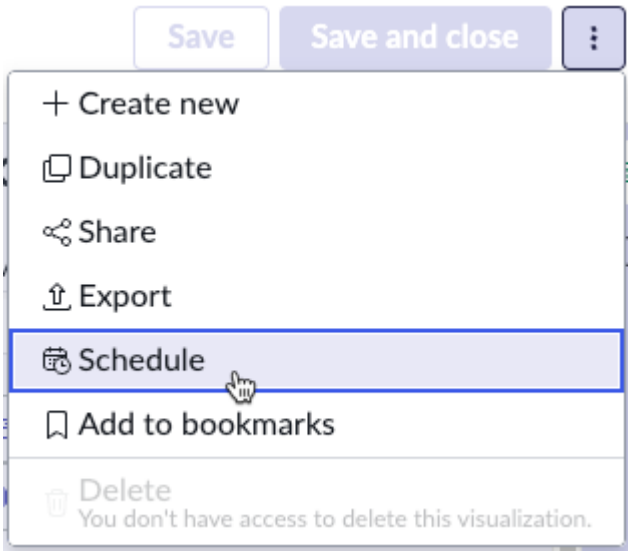
Supported export formats (continued)

Data visualization or dashboard element	Supported dashboard export formats	Supported data visualization export formats
Other data visualizations	PowerPoint, PDF	PowerPoint, PDF, PNG, JPEG, Embedded PNG
Non-data visualization dashboard elements, like Headings	None	Not applicable

Note:
This topic is available in both the Dashboard and the Data Visualization documentation.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** and select **Data Visualizations** or **Dashboards**.
2. Select an item that you want to export on a regular schedule.
   Check the list of supported export formats under **About this task**.
3. From the More actions menu ( ), select **Schedule**.
   You cannot be in Edit mode.



   All the options appear for exporting the dashboard or data visualization. If you do not want to export this object, select **Change**.
4. Select the file type.
5. If you are exporting a dashboard or data visualization to PDF, or a data visualization to a graphic file, select the page format and orientation.
   Scheduled exports of List data visualizations to PDF do not have options for page format or orientation. If you need a PDF with a particular format or orientation, consider putting the List on a dashboard and scheduling the export of that dashboard, instead.
6. If you are exporting a dashboard to Power Point, do the following steps:

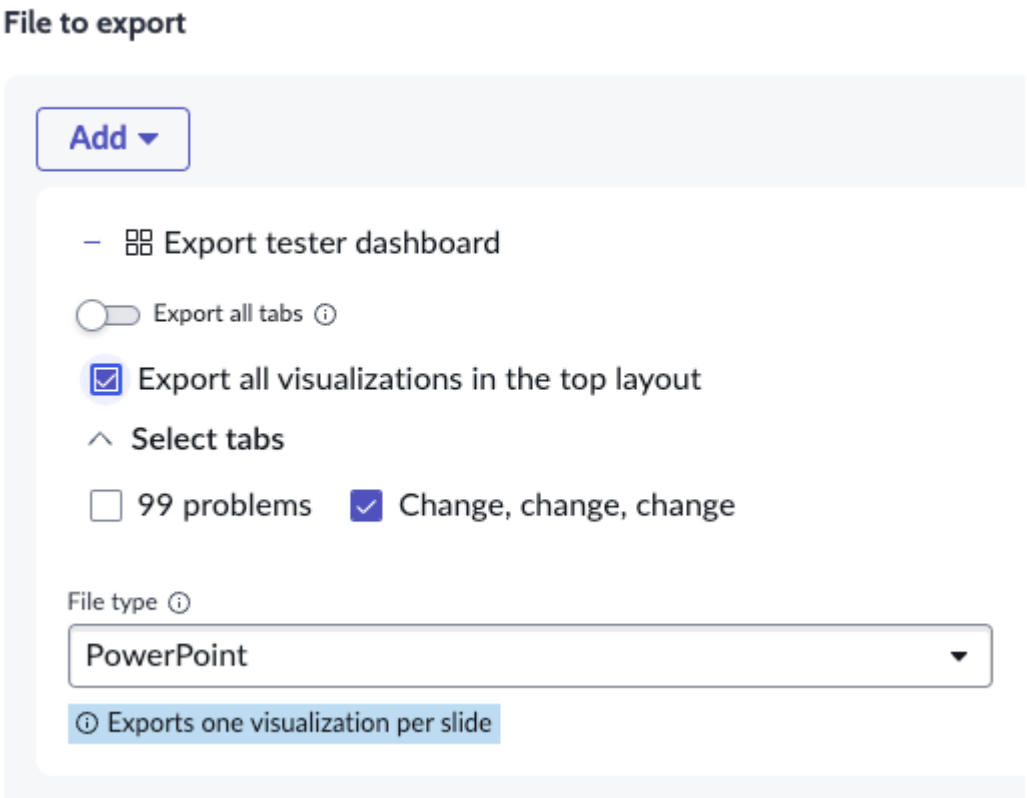
   a. Select whether to export all tabs or only specific tabs.

   b. If you select to export only specific tabs, select which tabs to export and whether to include the top layout contents.

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Example

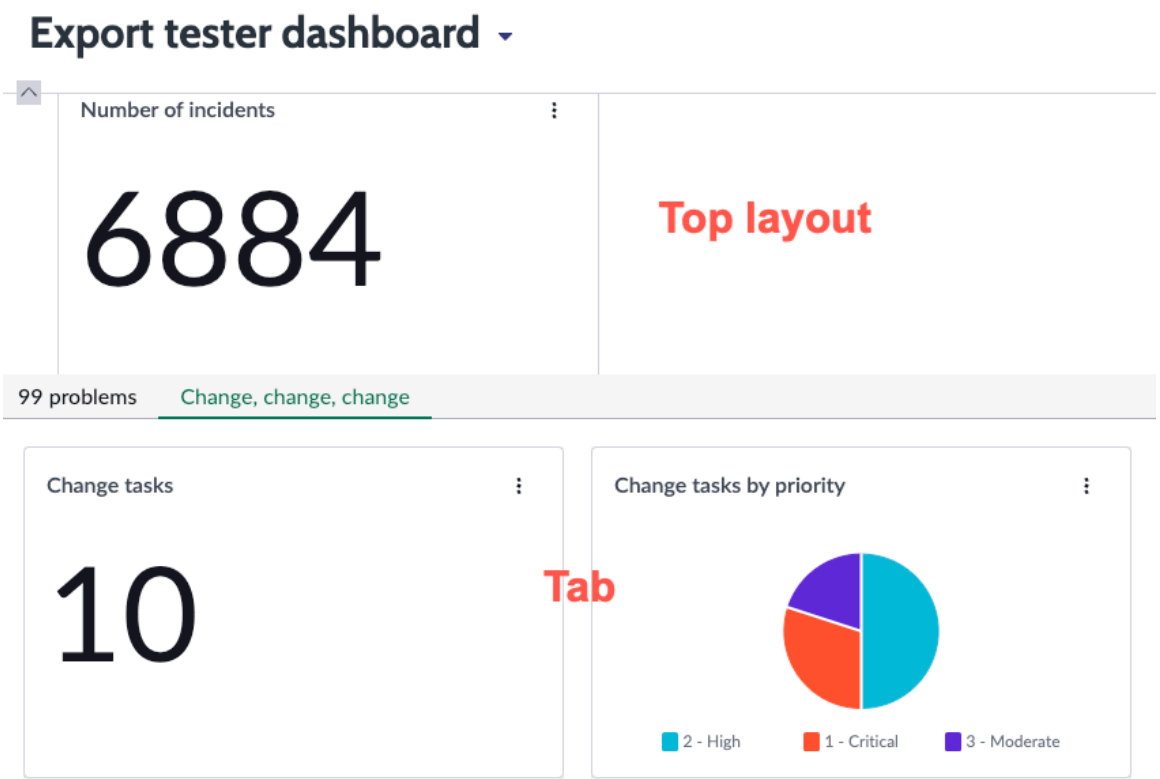
Configuring the export of dashboard tabs



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For example, if you do not turn on **Export all tabs**, you have to select the tabs to export. If you select a tab and turn on **Export all visualizations in the top layout**, you export that tab and any visualizations placed above the tabs.

The visualizations that are exported



7. To add more dashboards or data visualizations to the export, do the following steps:
   a. Expand the **Add** menu.
   b. Select **Dashboard** or **Data visualization**.
   c. Choose one or more dashboards or visualizations to export.
   d. Configure the export criteria for each added dashboard or visualization as in Steps 4-6. You can add both dashboards and data visualizations to a single export.
8. To send non-embedded exports as ZIP files, turn on **Send as ZIP files**.
9. In the Email schedule section, specify when and how often to send the email.

Field	Description
Active	Turn on to enable delivery of scheduled export emails.
Reoccurrence	Select how often to send the export email.
Day, Time, other calendar fields	Specify when to send the email. Your options depend on how often you chose to send the email in **Reoccurrence**. Time fields are in HH:MM:SS format.
Omit if no records	Turn on to prevent the distribution of empty emails.

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Field	Description
Use conditions	Turn on to specify a scripted condition for generating the report.
Condition	Conditional script that determines if a scheduled job should run. The last expression of the script should evaluate to a Boolean (true/false) value. This text box appears only if you select **Use conditions**. For more information about scripts on the ServiceNow AI Platform®, see Scripts. **Warning:** Conditional scripts for scheduled emails are executed in the sandbox. Therefore, function definitions are not allowed. Some API calls and keywords are also not allowed. For more information, see Script sandbox property.

10. In the Email details section, specify the recipients and the email subject.
    You can enter users and groups on your instance or any permitted internal or external email addresses. Security constraints may restrict who you can send the report to. You can also add a message. To send email to persons who are not on your instance, you need to have outbound email configured. See Outbound Email Configuration.
11. Select **Save** to save the schedule.

Bookmark a Platform Analytics dashboard

Bookmark a dashboard so that you can find it easily in the Analytics Center.

Before you begin
Role required: Any, if the user has access to the dashboard

Procedure
1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Select the dashboard that you want to bookmark.
3. From the More actions menu (⋮), select **Add to bookmarks**.

Result
In the **Dashboards** overview, the selected dashboard appears in the Bookmarked list.

What to do next
To remove a bookmark, choose the bookmarked dashboard and select **Remove bookmark** from the More actions menu (⋮).

Delete a Platform Analytics dashboard

You can delete a dashboard that is no longer useful. The Analytics Center invokes the Workflow Studio to remove the dashboard from your instance.

Before you begin
Inform any users who can view the dashboard that you're deleting it. Users who have bookmarked a deleted dashboard see an error when they try to access it.

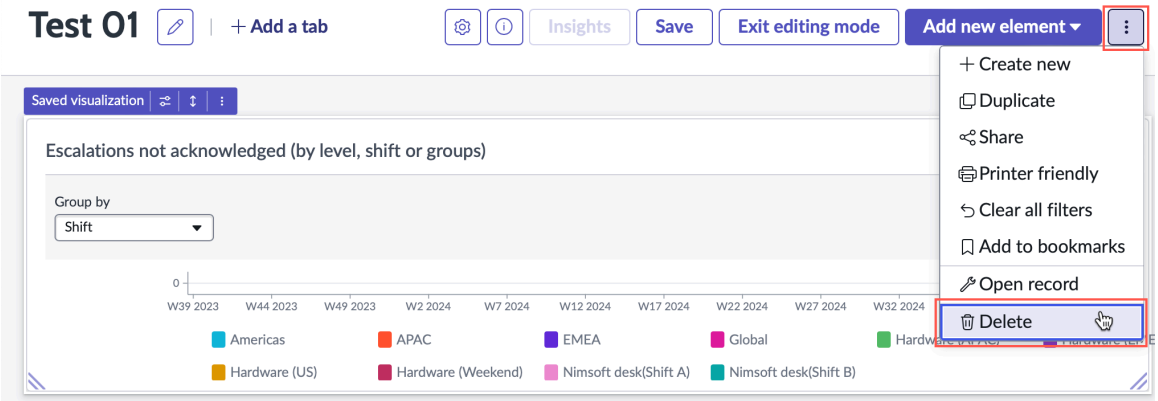
Role required: You can delete any dashboard that you created. Users with the admin or dashboard_admin role can delete any dashboard.

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Note:
The steps to delete a Core UI responsive dashboard are different. For more information, see Manage responsive dashboards.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Open the dashboard that you want to delete.
3. From the More actions menu ( ), select **Delete**.



4. Confirm the deletion.
   You can't undo this action. If you accidentally delete a dashboard associated with a plugin, a system administrator can restore the original version of the dashboard.
   a. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
   b. Find the plugin using the filter criteria and search bar.
   c. Select the More actions menu button and choose **Repair**.
   d. Select **Repair** in the Activate Plugin window.

Configure dashboard deletion actions in the Workflow Studio

Using the Workflow Studio, you can add actions to the dashboard deletion process. Actions may include sending an email to the dashboard's users or generating an approval request.

Before you begin

Prior to invoking the flow, the instance checks that the dashboard exists and that the initiating user has the correct role.

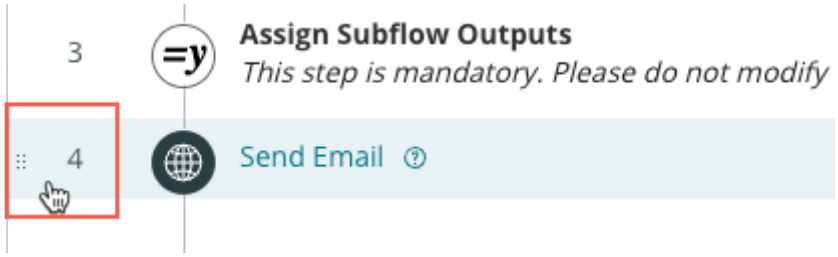
Role required: You can delete any dashboard that you created. Users with the admin role can delete all dashboards. Administrators can grant and deny access to the Workflow Studio based on user roles. For more information, see User access to Flow Designer.

Procedure

1. Navigate to **All** > **Process Automation** > **Flow Designer**
2. Select **Subflows**.
3. Select the **Delete Dashboard** subflow.
4. Select **Add an Action, Flow Logic, or Subflow**.
   For more information about the available possibilities, see Flow Designer.
5. **Optional:**

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Use the handle next to the action number to reorder the action.



6. Test the flow with the actions that you added.
   For more information, see Test a flow.
7. Save the flow.

Result
There are three possible outputs:

Successful deletion

Output code 1. Indicates that the deletion process was successful.

Failed to delete

Output code 2. Indicates that the deletion failed.

Deletion has been initiated

Output code 3. Indicates that the deletion process has started, but that intermediate steps such as an approval are not complete.

For more information, see Action error evaluation.

Configuring dashboards

Configure your dashboard and perform admin tasks. Most tasks are performed in either the dashboard details or the dashboard settings UI.

Common configuration tasks

The following tasks do not require a special role, though they may be limited to the dashboard owner or a user with editing rights.

- Change dashboard name or description

  Provide an informative description of your dashboard for other users.

- Specify dashboard requester

  Specify the user who requested that this dashboard be created. Specifying the user automatically gives them editing rights to the dashboard.

- Transfer ownership of the dashboard

  By default, the creator of the dashboard is the dashboard owner. If you are the owner of a dashboard, you can transfer this ownership to another user or to a user group.

- Set the background colors

  Select the background colors for one or more tabs on the dashboard.

- See who created the dashboard
- See with whom the dashboard is shared

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Admin configuration tasks

The following tasks require at least the dashboard_admin if not the admin role.

- Set data refresh options

  Set whether the dashboard is refreshed on a schedule and whether data caching is used. Requires the dashboard_admin or admin role. For more information, see Data caching in Platform Analytics.

- Certify a dashboard

  Certify that a dashboard has been officially approved for use by your organization. Requires the admin role.

- Configure Platform Analytics dashboard tab cache timeout

  Set the number of minutes that dashboard tab content is retained before being refreshed. Applies to all dashboard tabs on the instance. Requires the admin role.

- Manage which workspaces are allowed to contain the dashboard

  Specify the workspaces on the instance other than the Platform Analytics experience that this dashboard can be added to. Requires the admin or dashboard admin role. For more information about dashboards in workspaces, see Add a dashboard to a Dashboards page.

- Move a Platform Analytics dashboard with an update set

  Moves the dashboard structure to an update set, so it can be put on another instance. Does not include dashboard contents. Requires the admin role.

Process Mining integration tasks

- Configure a Process Mining map on a dashboard

  Map the different states that are part of your process and the transitions between those states. See which states the objects of the process are in and the speed with which they change state. Requires the sn_process_optimization_analyst role.

- Creating Process Mining projects from Proactive Analytics suggestions

  The Insights panel can include suggestions for Process Mining projects to create. Creating the projects requires the sn_process_optimization_analyst role.

Configure Platform Analytics dashboard details

You can change a dashboard name, add a description, certify it, configure visibility, and specify the requester, the owner, the owner group.

Before you begin

You can edit **Dashboard Details** for both dashboards created in UI Builder and dashboards created with the inline editor.

Role required: dashboard_admin for all dashboards, or any role for dashboards that you own or ones that you have been given the right to edit. See Platform Analytics dashboard roles for more information about viewing and editing rights on dashboards.

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Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. On the **Dashboards** overview, choose the dashboard you want to configure.
3. Select the info button (ⓘ) to open the **Details** panel.
   On the **Details** panel, you can edit several aspects of the dashboard.

   a. Edit the **Name** field to change how the dashboard appears in the Analytics Center and the Dashboard Overview.

   b. Fill in the **Description** to provide further context about what the dashboard is for.

   c. Mark the dashboard as **Certified** to inform the user that the dashboard is recommended for use across your organization.

   > **Note:**
   > You must have an admin role to mark a dashboard as **Certified**. For more information, see Certify a Platform Analytics dashboard.

   d. In **Dashboard Visibility**, view, add, or remove workspaces to which the dashboard can be added.

   > **Important:**
   > Specifying a workspace here does not make the dashboard visible in that workspace. It only enables you to add the dashboard to that workspace. For more information about adding a dashboard to a workspace, see Add a dashboard to a Dashboards page.

   e. Specify one or more dashboard categories.
   For more information, see Platform Analytics experience dashboard categories.

   f. Specify who requested the dashboard.
   This user is considered a responsible user. The data visualization is shared with them, with editing rights.

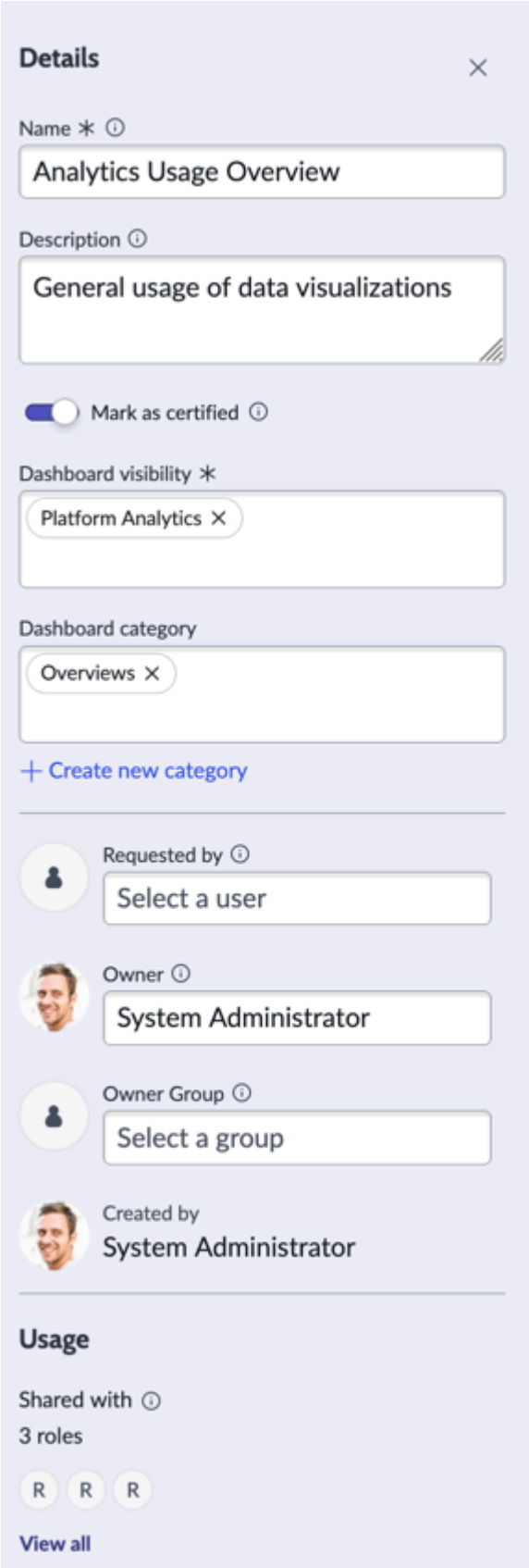
   g. Specify the owner of the dashboard.
   By default, the owner is the creator of the dashboard, but the creator or owner can assign ownership to another user.

   h. Specify an owner group.
   The owner of a dashboard can be an entire group rather than a single person.

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i. See who created the dashboard.

j. See who the dashboard has been shared with.



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Configure Platform Analytics dashboard settings

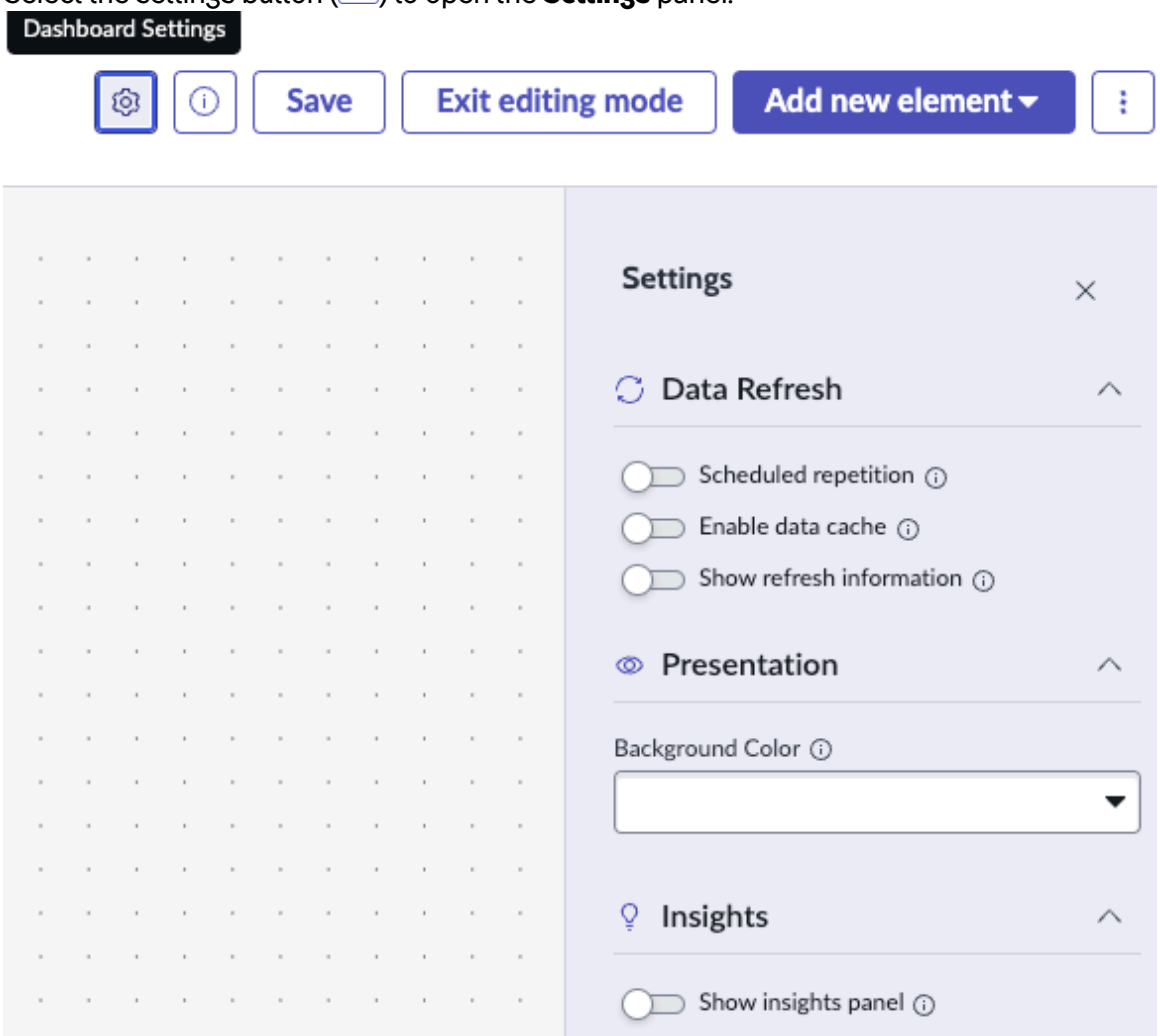
You can set refresh interval details and background colors, enable data caching to speed page refreshes, and choose which Insights cards to show.

Before you begin

Role required: dashboard_admin for all dashboards, or any role for dashboards that you own or ones that you have been given the right to edit. See Platform Analytics dashboard roles for more information about viewing and editing rights on dashboards. Additionally, dashboard_admin is required to schedule automated refreshes even of dashboards that you own.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. In the **Dashboards** library, choose the dashboard you want to configure.
3. Select **Edit** to enter editing mode.
4. Select the settings button ( ) to open the **Settings** panel.



5. Change any of the following settings.
   - Edit the **Refresh** options.

     Users with the dashboard_admin role or higher can configure automatic refreshes of the dashboard.

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- Select **Show refresh information** to display the last time the dashboard was refreshed under the dashboard title. This information updates when the dashboard is automatically refreshed and when a user selects the refresh button ().
- Select **Scheduled repetition** to specify in minutes or hours how often the dashboard is reloaded. Applies only while the dashboard is open. Requires the dashboard_admin or higher.

  Note:

  Do not confuse this setting with the **Refresh after being away for X minutes** option on data visualizations. This latter option takes effect when you navigate away from a dashboard containing the data visualization to another page in the same workspace or experience. If you navigate back to the dashboard after the specified number of minutes, the data visualization automatically refreshes.

- Select **Enable data cache** to shorten the load time on page refreshes for data visualizations based on table or indicator data. Data caching also applies to indicator scorecards. The dashboard uses the cached data instead of querying the database when the page is refreshed.

  Note:

  - Enabling **Scheduled repetition** disables data caching and vice versa.
  - Enabling **Real time update** or **Refresh after being away for X min** on a data visualization overrides caching for that visualization. If this option is subsequently disabled, the currently cached value is shown, if it hasn't expired.

  Data caches have an expiration time. When the page is refreshed and the cached data has expired, fresh data is queried and cached. When data caching is enabled, you can set the length of time for cached data to be valid in **Cached expiration time**. Options are 1, 2, 4, 8, 12, or 24 hours.

  You can manually refresh the cached data for either the whole dashboard or a data visualization by refreshing either the dashboard or the visualization, respectively.

- In the **Presentation** section, edit the background color of one or more tabs on the dashboard.

  Select a color from a list of preconfigured colors, or use the color palette to specify a color.

- Choose whether and which analytics to show in the **Insights** section.

  When you select **Show insights panel**, an **Insights** button is added to the dashboard. When a viewer presses this button, insights cards corresponding to the selected analytics options are shown. For more information, see Proactive analytics insights on dashboards.

Configure Platform Analytics dashboard tab cache timeout

Dashboard content isn't refreshed every time a user navigates between tabs. You can configure the number of minutes that dashboard tab content is cached before it's refreshed.

Before you begin
Role required: admin

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Procedure

1. Navigate to `sys_properties.list`.
2. Open the property *`next_experience.dashboard.tab.timeout`*.
   This property is enabled by default.
3. Edit the value.
   The default number of minutes after which tab content is refreshed is 20.
4. Select `Update`.

Platform Analytics experience dashboard categories

Dashboard categories enable searching and filtering dashboards using general terms assigned to multiple dashboards.

Note:
Core UI dashboard groups are migrated into categories.

Users with the platform_analytics_admin or analytics_categories_admin can create, edit, and remove dashboard categories. Users can then apply one or more categories to dashboards they create and can filter the dashboards in the Dashboards library by category.

When there are enough categories, you can search for categories in the dashboard overview. Otherwise, all categories that have been assigned to dashboards are visible under **Filter by categories**. Categories that have not been assigned in the dashboard's Information panel do not appear in the overview.

Navigate to analytics_category.list to view all categories.

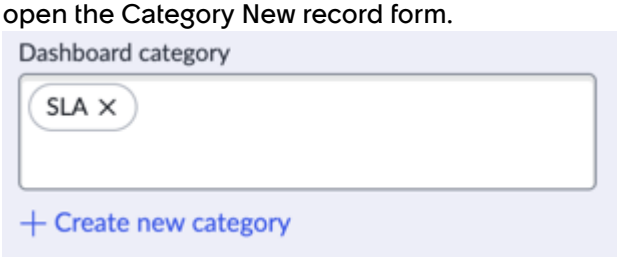
Create dashboard categories

Dashboard categories users to filter the dashboards in the dashboard overview on terms or phrases describing the dashboard as provided by its creator or the analytics_categories_admin.

Before you begin
Role required: analytics_categories_admin

Procedure

1. **Optional:** Select the Application scope icon ( ) and choose the scope the category should apply to.
   The default application scope is Global.
2. Navigate to **All** > **Usage and Governance** > **Analytics Categories**.
   You can also select **Create new category** in the Details window of a dashboard in Edit mode to open the Category New record form.



3. Select **New**.
4. Provide a name for the category.
5. Select **Submit**.

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Result
The category is available to apply to dashboards in the Info panel, and to search on in the Dashboards library.

Assign dashboard categories

Categories enable users to filter dashboards in the Dashboard library. You can assign one or more categories to each dashboard

Before you begin
Role required: Any user who can create a dashboard can assign an existing category to it. Only users with the analytics_categories_admin role can create categories. Only the owner of the dashboard or users with the analytics_categories_admin and dashboard_admin roles can assign categories to an existing dashboard.

Assign dashboard categories on the dashboard's info panel.

Procedure
1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Select the dashboard you want to apply a category to.
3. Select the Edit button (Edit) to put the dashboard into Edit mode.
4. Select the Info button () to open the dashboard's Information panel and choose the categories you want to apply.
   Users with the analytics_categories_admin role also have the option to create a new category.
5. Select **Exit editing mode** to apply the categories to the dashboard.

Result
- Dashboard cards in the library indicate which categories are applied.
- Users can find the dashboard by filtering on the assigned categories.

Manage dashboard categories

Dashboard categories enable users to filter the contents of the Dashboard library on terms or phrases assigned by the owner of the dashboard or the analytics_categories_admin.

Before you begin
Role required: analytics_categories_admin

Procedure
1. Navigate to **All** > **Platform Analytics Administration** > **Usage and Governance** > **Analytics Categories**.
2. Select one or more categories.
3. From the **Actions on selected rows** menu, choose what to do.

Certify a Platform Analytics dashboard

Certify a dashboard to indicate that it is company-approved and recommended for use.

Before you begin
Role required: admin or dashboard_admin

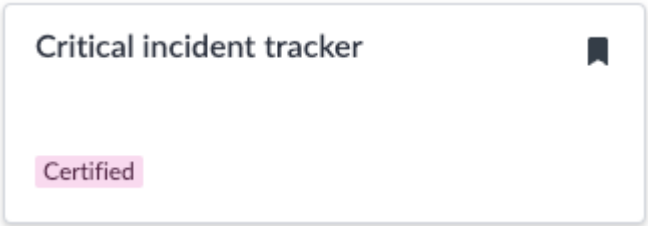
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Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**
2. Select the dashboard you want to certify.
3. Select the information button (ⓘ) to open the Details panel.
4. Select **Edit**.
5. Select the toggle labeled **Mark as certified**.
6. Select **Save**.

Result

On the dashboard overview, the tile is marked **Certified**.



Set dashboards as home for all users

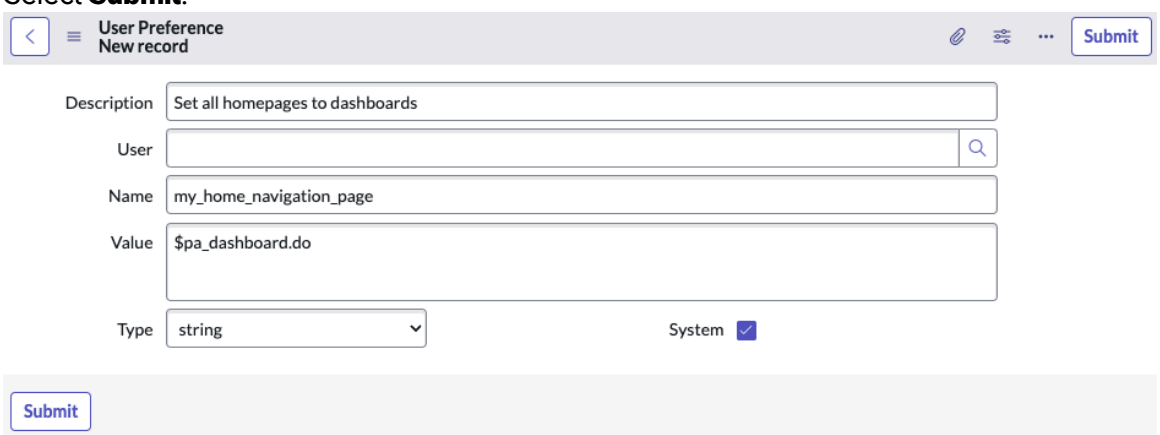
You can set dashboards as home for all users. By default, the most recent dashboard a user has visited is the dashboard they see when they log in to ServiceNow.

Before you begin

Role required: admin

Procedure

1. Navigate to **All** > **User Administration** > **User Preferences**.
2. Create a user preference with the name `my_home_navigation_page`.
3. Give the preference the description `Set all homepages to dashboards`.
4. Select the **System** check box to create an instance-wide default.
5. Leave the **User** field empty.
   Steps 4 and 5 make the preference universal.
6. Set the **Type** to `string`.
7. Set the value to `$pa_dashboard.do`.
8. Select **Submit**.



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Result
All users see the last dashboard that they visited when they log in to ServiceNow.

What to do next
Set a specific dashboard as home for all users

Set a specific Platform Analytics dashboard as home for all users

Configure ServiceNow so that all users see the same dashboard when they log in.

Before you begin
Role required: admin

Note:
Navigate to the dashboard you want to set as home, and copy the sys_id from the URL. The sys_id is the last element after the last forward slash. For example, in this URL, the sys_id is 456CBA: `https://my-instance.service-now.com/now/platform-analytics-workspace/dashboards/params/edit/false/sys-id/456CBA`. Paste the sys_id into a text file so that you can copy it into the system preference you create.

About this task
The dashboard that you configure should be available to all users.

Procedure
1. Create a user preference with the name `my_home_navigation_page`.
2. Give the preference the description `Set all homepages to dashboards`.
3. Select the **System** check box to create an instance-wide default.
4. Leave the **User** field empty.
   Steps 3 and 4 make the preference universal.
5. Give the preference a meaningful description that you can search for.
6. Set the **Type** to `string`.
7. In the **Value** field, enter the following: `$pa_dashboard.do?sysparm_dashboard=dashboard_sys_id`, but replace `dashboard_sys_id` with the sys_id you copied before you began.
8. Select **Submit**.

Result
All users see the same dashboard when they open ServiceNow.

Set a specific Platform Analytics dashboard as home for specific users

Configure ServiceNow so that specified users see the same dashboard when they log in.

Before you begin
Role required: admin

Note:
Navigate to the dashboard you want to set as home, and copy the sys_id from the URL. The sys_id is the last element after the last forward slash. For example, in this URL, the sys_id is 456CBA: `https://my-instance.service-now.com/now/platform-analytics-workspace/dashboards/params/edit/false/sys-id/456CBA`. Paste the sys_id into a text file so that you can copy it into the system preference you create.

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About this task
The dashboard that you configure should be available to all users.

Procedure
1. Navigate to **All** > **User Administration** > **User Preferences**.
2. Create a user preference with the name `my_home_navigation_page`.
3. Give the preference a meaningful description such as `Set home dashboard for ITIL users` that users can search for.
4. In the **User** field, specify one user this dashboard will be the home for.
5. Set the **Type** to `string`.
6. In the **Value** field, enter the following: `$pa_dashboard.do?sysparm_dashboard=dashboard_sys_id`, but replace `dashboard_sys_id` with the sys_id you copied before you began.
7. Select **Submit**.
8. **Optional:** Select the context menu (☰) and choose **Insert and Stay**.
   This action duplicates the user preference so that you can specify another user this dashboard will be home for. You can also specify a different sys_ID on the duplicated record.

Result
The specified users see the specified dashboards when they open ServiceNow or select the company logo.

Move a Platform Analytics dashboard with an update set

Dashboard tabs aren't automatically transferred in update sets. You can add a dashboard's components to update sets from a dashboard record using the **Unload Dashboard** function. The **Unload Dashboard** function unloads the entire dashboard with related content.

Before you begin
Role required: admin

About this task
This procedure describes moving the structure of an in-line dashboard to an update set. The dashboard structure includes the dashboard itself, tabs, the related security configuration, and dashboard-specific settings such as header color and borders. Moving technical dashboards with update sets is not supported.

This procedure adds saved data visualizations and filters to the update set. Other content is not moved. You can add dashboard content to the update set using default platform functionality.

Important:
Make sure that the dashboard content is either in the same update set as the dashboard record or is already present in the target instance. Errors result if the moved dashboard points to content that doesn't exist on the target instance.

Additional steps may be necessary if you are moving a dashboard in a scoped application. For more information, see Update set id 'global' is different than update set scope id.

Tip:
If you have difficulty with this procedure, contact Customer Service and Support.

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Procedure

1. Create a new update set and activate it.
2. In the source instance, navigate to `par_dashboard_list.do`.
3. Select the dashboard that you want to unload to an update set.
4. Select the Additional actions icon ( ) and select **Unload Dashboard**.
   Only perform this step after the dashboard is ready to unload, meaning that you've added all content to the tabs.
   The record for a dashboard in the par_dashboard table is always updated. This update to par_dashboard should always be included in the update set when transferring it to another instance. This also updates the sys_updated_on field even if no other fields are modified, such as when only widgets are changed.
5. When you're ready to move the update set, mark the update set as complete.
6. On the target instance, move the update using standard update set functionality.
   For more information, see Retrieve an update set.
   On the Remote Instance page, the **Retrieved Update Sets** related list shows all retrieved update sets. Select the update set to see if there are errors. Errors are shown on the **Retrieved Update Set** form in a related list called **Update Set Preview Problems**.

Result

The dashboard and its tabs are moved to the target instance.

Platform Analytics dashboard cache

Changes to the layouts of Platform Analytics dashboards are stored in the par_dashboard_cache table. Whenever a dashboard is called, a new entry is made in this table. Delete entries in this table to regenerate the cache for troubleshooting.

In the context of troubleshooting a dashboard's layout, navigate to `par_dashboard_cache_list.do` to open the PAR Dashboard Metadata Caches table. Delete a dashboard's record on this table to regenerate the cache.

These access control lists (ACLs) apply to the PAR Dashboard Metadata Caches *`par_dashboard_cache`* table:

- Admin only role: report_on, report_view, create, write, delete
- Any logged-in user: read

For a full guide to roles connected to Platform Analytics dashboards, see Platform Analytics roles.

Domain separation for Platform Analytics dashboards

Domain separation is supported throughout Platform Analytics. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data.

Support level: Standard

- Includes all aspects of **Basic** level support.
- Application properties are domain-aware as needed.

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- Business logic: The service provider (SP) creates or modifies processes per customer. The use cases reflect proper use of the application by multiple SP customers in a single instance.
- The instance owner must configure the minimum viable product (MVP) business logic and data parameters per tenant as expected for the specific application.

Sample use case: An admin must be able to make comments required when a record closes for one tenant, but not for another.

For more information on support levels, see Application support for domain separation.

Overview of domain separation

To activate the domain separation plugin, see Request domain separation.

Important:
For users in child domains to view dashboards in parent domains, both domain separation and delegated administration must be enabled.

Users in child domains cannot overwrite dashboards. Child domain users only have read access to dashboards.

How domain separation works in Dashboards

Assumptions:

- Only dashboards that have been shared are visible to other users. See Share a responsive dashboard.
- Users granted edit permissions on a dashboard can only edit that dashboard if they are in the same domain as the dashboard. For example, a user who is in the HR domain cannot edit a dashboard created in the parent of the HR domain.

Dashboard data that is domain separated includes dashboard records, dashboard tabs, and widget containers. Widget content is governed by the domain separation that applies to the content itself. For example, an admin adds a report created in the HR domain to a dashboard in the IT domain. This report is not visible to users in the IT domain, although they can see the widget container.

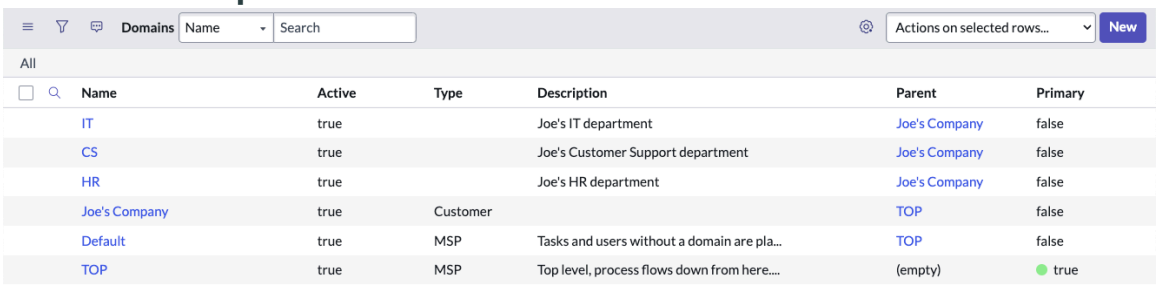
A dashboard defined at the global level is visible to all users with whom it has been shared. A shared dashboard created in a parent domain is visible to users in the parent and all its child domains. For example, a dashboard created in the TOP company is visible to users in:

- Joe's company
- Other companies in the TOP company
- All HR, CS, and IT child domains in those companies if it is shared with those users.

In the following figure, dashboards created in the IT, CS, and HR domains are not visible to users in the other child domains or in the parent domain.

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Domains list example



Domains | Name | Search | Actions on selected rows... | New

All

Name	Active	Type	Description	Parent	Primary
IT	true		Joe's IT department	Joe's Company	false
CS	true		Joe's Customer Support department	Joe's Company	false
HR	true		Joe's HR department	Joe's Company	false
Joe's Company	true	Customer		TOP	false
Default	true	MSP	Tasks and users without a domain are pla...	TOP	false
TOP	true	MSP	Top level, process flows down from here....	(empty)	true

Important:
Administrators should not edit a domain-separated dashboard from the global domain, because additions made to the dashboard are not visible to users within the separated domain. When editing dashboards, make sure that you are logged in to the correct domain.

Related topics

Understanding domain separation

Domain separation recommended practices for service providers

Configure a Process Mining map on a dashboard

Map the different states that are part of your process and the transitions between those states. See which states the objects of the process are in and the speed with which they change state.

Before you begin

You should be familiar with Process Mining and Process projects. For more information, see Process Mining.

The relevant Process project must already exist.

Role required: sn_process_optimization_analyst

About this task

The Process Mining Map component enables users to visualize how a process is being executed for a particular data set that is being analyzed. For example, you can show users the number of records for a specific date range, business area, and region.

This component offers similar content on any dashboard that you get from process maps in the Process Mining Workspace. For more information about process maps, see Process details page.

Procedure

1. Create a dashboard, or navigate to a dashboard that you are allowed to edit.
   For more information, see Create a dashboard with the in-line editor.
2. Select **Edit** to enter editing mode.
3. Expand **Add new element** and scroll down to Process Mining - Map.
   When you select this element, it is added to the dashboard, and its configuration panel opens.
4. Under **Data** in the Process Mining - Map configuration panel, select a Process Mining project.
   You can only select a Process Mining project that you can access.
5. For the map to follow filters on the dashboard, select **Follow filters**.
   For more information, see Applying filters to Process Mining maps.
6. Set the percentage of connections to show.
   Connections are lines that show how the subjects of the mapped process change states. These lines end in arrows to show the direction of the change. They also have boxes that show the number of records that followed that path and the average time they spent in the

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earlier state before moving. For example, if a box in the middle of a connection says 505/5d,



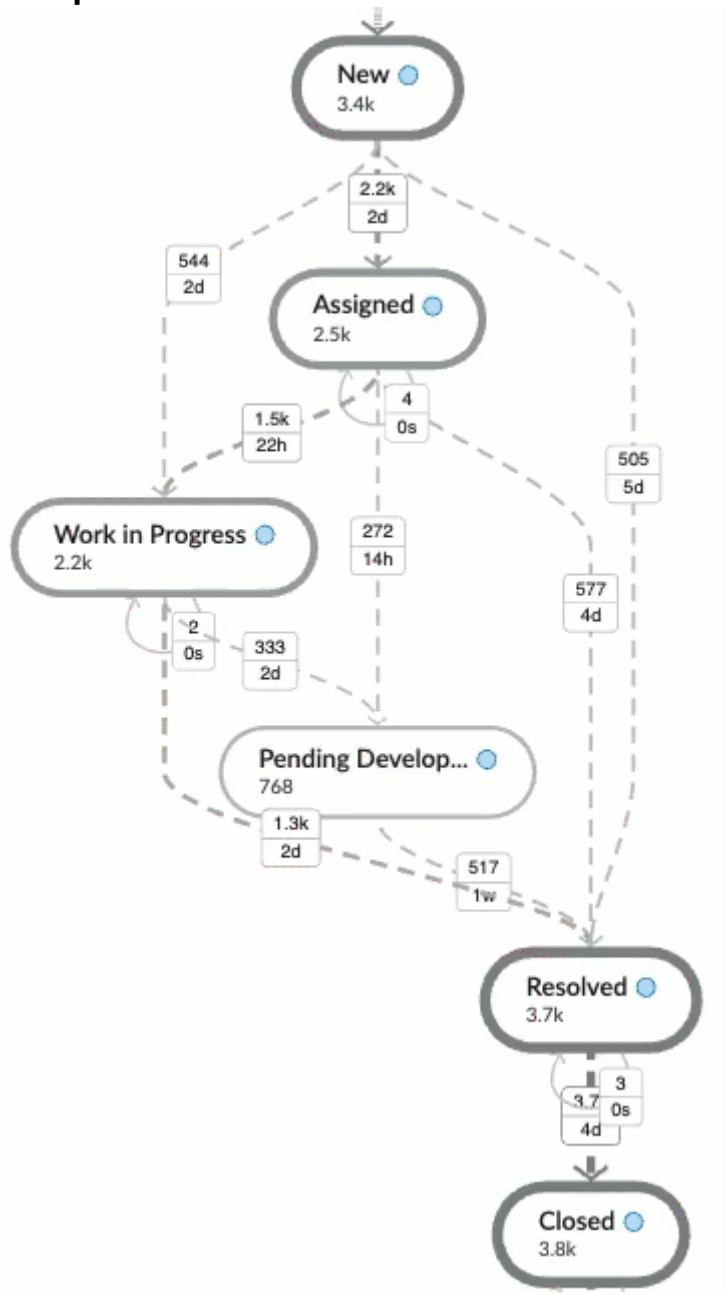
505 records have followed this change in state, and the average time in the earlier state was 5 days.

The most frequent changes are shown first. So if you accept the default 20%, only the 20% most frequent changes between states are shown. Too low a number results in too little data being shown on the map. Too high a number turns the map into a mass of spaghetti, with many rare changes between states that you might not care about.

7. Set the percentage of activities to show.
   Activities, or nodes, are the possible states of the subject of the process. For example, if you are looking at Incidents, an incident can be in the Assigned state or the Work in progress state. Too many activities can clutter the map, but generally show as many as you can.
8. **Optional:** Animate the map by turning on **Case follow simulation**.
   When **Case follow simulation** is active, the solid lines of the connections are replaced by moving dashed lines. The speed at which the dashes move represents the speed at which objects move from one state to the next. The thickness of the dashes shows the relative amounts of traffic.

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Example

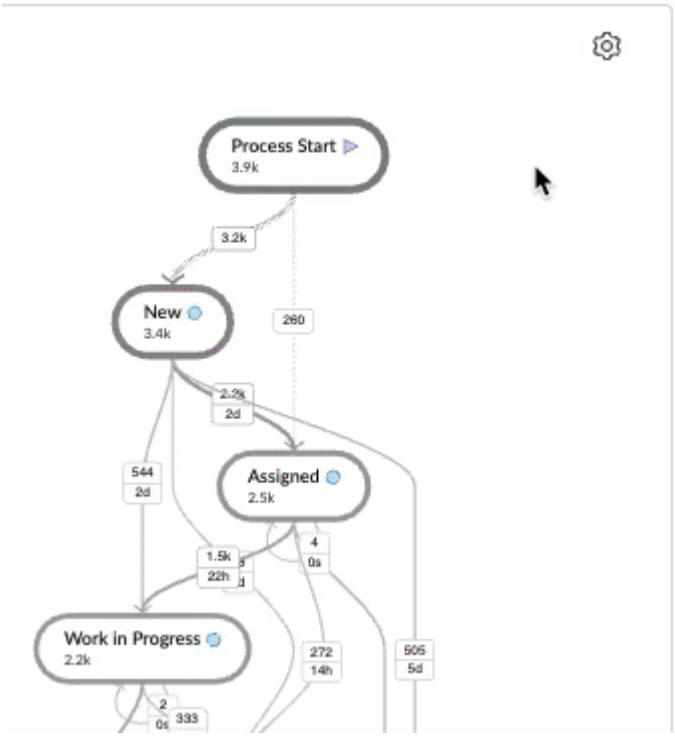


9. Optional: Specify the header and border settings, such as the title and description.

What to do next

Outside of editing mode, a user can expand the settings on the map. In these settings, they can adjust the connection and activities percentages and turn animation on and off.

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Related topics

- Process Mining
- Analyst Workbench
- Refining a process map

Applying filters to Process Mining maps

If a dashboard filter is on the same table as the breakdown of a process project, that filter can apply to a Process Mining map of that project.

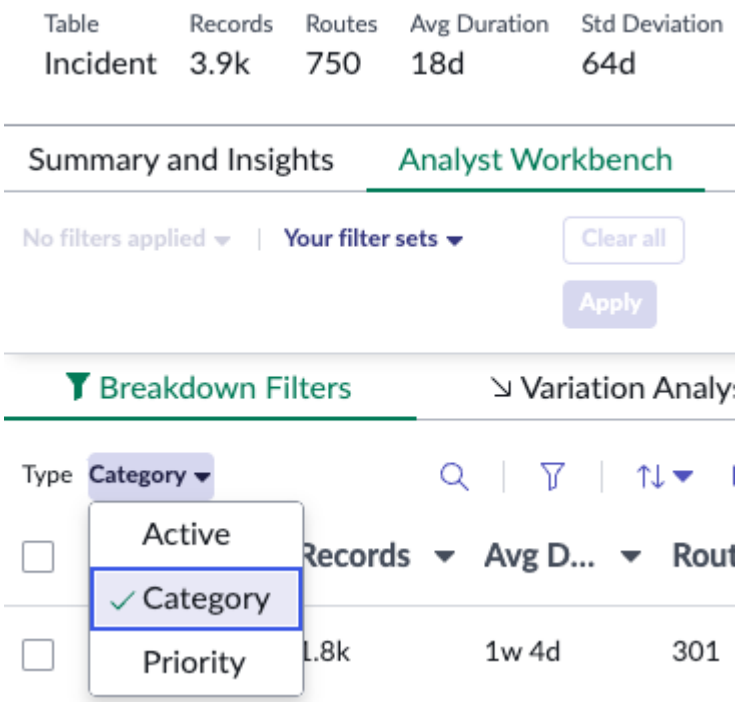
You can apply a single-select or true/false filter to a Process Mining map.

Single-select filter on Process Mining maps

For a single-select filter to apply to a Process Mining map, the filter source and the data to filter must both be on the same table as the table of the process project. Furthermore, they must be on a field of that table that is also a breakdown of the process project.

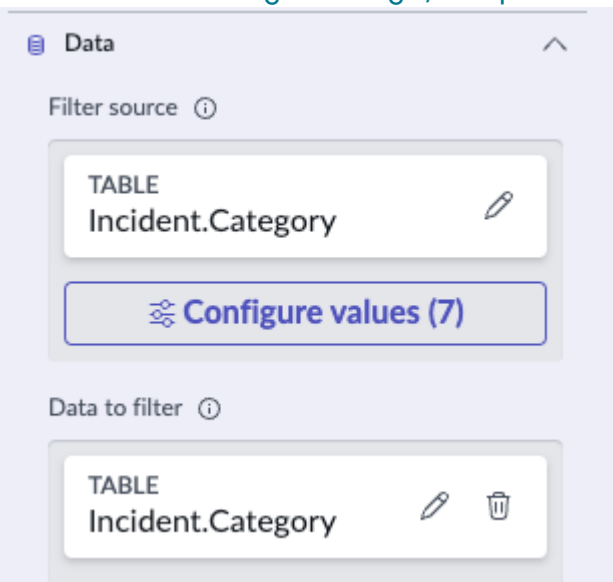
For example, consider a process project on the Incident [incident] table. The breakdown filters for this project include the Category field. In the Process Mining Workspace, you can see the breakdowns in the Breakdown Filters column of the Analyst Workbench for the project.

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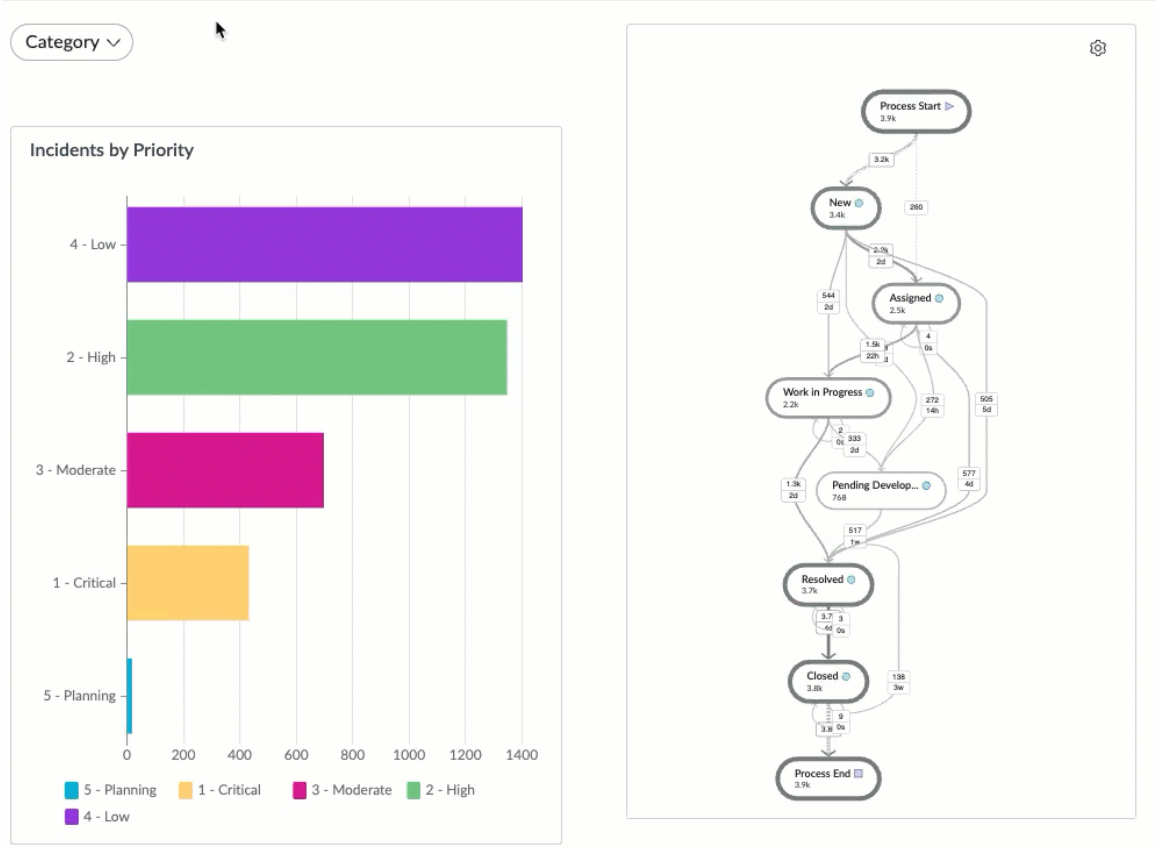
You can also see and change the breakdowns in the table configuration record for the project. For more information, see Configure a breakdown definition.

In the dashboard where you have added your Process Mining map for this project, you want users to be able to filter the map by Category. Category is a breakdown of the process project, so it is simple to add such a filter. When you create the filter, select the Incident table, then the Category field. This selection automatically applies to both the filter source and the date to filter, as described in Configure a Single/Multiple select or cascading filter.



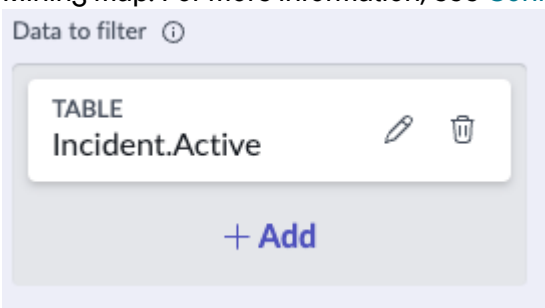
The filter applies to the Process Mining map the same as it does to a bar visualization of the Incident table.

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True/false filter on Process Mining maps

For a true/false filter, you only select the data to filter. Again, select the table of the process project and a field that is used as a breakdown. Continuing with the project from the Single Select filter example, Active is a true/false, or Boolean, field that is used as a breakdown. Therefore, you can set a true/false filter to filter Incident.Active, and it will filter the Process Mining map. For more information, see Configure a True/False filter.



Again, the filter affects both a data visualization and a Process Mining map on the Incident table.

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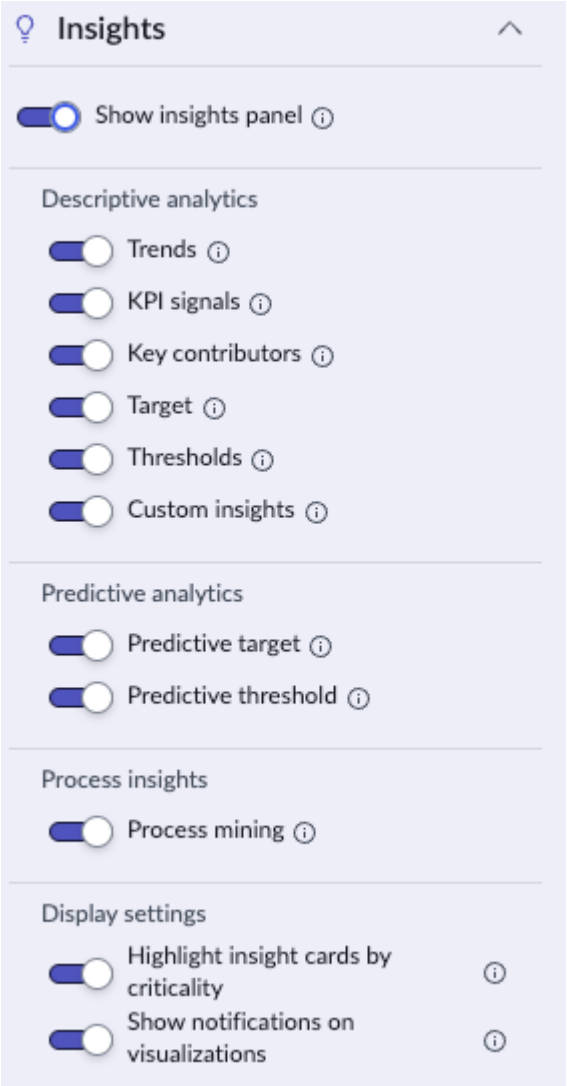
Proactive analytics insights on dashboards

Proactive analytics automates the extraction of insights from your Performance Analytics indicators. Receive notifications on your Platform Analytics dashboards of potentially interesting changes and events in your processes.

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Note:

- Proactive insights are a utility for use with Performance Analytics indicators on Platform Analytics dashboards. To benefit from this feature, you need to have indicators set up. These can be indicators you created yourself or indicators that are included in Platform Analytics Solutions. For more information, see Performance Analytics (Indicator data sources).
- You must have an active subscription to Performance Analytics to have Proactive analytics. For more information, see Activating your Performance Analytics subscription.
- To activate or deactivate Proactive analytics and select which types of insight cards to show, open the dashboard settings. For more information, see Configure Platform Analytics dashboard settings.



- Proactive analytics are available only on Platform Analytics dashboards, including technical dashboards. They are not available on responsive dashboards, including responsive dashboards that have been migrated to Platform Analytics in compatibility mode.

Types of insights/analytics

Proactive analytics consists of insight cards on your Platform Analytics dashboards. The system checks your indicators daily and generates insights cards for the following events:

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Trends

If an indicator is set to maximize or minimize but is trending in the opposite direction, an insight card is generated.

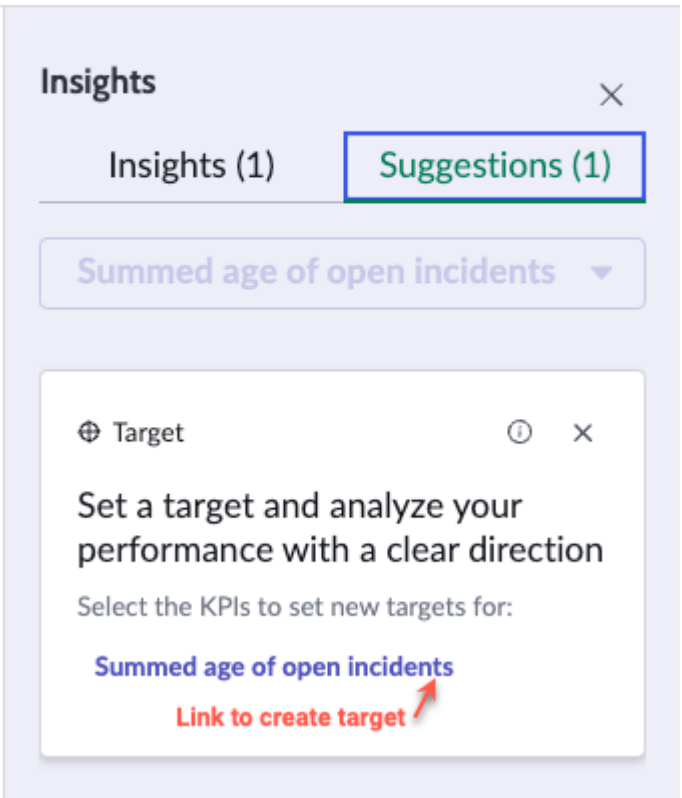
Indicator target or threshold event

An insight card is created for the following events:

- The target on a Performance Analytics indicator (KPI) is missed.
- The target on an indicator is likely to be missed (**Predictive target**).
- The threshold of an indicator is breached. If the breach is an all-time high or low, this fact is mentioned.
- The threshold of an indicator is likely to be breached (**Predictive threshold**).

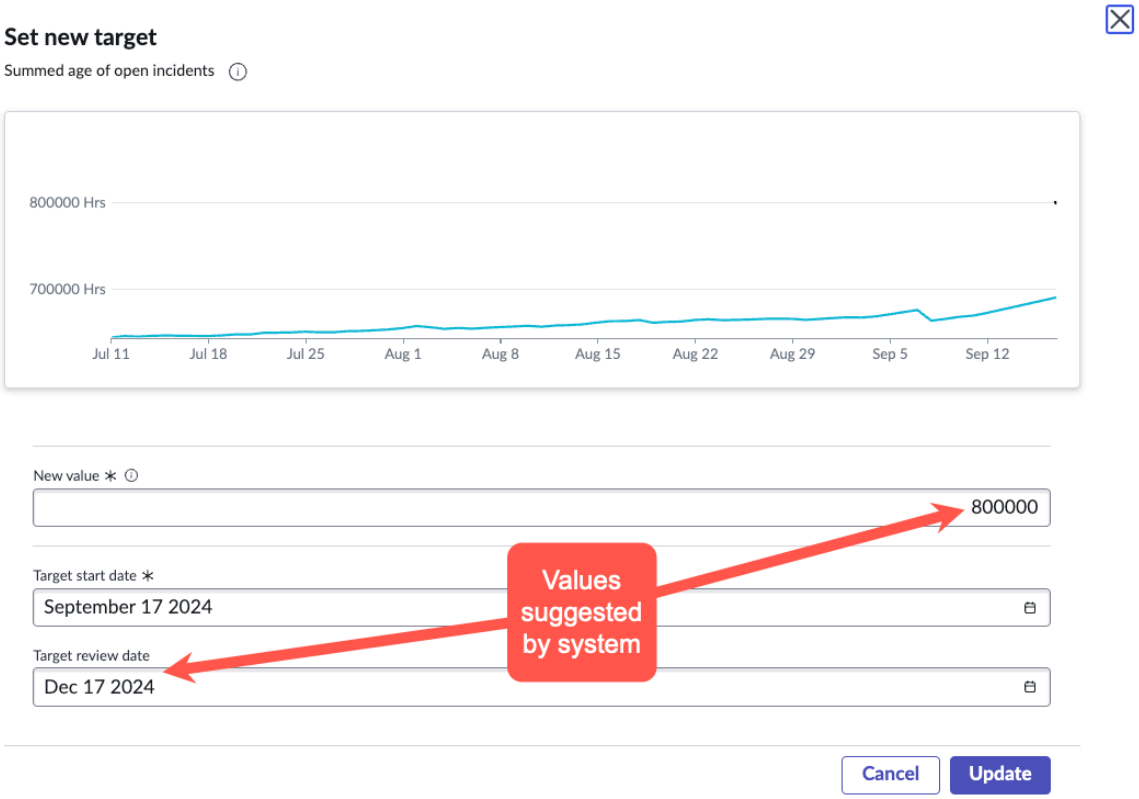
If you turn on target insights but targets are not set for all indicators that are shown on your dashboard, or not all targets have a review date, a Target Suggestion card is generated. The card has links for each indicator.





Selecting a link opens a modal for setting the target value and review date for that indicator. The system suggests values for you.

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For information about setting targets and thresholds on an indicator, see Performance Analytics targets and thresholds. You can also set targets and thresholds in a KPI Details page.

Process mining

If you are using Process Mining, an insight card can be generated for any potential bottleneck in the process flows related to the indicator. These insights are intended to help IT process owners. You can also receive suggestions for Process Mining projects to create, and such projects will also generate insights. For more information, see Creating Process Mining projects from Proactive Analytics suggestions.

Note:

- The sn_process_optimization_analyst role is necessary to see these insights.
- Process mining insights are included in the DA Process Mining Insights plugin.

KPI Signals event

A signal as defined in KPI Signals is generated. KPI Signals uses standard statistical Process Behavior Charts to identify significant changes in processes. The following signals generate Insights cards:

- Outlier: A score beyond the three standard deviation (3-sigma) upper or lower limit.
- Short run: Four consecutive scores all greater than or all less than the average value, with three of the scores outside two standard deviations.

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- Long run: Seven consecutive scores all greater than or all less than the average value.
- "Anti-signal": Informational message that the indicator has been stable for a long time.

Important:
KPI Signals must be configured for an indicator to generate KPI Signals events for that indicator. For more information, see Signal, no signal, and anti-signal and Activate KPI Signals monitoring for an indicator (KPI).

Key contributor guidance

A key contributor is a breakdown on a Performance Analytics indicator that the system identifies as having a particular impact. The system uses KPI Signals to make this determination, but you do not have to activate KPI Signals for the indicators. The system uses its own KPI Signals configuration.

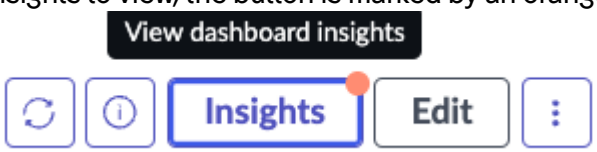
Warning:
Be careful when you modify a Performance Analytics data collection job after the system has started to identify key contributors. You might alter the KPI Signals baseline or the evaluation interval or both. Consequently, you can have inconsistencies in the insights. If you notice such inconsistencies, identify the UUID for the affected indicator-breakdown combination. Then delete the corresponding record from the PA Correlation Analyzer State [pa_correlation_analyzer_state] table. For more information, see KPI Details UUIDs.

Custom insights

Some dashboards that are included with Platform Analytics Solutions or other applications might have custom insights. For information about such insights, see the documentation for the relevant Platform Analytics Solution or application.

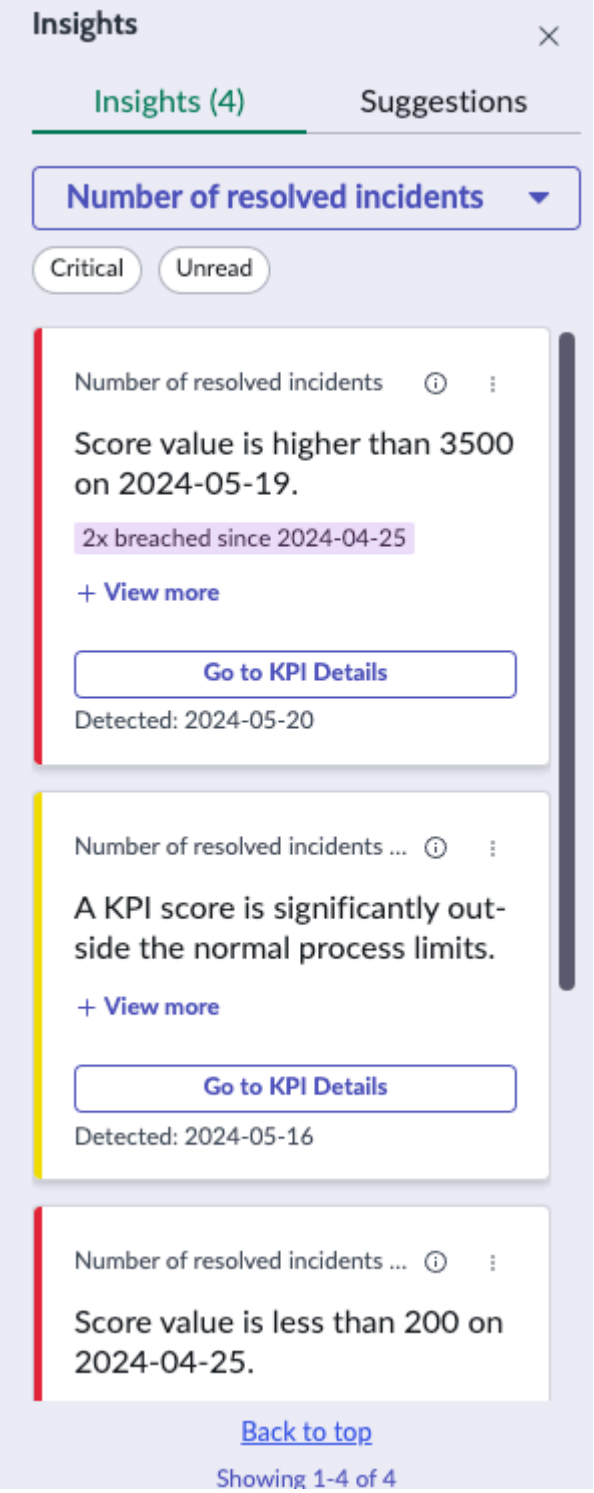
Viewing insights cards on dashboards

To see the insights cards, select the **Insights** button next to the **Edit** button. If there are new insights to view, the button is marked by an orange circle.



A panel opens displaying insights cards. These cards have a lifespan of 30 days. You can scroll through the cards. Insights of the same type are grouped onto a single card.

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Each card shows the type of event that has occurred and the event details. Each card also has a button that opens the appropriate page for follow-up, depending on the insight type:

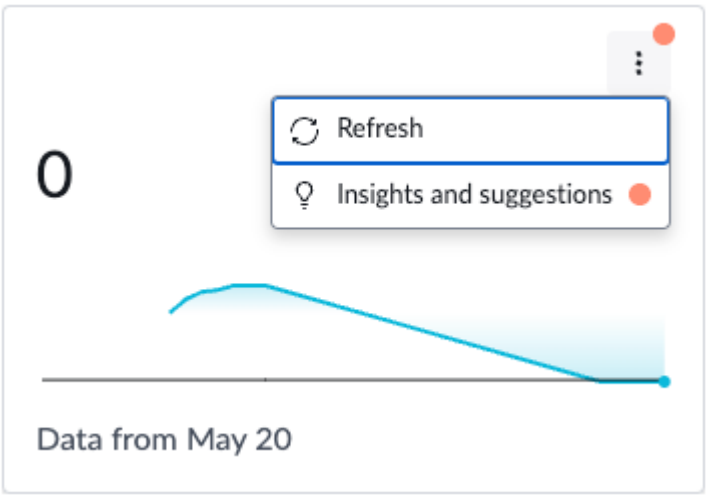
Insight type	Page opened
Target or threshold	KPI Details
Signal	KPI Details with KPI Signals pane open
Key contributor	KPI Details (you have to set the filter on the key contributor manually)

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Insight type	Page opened
Process Mining finding	Analyst Workbench

Insights notifications in data visualizations

If **Show notifications on visualizations** is toggled on for a dashboard, visualizations on that dashboard will have a notification icon if there are any insights related to the indicators shown in that visualization. You can open the Insights pane from the More actions menu on that visualization.



Grouped insights cards

Multiple insights of the same type are aggregated into a single card. If more insights of the type are generated before the card expires (14 days), they are added to the existing card. If a dashboard shows both trend and either target or threshold insights, the trend is shown on any target or threshold insight cards. No separate trend cards are generated in this case.

Limitations and requirements

The Yokohama version of Proactive analytics applies only to Performance Analytics indicators.

Target and threshold events are shown only when a target or threshold has been set on the indicator. For more information, see Performance Analytics targets and thresholds.

KPI Signals events are shown only for indicators with KPI Signals activated. For more information, see Activate KPI Signals monitoring for an indicator (KPI).

Key contributor guidance is provided only for Performance Analytics indicators with a daily frequency.

While key contributor events are also based on KPI Signals, they do not require KPI Signals to be activated on the indicator.

Related topics

- Create a flow with a Proactive Analytics trigger
- Indicator targets and thresholds in KPI Details

Creating Process Mining projects from Proactive Analytics suggestions

If you are using Proactive analytics with Process Mining, Proactive analytics can suggest new Process Mining projects. A single click from a suggestion creates and runs the project.

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An IT process owner might benefit from a Process Mining project that has not yet been created. If they are following their processes through indicators shown on a Platform Analytics dashboard, this feature can suggest Process Mining projects to create.

The feature works through a scheduled job, PA Indicator Recommendations. This job scans Performance Analytics indicators for anomalous behavior in the last 15 days and correlates that behavior against a set of variables to generate a score, which it stores on the par_indicator_model table. The job weighs the scores against the number of dashboards that each indicator is used in, then generates suggestions for the indicators with the three highest results. A single interaction with a suggestion creates a Process Mining project and generates insights based on that project. However, several requirements must be met.

Requirements on the dashboard side

- The DA Process Mining Insights plugin must be installed.
- On each relevant dashboard, Process Mining insights must be turned on.
- The relevant dashboard viewers must have the sn_process_optimization_analyst role.

Requirements for the suggestions to be created

- The facts tables for the relevant indicators must be set up to generate audit logs. For more information, see Configuring auditing for a table.
- A process configuration must exist for the facts tables of the relevant indicators. For more information, see Create process configuration using Classic view.
- A template project with table configurations specific to the facts table of the indicators should exist. To create such a project, see Create a project or template using Project Builder.

Requirements for insights to be created from the new project

Automated finding definitions must exist within the relevant process configurations, to ensure that the indicators are linked through the **Impacted KPIs** field. For more information, see Configuring improvement opportunities.

Related topics

Dashboards in Platform Analytics

Create a process mining project from a suggestion

If your instance meets the requirements, you can create Process Mining projects from Suggestions cards in your Insights panel. Such projects generate their own insights.

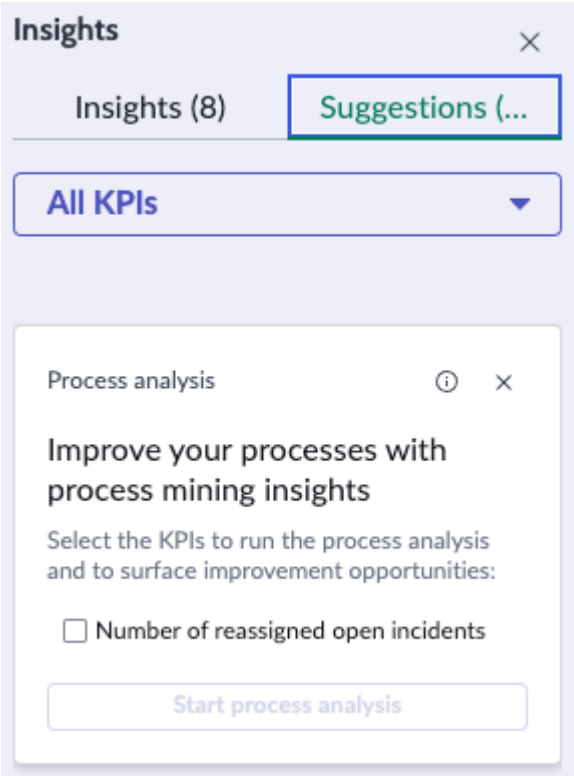
Before you begin

Role required: sn_process_optimization_analyst

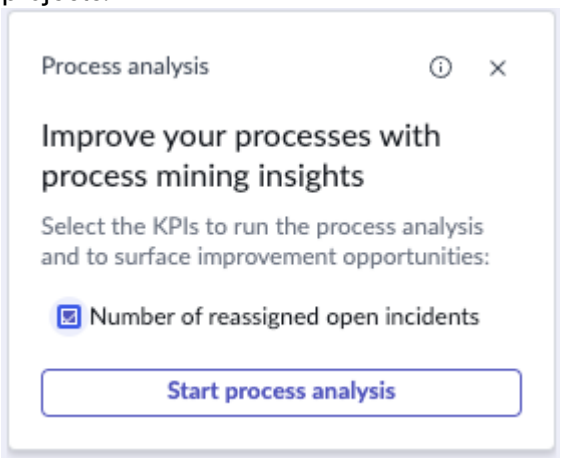
Procedure

1. Navigate to **Platform Analytics** > **Library** > **Dashboards**.
2. Open the relevant Platform Analytics dashboard.
3. Select **Insights** to open the Insights panel.
   Insights are not available in responsive dashboards, including ones that have been migrated to Platform Analytics in compatibility mode.
4. Open the Suggestions tab and review the suggestions.

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5. In each suggestion, select all the indicators for which you want to create Process Mining projects.

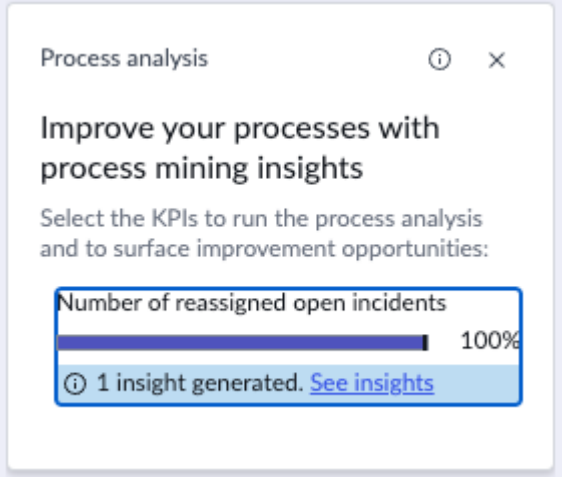


6. Start the process analysis.

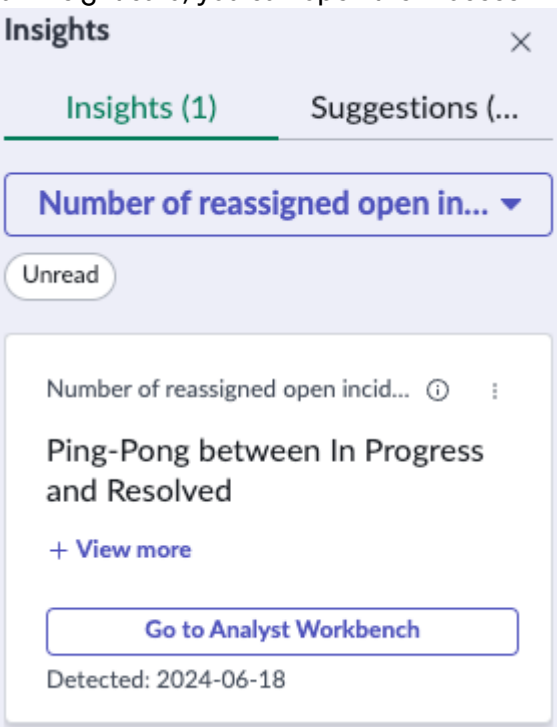
Result

The system generates and runs the Process Mining project. You can follow the progress in the Suggestion card. When the process is complete, the Suggestion provides a link to any insights that the project created.

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If you select **See insights**, you see the cards for the insights that the project created. From such an insight card, you can open the Process Mining Analyst Workbench for the project.



Proactive analytics jobs

Proactive analytics insights are activated and generated through several jobs on the Sys Jobs [sys_job] table. All jobs run daily, at times set in Schedule Item [sys_trigger] records.

Proactive analytics jobs

Name	Java class	Job details	Scheduled item [sys_trigger]
KPI Signals Analytics Job	com.snc.pa.job.SignalsAnalyticsJob	Converts proactive signals to insights and/or proactive analytics flow trigger events.	KPI Signals Analytics Job

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Proactive analytics jobs (continued)

Name	Java class	Job details	Scheduled item [sys_trigger]
PA Forecast Job	com.snc.pa.forecast.PAForecastJob	Checks targets per UUID against the forecast and generates any triggered notifications.	PA Forecast Job Schedule
PATarget	com.snc.pa.job.PATargetCheckJob	Fires a target notification summary event.	Check PA Targets
PAThreshold	com.snc.pa.job.PAThresholdCheckJob	Checks threshold reached event for each threshold whose condition is satisfied.	Check PA Thresholds
Trend Insights Job	com.snc.pa.job.TrendAnalyzerJob	Analyzes indicator trends daily, flagging significant deviations within the last 30 days.	Trend Insights Job Schedule
TriggerDefinitionProactiveAnalyticsJob	com.snc.pa.job.TriggerDefinitionProactiveAnalyticsJob	Checks for the existence of a Performance Analytics Premium plugin, and if one is present, activates the Proactive Analytics trigger definition in sys_hub_trigger_definition.	Proactive Analytics Trigger Definition Activation Job

System properties for Proactive analytics

Several system properties that affect the generation of insights cards are available.

These properties either exist or can be created on the System Properties [sys_properties] table. The admin role is necessary to set system properties.

Note:
To open the System Properties [sys_properties] table, enter `sys_properties.list` in the navigation filter.

Properties for Proactive Analytics

Property	Description
com.snc.pa.insights.query_limit	Limit the number of rows when querying the par_computed_insight table in the GET response to the Insights API. • Type: Integer • Default value: 1000 • Location: The System Properties [sys_properties] table

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Properties for Proactive Analytics (continued)

Property	Description
com.snc.pa.insight.max_days_in_past	By default, retrieve insights created within the number of days in the past that this property specifies. • Type: Integer • Default value: 14 • Location: To change the value, create this property in the System Properties table. • More information: Add a system property
com.snc.pa.correlation.enable_insights	Enables the generation of key contributor insight cards. • Type: true/false (Boolean) • Default value: true • Location: To change the value, create this property in the System Properties table. • More information: Add a system property
com.sys_par_insights_enabled	Enables the Proactive Analytics feature. • Type: true/false (Boolean) • Default value: true • Location: To change the value, create this property in the System Properties table. • More information: Add a system property
com.snc.pa.xmr.processes.limit	The maximum number of KPI Signals Configurations (pa_xmr_processes) that can be evaluated by the KPI Signals Insight Job. After this number of processes have been evaluated, the remaining processes are ignored. • Type: Integer • Default: 1000 • Maximum: 10,000

Technical dashboards

If you need more advanced or customized features in a dashboard than you can get through the inline editor, you can create a UI Builder page that is exposed as a dashboard. Such pages are called technical dashboards.

Technical dashboard overview

You create a technical dashboard in the dashboard editor. However, you cannot edit the dashboard contents in the inline editor. Instead of an **Edit** button, you have an **Open in UI Builder** button. In UI Builder, you can populate the dashboard will the full range of UI Builder containers

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and components. You have some additional options, such as being able to use manual data sources or local data broker instances. You also are required to configure more technical details yourself, such as event handlers for filters and drilling down in data visualizations.

Only someone with the ui_builder_admin role can create a technical dashboard, edit its contents, or configure its UI Builder page options.

You can open a technical dashboard in the dashboard editor from the dashboard library, as you would for any dashboard. In the editor, you can share the dashboard, create a printable version, or edit its dashboard details. You can also expose technical dashboards in multiple workspaces as described in Add a dashboard to a Dashboards page.

Technical dashboards are kept in a dedicated UI Experience named Advanced Dashboards. However, it is better to open technical dashboards in the dashboard editor and use the **Open in UI Builder** button than to open them directly in UI Builder through the Advanced Dashboards experience.

⚠ Warning:

Do not try to create a technical dashboard directly in the Advanced Dashboards experience. The UI Builder page you create will not appear in the dashboards library and will be missing other preconfigurations.

Other technical dashboard topics

Technical dashboards compared to inline dashboards

The inline editor produces dashboard components with events and page properties preconfigured. The technical editor allows for a full range of UIB components but requires more backend configuration.

Dashboard created inline	Technical dashboard
Can be created with any role.	Can only be created with the ui_builder_admin role.
Can contain the following: • Data visualizations • Filters • Headings • Images • Simple lists • Rich text	Can contain any component that is supported in UI Builder, including all components available for a dashboard created inline.
Can be duplicated.	Cannot be duplicated.
Can be exported.	Cannot be exported.
Data visualizations and filters support only predefined data sources.	Manual JSON data sources and local data instances are supported. (True for UI Builder pages in general.)
No event configuration for drilldowns. Default and preconfigured drilldowns are available as Chart interactions.	If you want viewers to drill down from a visualization, you have to configure a drilldown event on that visualization. You may need to

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Dashboard created inline	Technical dashboard
	configure other events. Chart interactions are not available.
Filter events are preconfigured to affect the relevant elements on the dashboard.	Filter event handlers must be configured manually.
If the viewer selects filter values and leaves the dashboard, those values are preselected for that viewer when they reopen the dashboard.	Filter values do not persist between user sessions.
Can be shared with or without editing rights depending on the roles of the sharer and what rights have been shared with them.	Same as dashboards created inline.
Can specify dashboard details, including exposing the dashboard in other experiences or configurable workspaces. The rights to edit dashboard details are limited to dashboard admins and the dashboard owner.	Same as dashboards created inline.

Related topics

- Create a filter on a technical dashboard in UI Builder
- Chart interactions in a data visualization

Create a technical dashboard in UI Builder

Follow the Technical Editor option to create a dashboard using UI Builder. In UI Builder, you can use a wider range of features than the inline editor, including scripting and data binding.

Before you begin

Creating dashboards in UI Builder is recommended for developers. For more information, see UI Builder.

It isn't possible to edit the dashboard's details in the Analytics Center when you create a dashboard in the Technical Editor. However, you can share a technical dashboard from the Analytics Center.

Note:
Data visualizations based on table data are automatically shared with users that you share a dashboard with.

Role required: ui_builder_admin

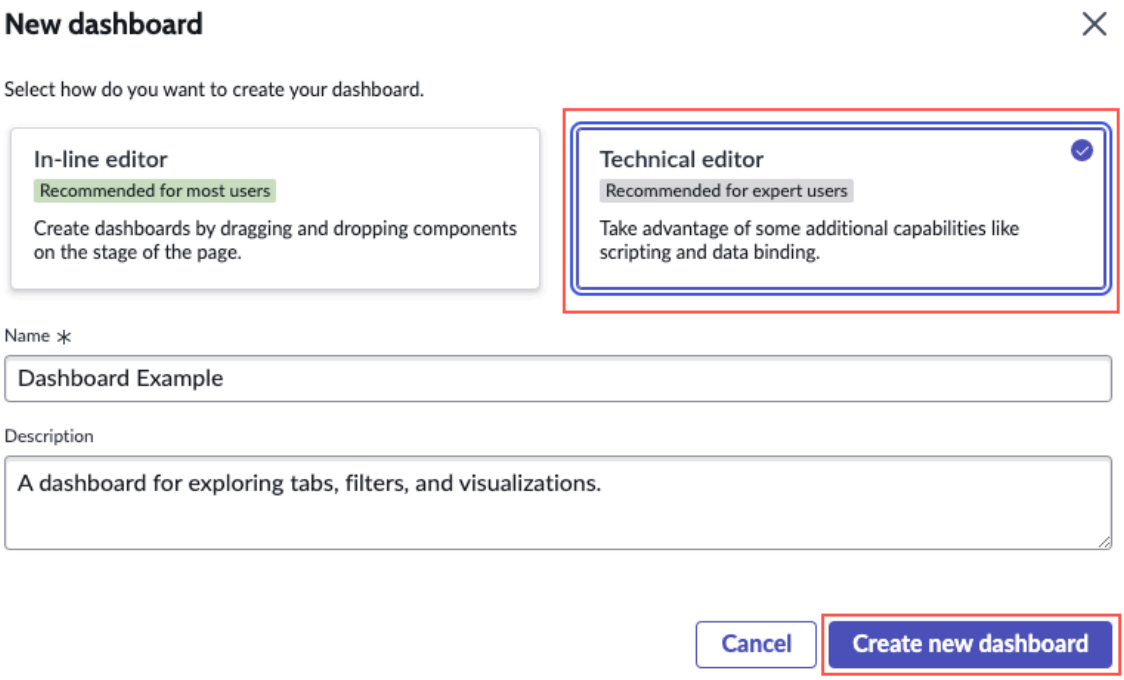
About this task

The technical editor lets you add any UI Builder component to your dashboard. You can also use all other UI Builder features, such as data resources, client scripts, and data binding of configuration properties. The technical editor creates dashboards in a special workspace named Advanced Dashboards, which is available under My Experiences in the UI Builder.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Select **Create new dashboard**.
3. Choose **Technical editor**.

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Warning:
Do not try to create dashboards directly in the Advanced Dashboards experience on the UI Builder. Always begin in runtime from the Platform Analytics library. When you begin the technical dashboard in the library, it has an automatic connection to the par_dashboards table and is listed in the Dashboard overview component.

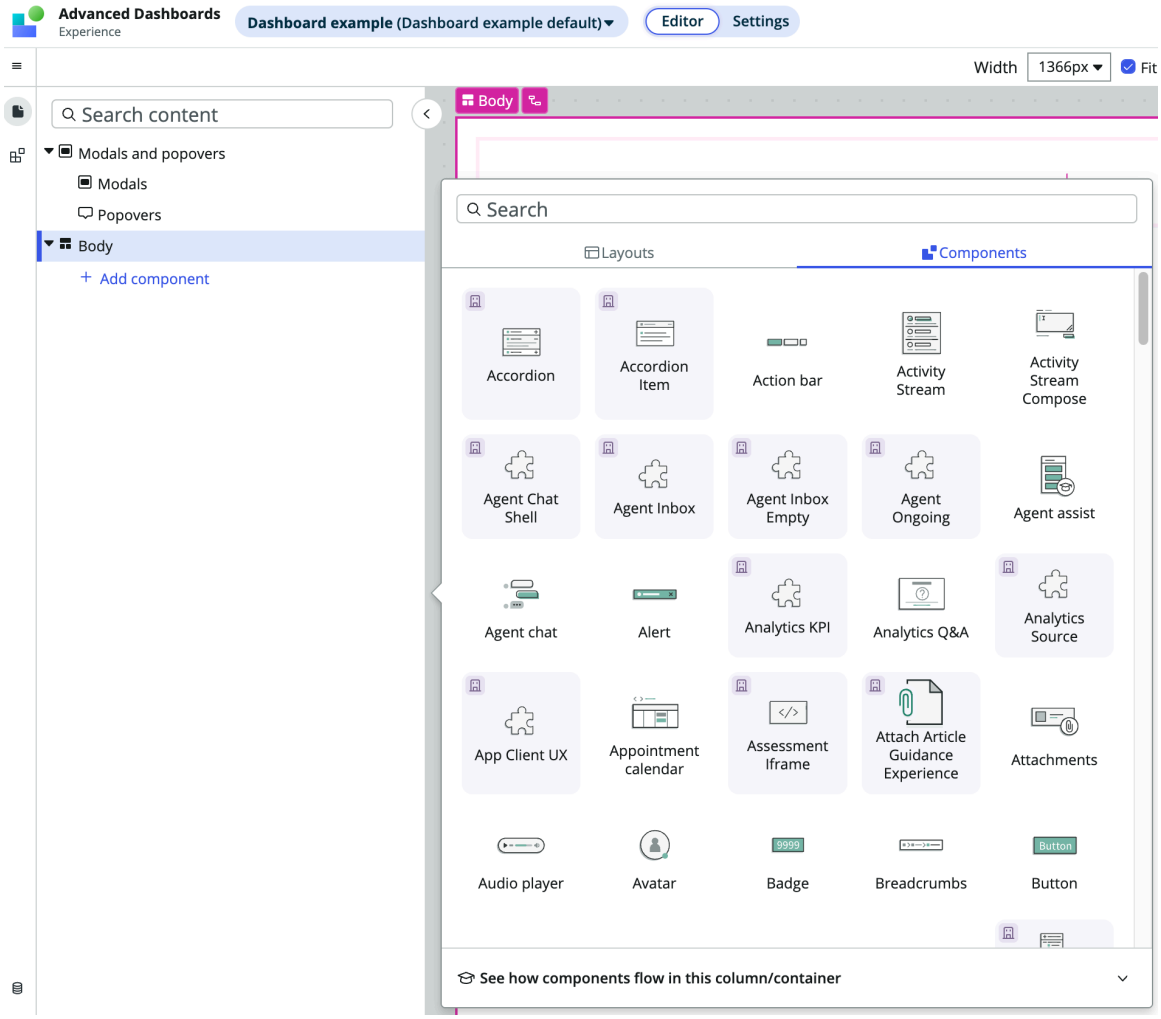
4. Provide a name and description of the dashboard you are going to create and select **Create new dashboard**.
   The Technical editor option opens an empty dashboard.
5. Select **Edit in UI Builder**.
6. In the Content tree view, add layouts or container components.
   Containers hold dashboard components including data visualizations, static text boxes, and images. If you're creating a tabbed dashboard, you can create each tab as a container under the parent Tabs component. For more information, see the Tabs component reference on the Developer Site.
7. On the right side of the UI Builder, in the **Styles** tab, choose a layout.

   Layouts organize container content in patterns.

   - Choose **Grid** to specify the number of rows and columns in the selected container. For more information, see Using CSS Grid layouts to build a page.
   - Choose **Flexbox** for more flexibility in the layouts between containers. For more information, see Using Flexbox layouts in UI Builder.
8. Add a component to the container.
   Select it from the **Components** menu on the left or click the Add content (**+**) icon in the staging area.

   The **Configure** panel on the right enables you to configure the component you've chosen.

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9. **Optional:** Add more containers, components, and configurations.
10. If you have added a data visualization component and you want viewers to drill down to a more detailed data view from that component, follow the instructions in Add a drilldown event to a data visualization on a technical dashboard.
11. Click **Save** at any time to save the changes you've made to the dashboard.

Related topics

Data visualizations in Platform Analytics

Filters in Platform Analytics

Add a drilldown event to a data visualization on a technical dashboard

Technical dashboards do not support preconfigured destinations for drilling down from a data visualization. If you want a viewer to open a more detailed view of the data when they interact with a visualization, configure a custom drilldown event.

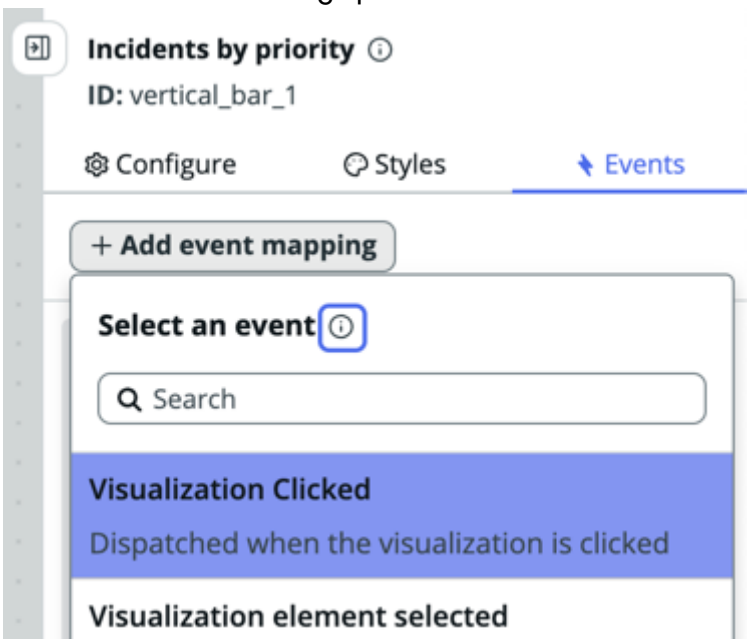
Before you begin

This procedure assumes that you have already created a technical dashboard and populated it with a data visualization component.
Role required: ui_builder_admin, rights to edit a technical dashboard

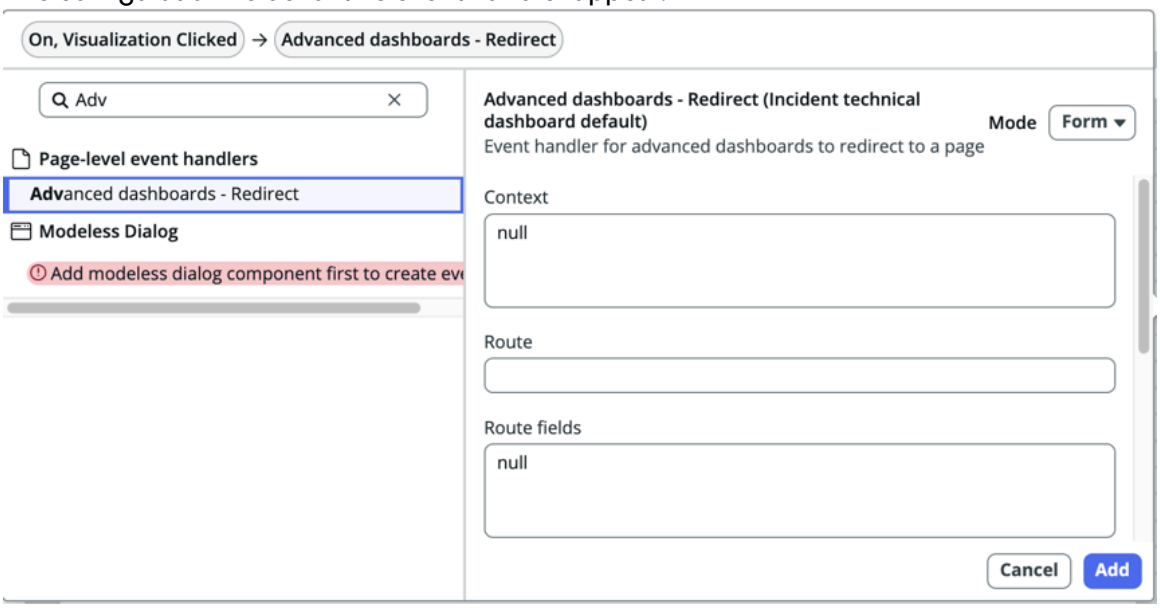
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Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Locate and open the desired technical dashboard.
3. Select **Edit in UI Builder**.
4. In the UI Builder, select the desired data visualization in the dashboard.
5. In the configuration panel for the data visualization, open the **Events** tab.
6. Select **+ Add event mapping**.
   The Select an event dialog opens.



7. Select the **Visualization Clicked** event.
   A dialog opens with a list of available event handlers.
8. Select the **Advanced dashboards - Redirect** event handler.
   The configuration fields for this event handler appear.



9. Configure the event handler as follows.

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Field	Description
Context	The path of the experience where the destination page resides.
Route	The route name of the destination page.
Route fields	Required parameters for the destination page.
Optional parameters	Optional parameters for the destination page.

10. Select **Add**.

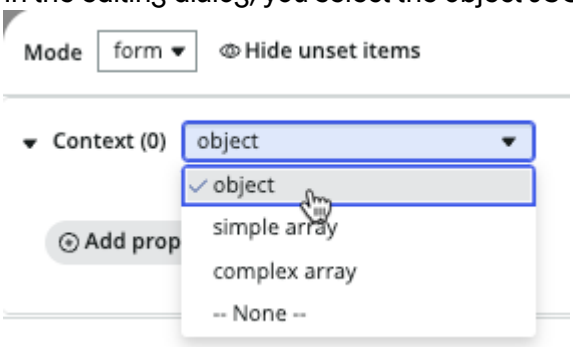
Example: Drilldown for a table data source

You have a vertical data visualization that shows the number of records on the Incident [incident] table grouped by Priority. When a viewer interacts with this visualization, you want it to open a list of Incident records in the Platform Analytics experience.

1. You follow Steps 1-8 in the general procedure, so you now have the configuration open for the Advanced dashboards - Redirect event handler for your vertical bar visualization.
2. In the Context field, you select **Edit**.

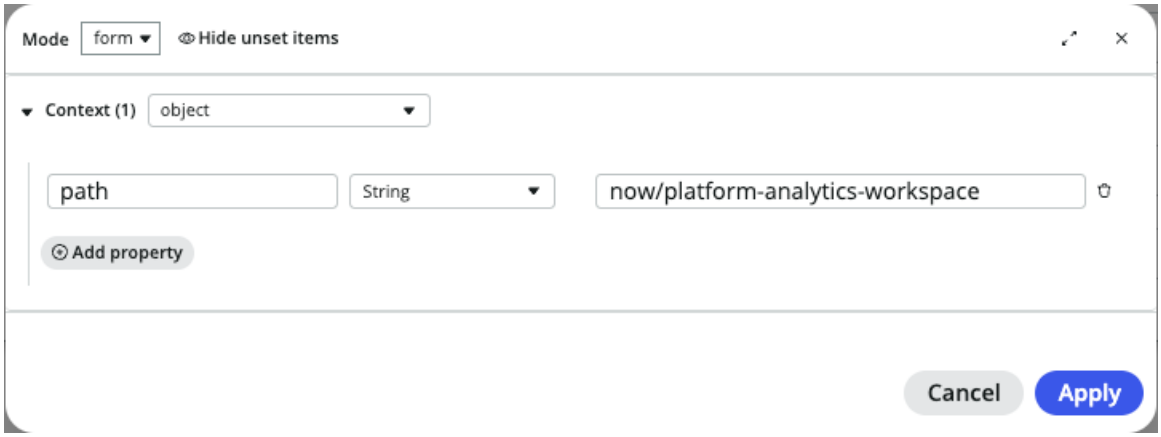


3. In the editing dialog, you select the object JSON type.



4. You select **Add property** and enter `path` as the property name and `now/platform-analytics-workspace` as the property value. These values specify that the viewer drills down to the Platform Analytics experience.

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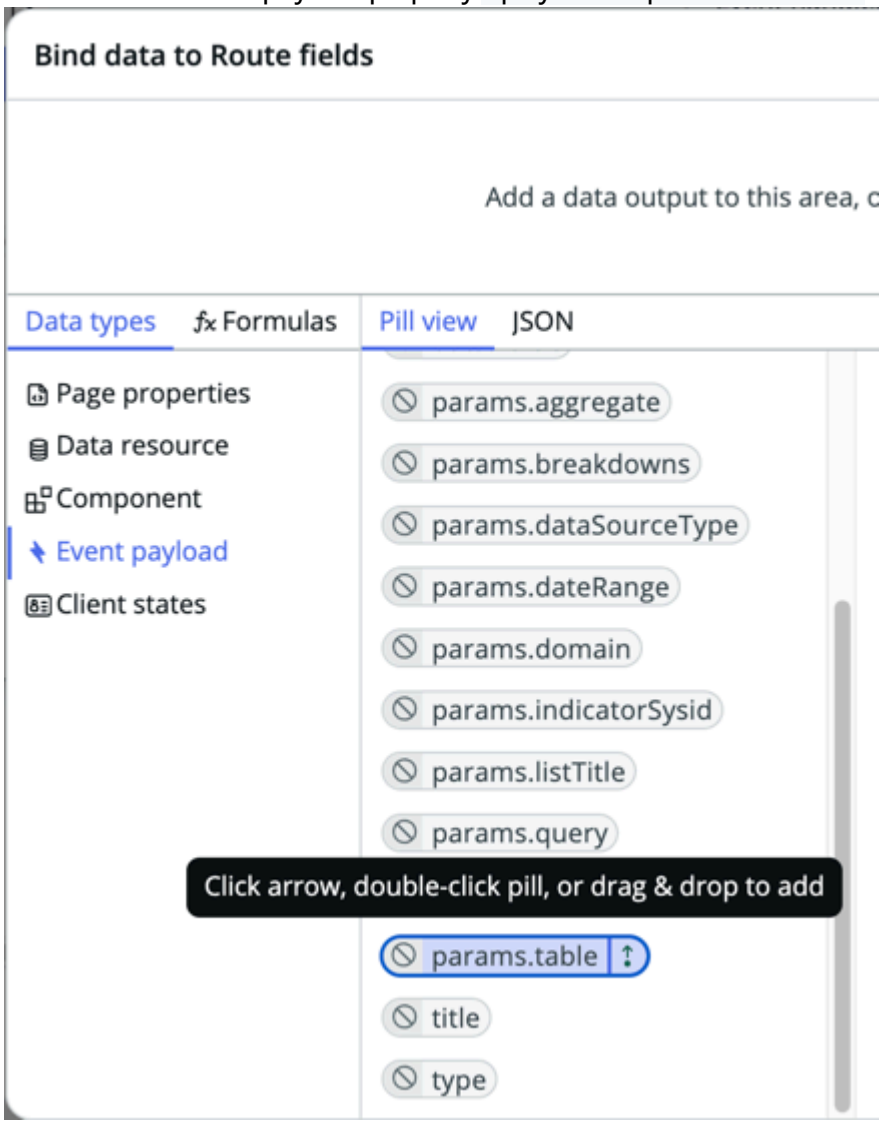


5. You select **Apply** and move on to the next field.
6. In the Route field, you enter `simplelist`. This route leads to the simplelist page in the Platform Analytics experience.
7. For the Route fields, you first choose to bind data. 

8. Then you add the property `{table: @payload.params.table}` to the field. This property passes the name of the table in your visualization to the simplelist page of the Platform Analytics experience.

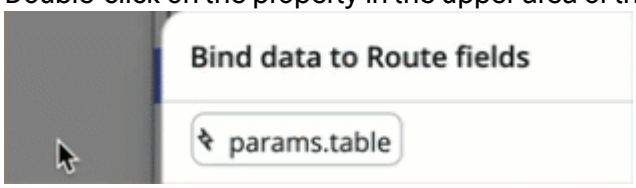
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a. You select the Event payload property `@payload.params.table`.

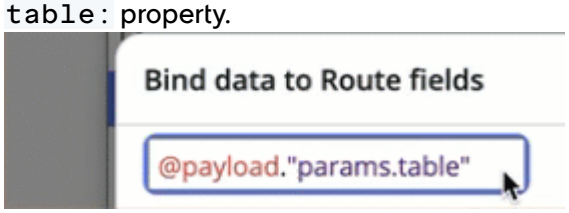


b. You double-click, drag and drop, or select the arrow to add the property to the upper area of the editor.

c. Double-click on the property in the upper area of the editor to open it for editing.



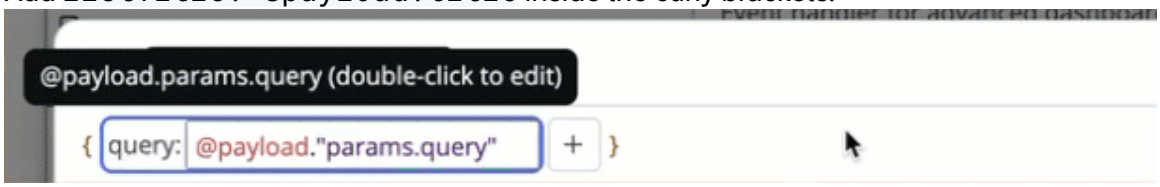
d. You surround the `@payload.params.table`property with curly brackets and add the `table:` property.



e. You select **Apply**.

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9. Similarly, you choose to bind data for the Optional parameters field and set the values `{query: @payload.params.query, listTitle: @payload.title}`.
   a. In the Optionals Parameters field, add `{query: @payload.params.query}` as you did for `{table: @payload.params.table}`, but do not select **Apply**.
   b. Select the **Add another input** (+) button.
   c. Add `listTitle: @payload.title` inside the curly brackets.

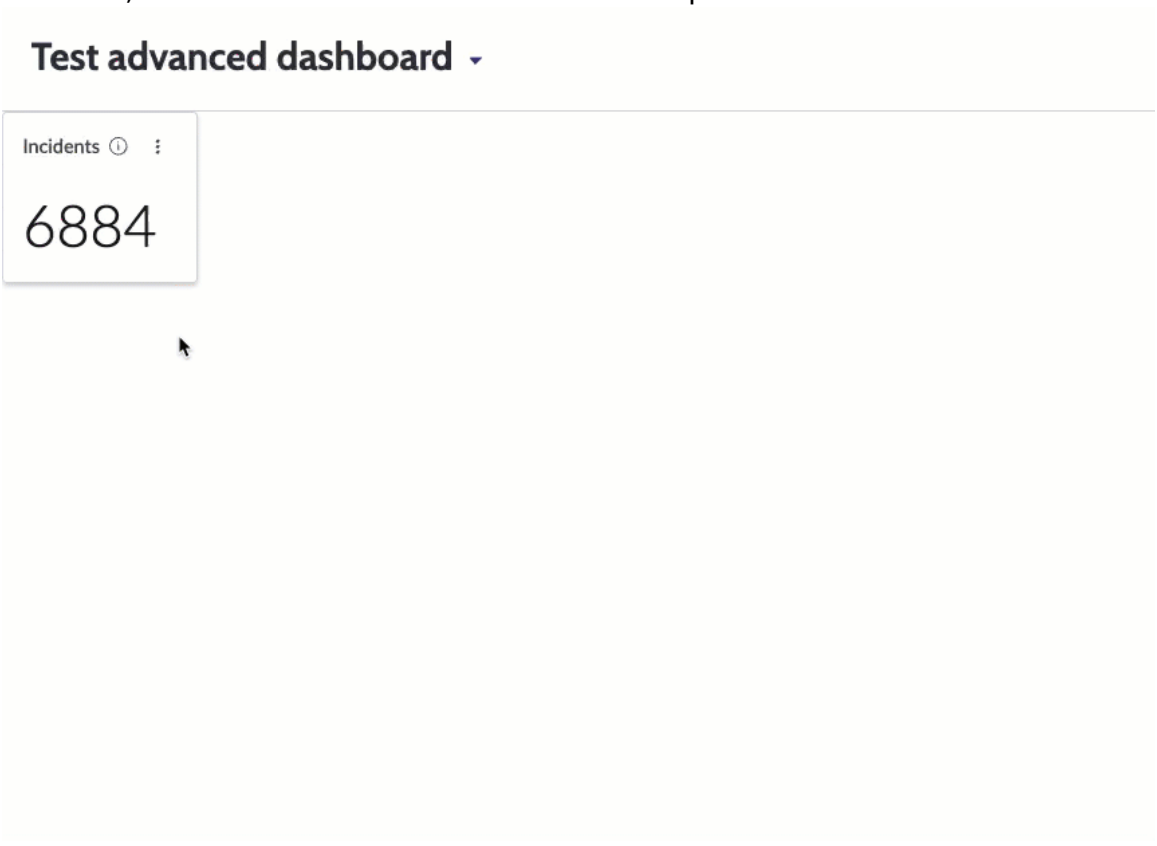


   d. You select **Apply**.

The properties of your Advanced dashboards - Redirect event handler now appear as follows:

Field	Value
Context	{path:now/platform-analytics-workspace}
Route	simplelist
Route fields	{table:@payload.params.table}
Optional parameters	{query:@payload.params.query, listTitle:@payload.title}

In runtime, a user can interact with the visualization to open a list of Incident records.



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Example: Drilldown for an indicator data source

You have a Line data visualization for the indicator Number of open incidents. When a viewer interacts with this visualization, you want it to open the KPI Details page for that indicator.

1. You repeat steps 1-5 from the Table data source example, because in this case too you are drilling down to a page on the Platform Analytics experience.
2. For the Route, you enter `ac_kpi_details`.
3. For the Route fields, you first choose to bind data 

. Then you enter `{uuid:@payload.params.indicatorSysid}`. This parameter passes the id of the indicator, in this case Number of open incidents, to the Platform Analytics experience KPI Details page.

   Tip:
   First use autocomplete to add the data parameter `@payload.params.indicatorSysid`, then surround that parameter with curly brackets and add `uuid:`.

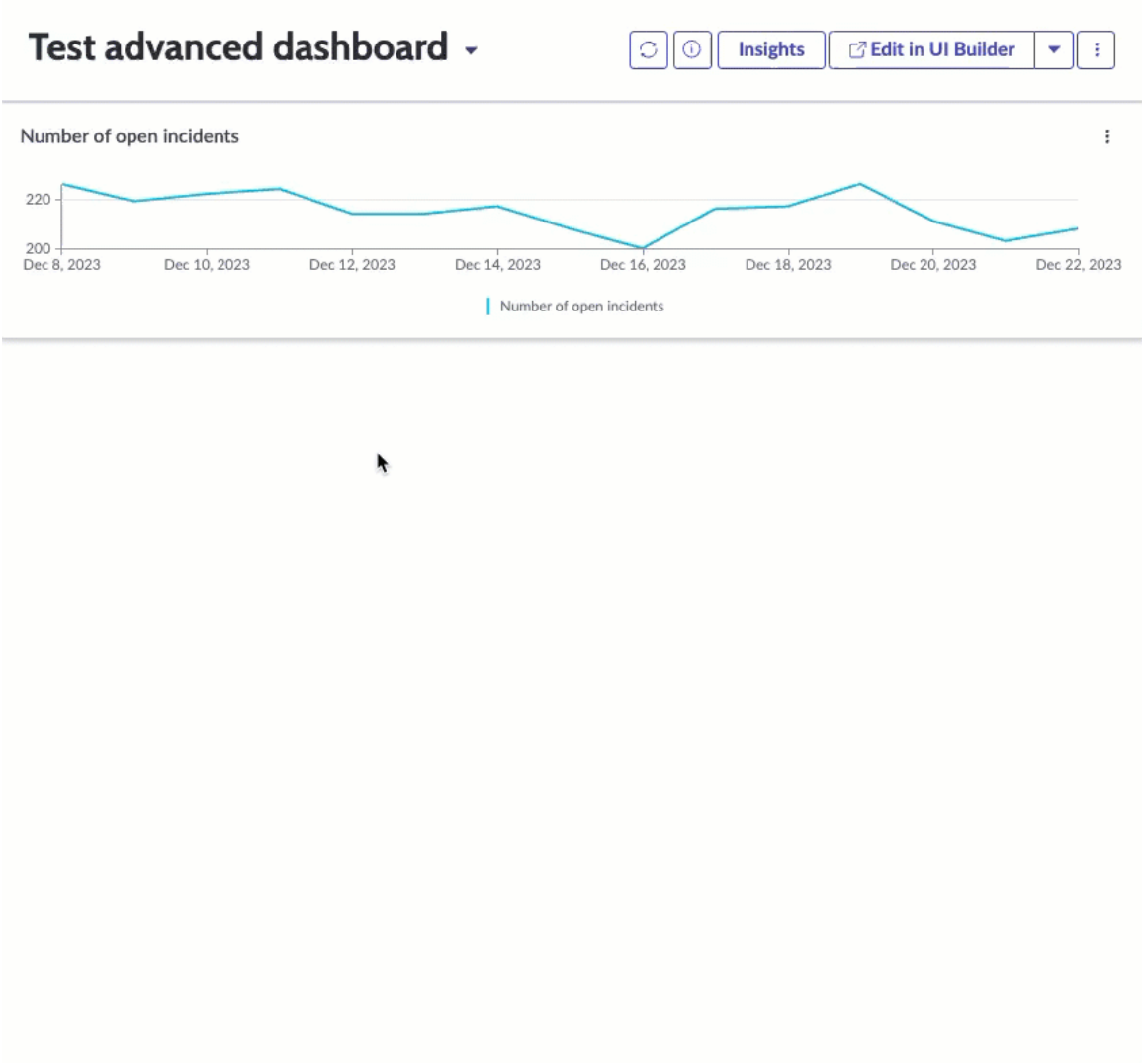
   The properties of your Advanced dashboards - Redirect event handler now appear as follows:

Field	Value
Context	{"path":"now/platform-analytics-workspace"}
Route	ac_kpi_details
Route fields	{uuid:@payload.params.indicatorSysid}

4. No other parameters are necessary, so you select **Add** and then **Save** the UI Builder page.

In runtime, a viewer can interact with the visualization to open KPI Details for the Number of open incidents indicator.

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Add a drilldown event to a saved data visualization on a technical dashboard

Technical dashboards do not support preconfigured destinations for drilling down from a data visualization. If you want a viewer to open a more detailed view of the data when they interact with a visualization, configure a custom drilldown event.

Before you begin

This procedure assumes that you have already created a technical dashboard and populated it with a data visualization component.
Role required: ui_builder_admin, rights to edit a technical dashboard

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Open the desired technical dashboard.
3. Select **Edit in UI Builder**.
4. In UI Builder, select the saved data visualization on the dashboard.
5. In the configuration panel for the data visualization, select the **Events** tab.
6. Select **Item clicked or View all** > **Add handler**.
7. Select the **Advanced dashboards - Redirect** event handler.
8. Configure the event handler as follows.

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Field	JSON types	Description
Context	object, with a string property named path	The path of the experience where the destination page resides.
Route	none	The route name of the destination page.
Route fields	object, with all parameters as strings	Required parameters for the destination page.
Optional parameters		Optional parameters for the destination page.

9. Select **Add**.

Example: Drilldown to a simple list component

You have a vertical data visualization that shows the number of records on the Incident [incident] table grouped by Priority. When a viewer interacts with this visualization, you want it to open a list of Incident records in the Platform Analytics experience.

Note:
This example uses the Context of the Platform Analytics experience and default Route names to components therein.

1. You follow Steps 1-8 in the general procedure, so you now have the configuration open for the Advanced dashboards - Redirect event handler for your vertical bar visualization.
2. In the Context field, you type `{"path":"now/platform-analytics-workspace"}`.

   This specifies that the viewer drills down to the Platform Analytics experience.
3. In the Route field, you enter `simplelist`. This route leads to the simplelist page in the Platform Analytics experience.
4. For the Route fields, you first choose to bind data. 

5. Then you add the property `{table: @payload.payload.params.table}` to the field. This property passes the name of the table in your visualization to the simplelist page of the Platform Analytics experience.
6. Similarly, you choose to bind data for the Optional parameters field and set the value `{query: @payload.payload.params.query, listTitle: @payload.payload.title}`.

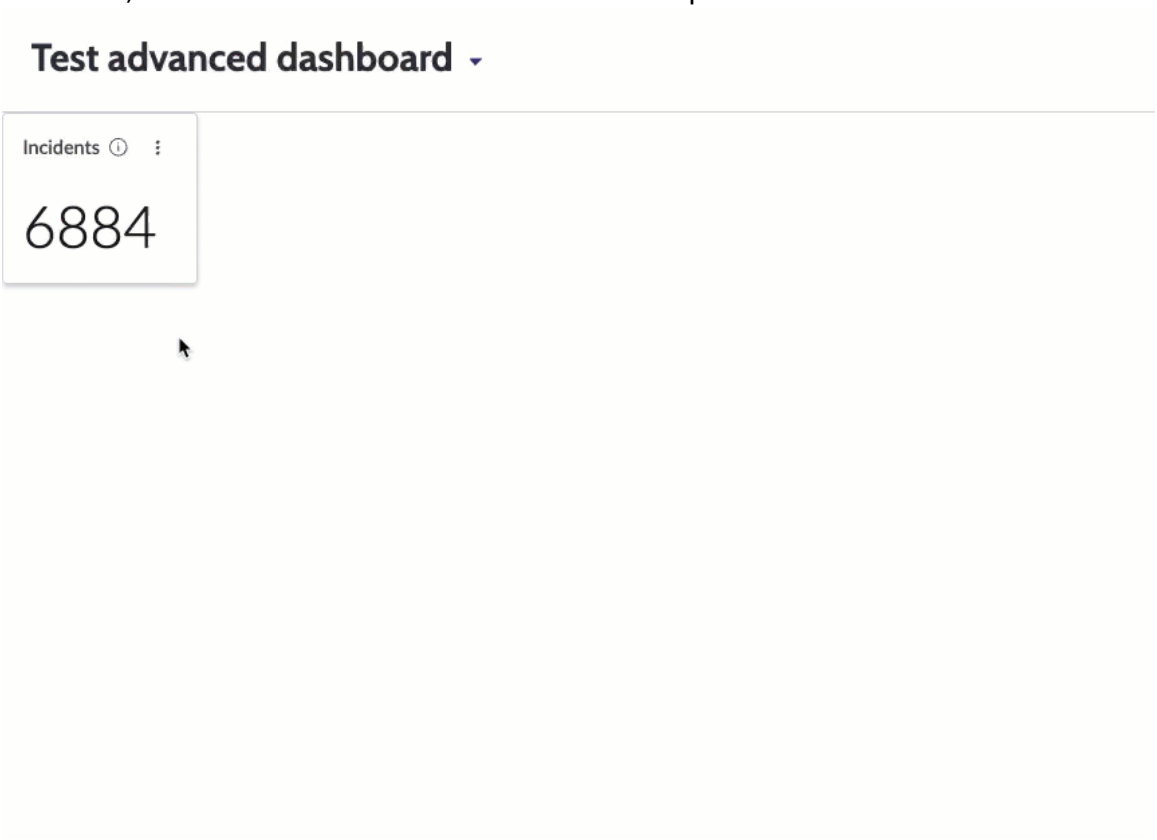
The properties of your Advanced dashboards - Redirect event handler now appear as follows:

Field	Value
Context	{path:now/platform-analytics-workspace}
Route	simplelist

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Field	Value
Route fields	{table:@payload.params.table}
Optional parameters	{query: @payload.payload.params.query, listTitle: @payload.payload.title}

In runtime, a user can interact with the visualization to open a list of Incident records.



Example: Drilldown for an indicator data source

You have a Line data visualization for the indicator Number of open incidents. When a viewer interacts with this visualization, you want it to open the KPI Details page for that indicator.

1. You repeat steps 1-5 from the Table data source example, because in this case too you are drilling down to a page on the Platform Analytics experience.
2. For the Route, you enter `ac_kpi_details`.
3. For the Route fields, you first choose to bind data 

. Then you enter `{uuid: @payload.payload.params.indicatorSysid}`. This parameter passes the id of the indicator, in this case Number of open incidents, to the Platform Analytics experience KPI Details page.

   Tip:
   First use autocomplete to add the data parameter `@payload.payload.params.indicatorSysid`, then surround that parameter with curly brackets and add `uuid:`.

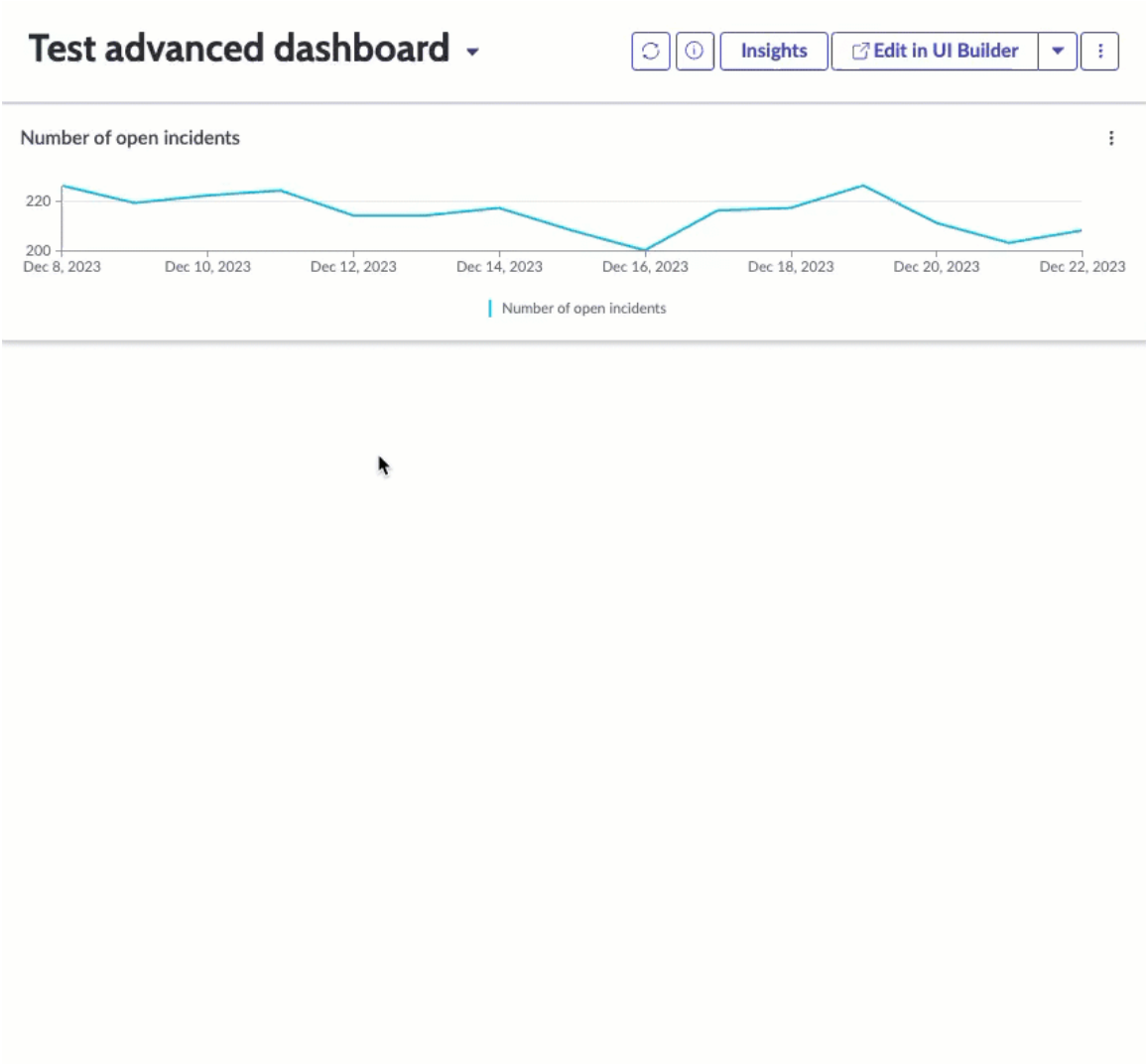
   The properties of your Advanced dashboards - Redirect event handler now appear as follows:

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Field	Value
Context	{"path":"now/platform-analytics-workspace"}
Route	ac_kpi_details
Route fields	{uuid:@payload.payload.params.indicatorSysid}

4. No other parameters are necessary, so you select **Add** and then **Save** the UI Builder page.

In runtime, a viewer can interact with the visualization to open KPI Details for the Number of open incidents indicator.



Related topics

More examples and information are available in KB2663434

Configure an event handler for a Filter component

On a technical dashboard, configure a special client script-based event handler for a Filter component so it can be followed by any Lists or Data Visualizations. It is not necessary to configure an event handler for filters on inline dashboards.

Before you begin

This procedure assumes that the following tasks are complete:

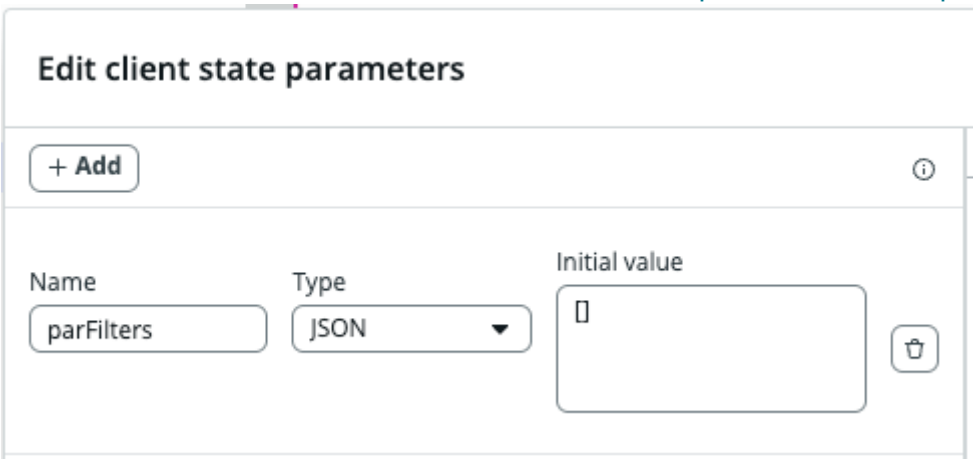
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1. You have added the Filter component to the UI Builder page, as well as at least one Data Visualization or List component. The Filter can apply to multiple Data Visualizations or Lists.
2. You have configured the filter to source and the data to filter, if applicable, for the Filter component. If the Filter component is supposed to filter a List, you have specified the table that the List component shows as data to filter.
3. You have configured data sources for any Data Visualization components.
4. You have specified a table for any List components.

Role required: ui_builder_admin, admin

Procedure

1. Open the relevant UI Builder page.
   This page may be a technical dashboard.
2. Navigate to the UI Builder State section and add a state variable named *parFilters* of type JSON with a simple array initial value `[]`.
   For more information, see Create and bind a client state parameter to a component.

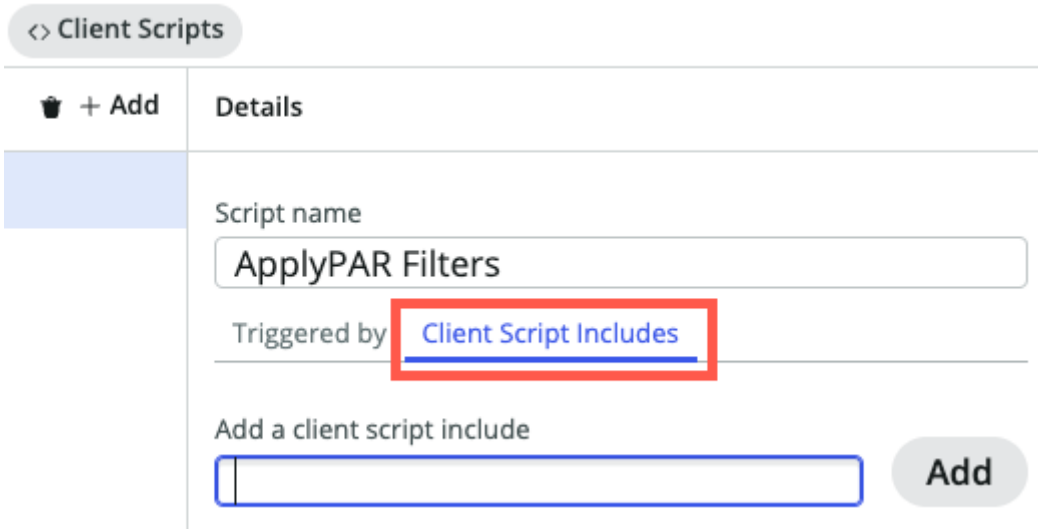


3. Add a second state variable named *encodedQueries* of type JSON with initial value `{}`.
4. Navigate to the Client Scripts section and create a custom script with a name such as "Apply PAR Filters" and the following content or a functional equivalent thereof:

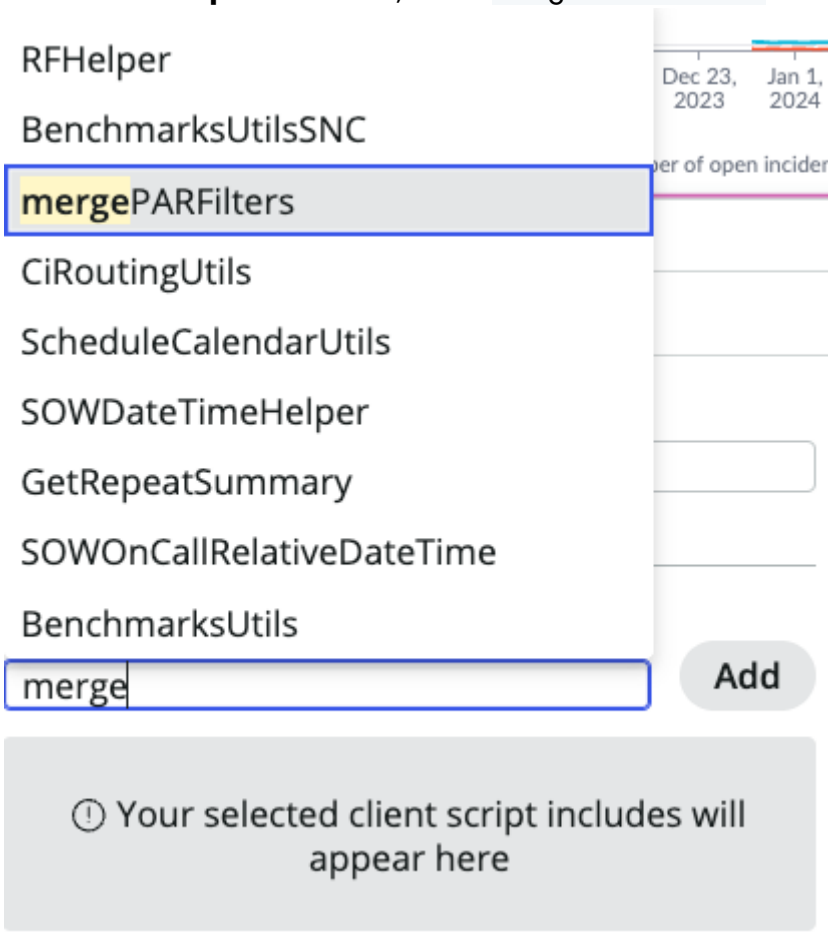
```
function handler({ api, event, helpers, imports }) {
 const mergePARFiltersV2 = imports["global.mergePARFilters"]().v2;
 const { appliedFilters } = event.payload;
 api.setState("parFilters", ({ currentValue, api }) => {
  const { parFilters, encodedQueries } = mergePARFiltersV2(
   currentValue,
   appliedFilters
  );
  api.setState("encodedQueries", encodedQueries);
  return parFilters;
 });
}
```

5. In the Client Scripts section, open the **Client Script Includes** tab.

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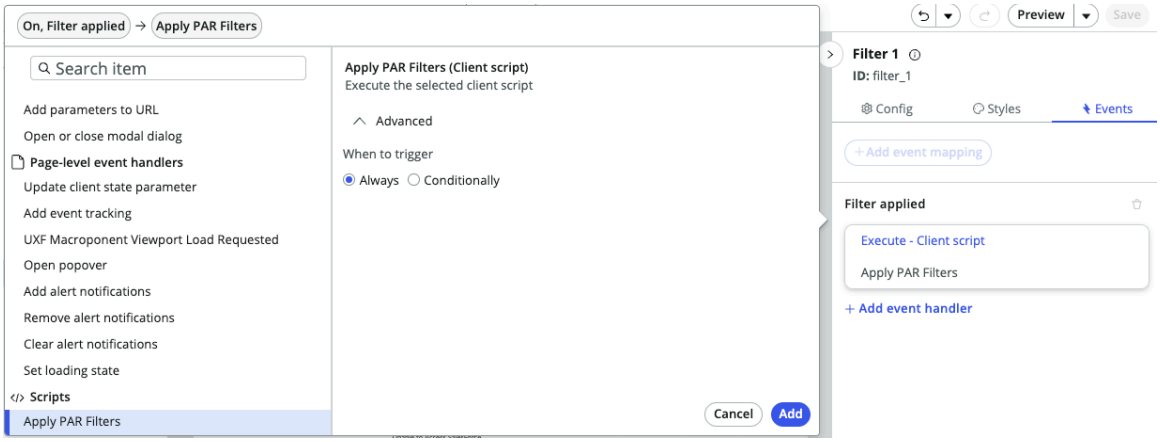


6. In the **Add a script include** field, select `mergePARFilters` and click **Add**.

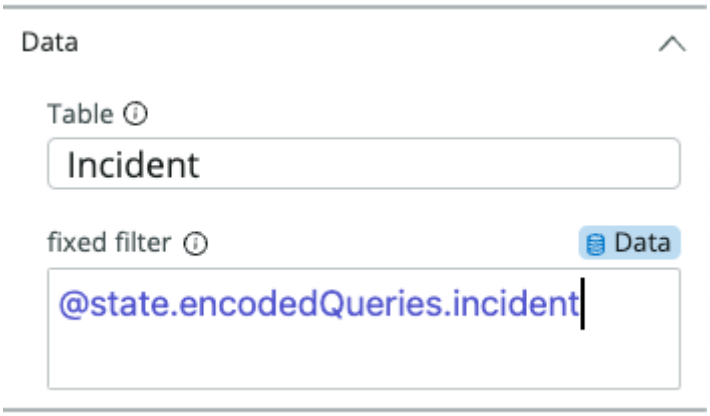


7. Close the window for configuring data, client state, and client scripts.
8. In the UI Builder, select the Filter component.
9. Select the **Events** tab in the configuration panel and add the page script you have created, which in our example is Apply PAR Filters, as an event handler.

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10. In the UI Builder, select a List component, if one exists.
11. Select **Edit fixed filter** and set this property [fixedQuery] as the dynamic binding expression `@state.encodedQueries.<list-datasource>`.
    Replace <list-datasource> with the data source for the List component. For example, if your List shows records from the Incident [incident] table, enter `@state.encodedQueries.incident`.



12. Repeat the previous two steps for any other List components.
13. Save the page.

Use a local data instance with a data visualization

For finer grained control of the data source than you have with preconfigured data sources, create a local data instance. Then bind the local data instance to the *dataPassthrough* property of the data visualization.

Before you begin

Important:
This is an advanced procedure. Consider carefully whether you need a local data instance or can use a standard data source.

Before proceeding, review Dynamically expose data in UI Builder pages (advanced feature).

Role required: ui_builder_admin, admin

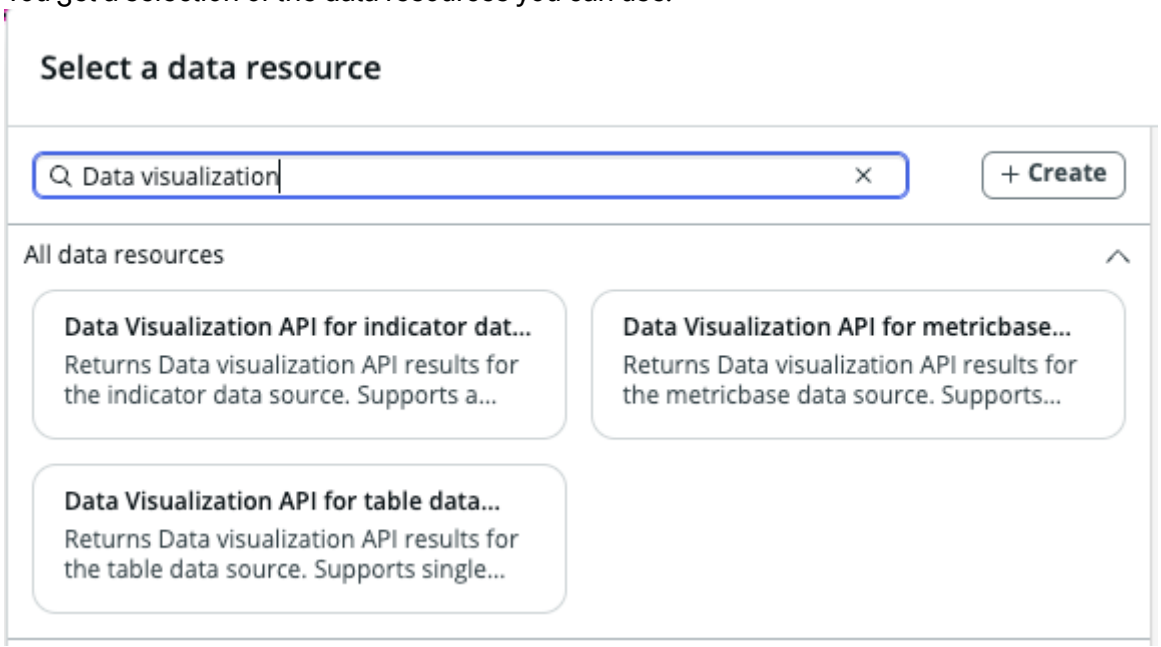
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Procedure

1. Open the technical dashboard or other UI Builder page in UI Builder.
2. In the Data and scripts drawer, under Data resources, select **+ Add data resource**.



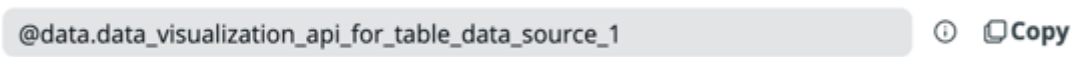
3. In the Select a data resource window, search for `Data visualization`.
   You get a selection of the data resources you can use.



4. Select a data resource that matches the type of data you want to show.
5. Read through the information pane and copy or take notes on the configuration details.
6. Select **Add**.
7. Complete the configuration options that you need for the type of visualization with which you plan to use this data instance.
   Create and configure a separate local data instance for every type of visualization that you want to use the same data. For example, if you plan to have a bar and a time series that show scores from the same indicator, create two local data instances: one each for bar and time series visualizations, but both on the same indicator.

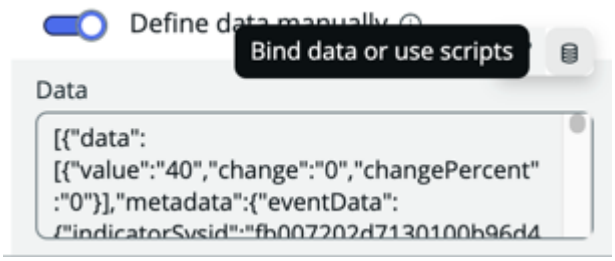
   Tip:
   You can add the data visualization to the page and compare its configuration panel to the options for the local data instance.

8. Copy the `@data` data bind for this data source.

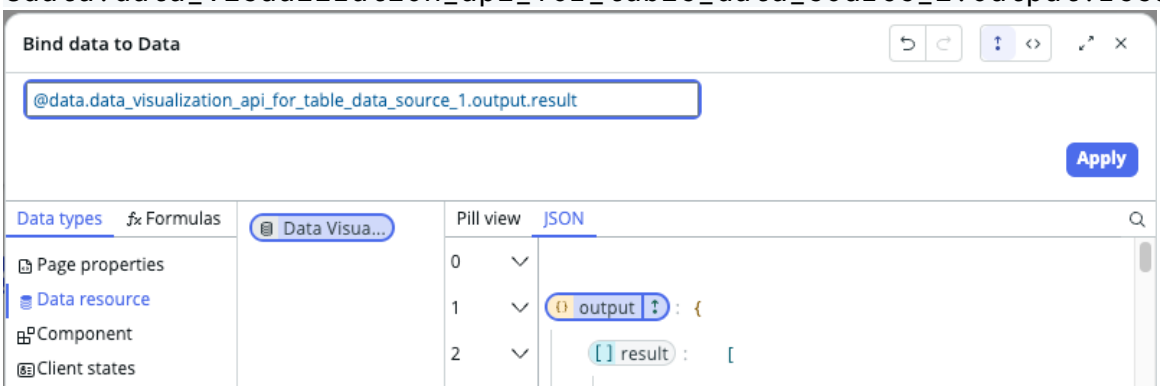


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9. Add the desired data visualization component to the page.
10. In the configuration panel for that data visualization, in the Data sources section, turn on **Define data manually**.
11. For the **Data** field, select **Bind data or use scripts**.



12. In the Bind data to Data dialog, under Data types, select **Data resource**.
13. Double-click in the Add a data output to this area section and paste the data bind to your local data instance into the blue box.
14. Append `.output.result` at the end of the data bind.
    For example, the completed data bind to the local data instance data_visualization_api_for_table_data_source_1 is `@data.data_visualization_api_for_table_data_source_1.output.result`.



15. Select **Apply**.

Result

You have created a local data instance and bound it to a data visualization. You can now complete the configuration of your data visualization.

Enable filters to apply to a local data instance

To enable a viewer to switch between which field values or breakdown elements they see in a data visualization, add filter components to the UI Builder page. For those filters to apply to a local data instance, configure that instance accordingly.

Before you begin

Role required: ui_builder_admin, admin

About this task

To enable filters to apply to a local data source, you first have to create a client state parameter named `parFilters` and then add that state parameter to the local data instance.

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Procedure

1. Open the UI Builder page with the local data instance and data visualizations you want to filter.
2. In the Data and scripts drawer, select **Client state parameters**.
3. Select **+ Add**.
4. In the Edit client state parameters dialog, name the new parameter `parFilters`, assign it type JSON, and set the initial value of `{}`.



5. Close the Edit client state parameters dialog.
6. In the Data and scripts drawer, under Data resources, select the desired local data instance.
7. In the Edit <name of local data instance> dialog, scroll down to the **Filter configurations** field.
8. Enter `@state.parFilters` into the **Filter configurations** field and close the data instance editor.
9. In the configuration panel of a data visualization that uses this local data resource, turn on **Follow filters** in the Data update section.
10. **Optional:** Turn on **Show filter icon**.
11. Save the UI Builder page.

What to do next

Add filter components to the UI Builder page and configure them for relevant values from the local data instance.

Related topics

Filters in Platform Analytics

Enable data caching for a local data instance

To help reduce the load time of data visualizations, and if real time or very fresh data is not necessary, enable data caching on the data source.

Before you begin

Role required: ui_builder_admin, admin

Procedure

1. Open the UI Builder page with the local data instance whose data you want to cache.
2. In the Data and scripts drawer, under Data resources, select the desired local data instance.
3. Scroll down to **Use data cache** and turn it on.
   Any data visualization that uses this data source, uses the cache settings on the data source. The data cache settings on the visualization itself are removed from the configuration panel.
4. Set other caching properties as needed.

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Property	Description
Cache expiration time	How long the cache, once created, is retained before being updated in the cache refresh job.
Invalidate cache	Use this setting with extra logic you create to invalidate the cache and fetch fresh data. For example, you can add a Button component to the page and script its event handler to invalidate the cache.
Additional key	Enter a string that will contribute to generating the unique hash key for each data cache created on this data instance. Use a unique additional key value for each local data instance.

Local data instances for multiple visualizations

A special Data Visualization API data resource is available to fetch data for multiple data visualizations simultaneously. This data resource reduces the number of API calls and thus can speed data fetching.

When to use

You can use the “Data Visualization API for multiple data visualizations” data resource in the following scenarios:

- Multiple data visualizations of the same type have the same data source. For example, you have five visualizations where the visualization type is Single Score and the data source is the Incident [incident] table with the filter `active=true`. If you have several groups of indicators with the same type and data source, you can create an instance of the same multiple visualization data resource for each group.
- A data visualization has multiple data resources that reference the same data source. For example, you have a Line visualization with a data resource from the "Number of open incidents" indicator and another data resource from the "Average age of open incidents" indicator. Both of these indicators use the Incident.Open data source. For efficiency, you can convert this visualization to use only one data resource.

When not to use

- There is only one visualization on the UI Builder page.
- The data visualizations on the page are likely to take a long time to load data. In that case, it's better to keep the data loading split between separate data resources.

Set up a multiple visualization data resource

If your use case meets the criteria for a multiple visualization data resource, you can follow this procedure.

Before you begin

Review the use case for a single data resource for multiple visualizations in Local data instances for multiple visualizations.

Role required: ui_builder_admin, admin

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About this task

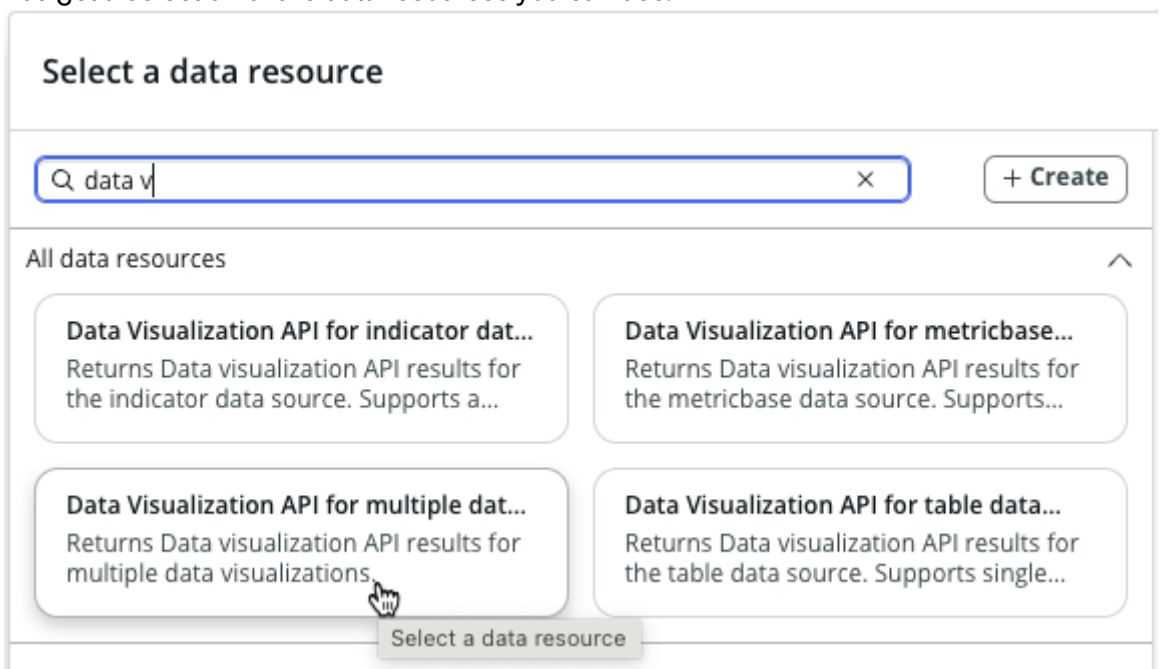
Important:
This data resource merges multiple calls into a single one. The single call is executed as a single transaction on a single thread. Therefore, use this data resource with extra care, especially when handling a large amount of data, as in some cases this might lead to transaction timeouts. Depending on the quantity of the data, the setup of the page, and the targeted user experience, you might have better results by using separate data resources.

Procedure

1. Navigate to the technical dashboard or UIB page with the data visualizations.
2. Verify that the data visualizations on the page meet the criteria in **When to use**.
   For example, you have several Dial visualizations on the Incident table data source, and the amount of data fetched is not too large.
3. In the Data and scripts drawer, under Data resources, select **+ Add data resource**.



4. In the Select a data resource window, search for `Data visualization`.
   You get a selection of the data resources you can use.



5. Select "Data Visualization API for multiple data visualizations."
6. Set the type as **Data configurations**.
7. In the request field, fill in the JSON.
   See the Example at the end of this procedure.
8. In each data visualization that you want to use this data resource, perform the following actions:

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a. Select the data visualization.

b. Open the Configuration panel.

c. Turn on **Define data manually**.

d. Use data binding to bind a script to the Data field.

Example: Data resource for three Single score visualizations with the same data source

In this example, we start with a UIB page that contains three Data Visualization components. These components all are of the Single Score visualization type, and all use the same data source.

You follow the general procedure through Step 6. Now you have a Data Visualization API for multiple data visualizations on your Dashboards page.

Next you write the JSON for the request, as follows:

```
[
    {
        "details": {
            "visualizationId": "vis_1",
            "followFilter": true
        },
        "configurations": {
            "dataConfigurations": [
                {
                    "sourceType": "table",
                    "dataCategory": "simple",
                    "order": 0,
                    "tableOrViewName": "incident",
                    "aggregateFunction": "COUNT"
                }
            ]
        }
    },
    {
        "details": {
            "visualizationId": "vis_2",
            "followFilter": true
        },
        "configurations": {
            "dataConfigurations": [
                {
                    "sourceType": "table",
                    "dataCategory": "simple",
                    "order": 0,
                    "tableOrViewName": "incident",
                    "aggregateFunction": "AVG",
                    "aggregateField": "business_duration"
                }
            ]
        }
    },
    {
        "details": {
```

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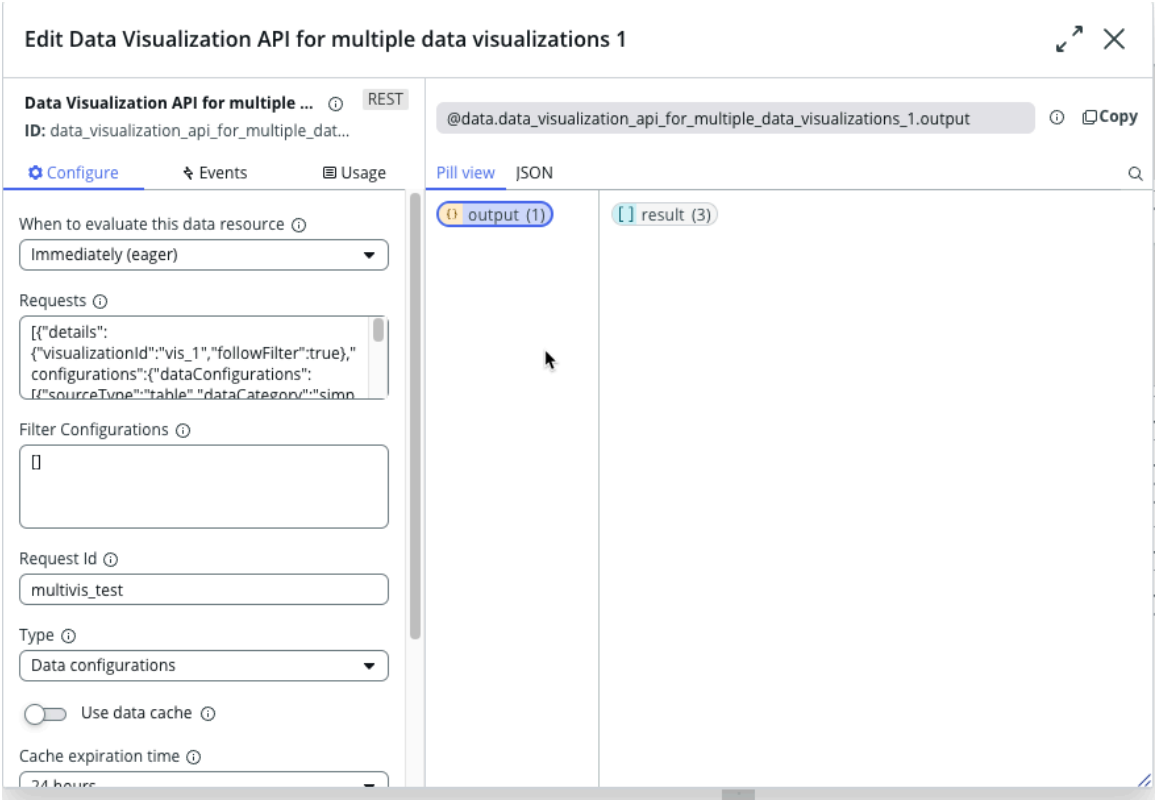
```
                "visualizationId": "vis_3",
                "followFilter": true
            },
            "configurations": {
                "dataConfigurations": [
                    {
                        "sourceType": "table",
                        "dataCategory": "simple",
                        "order": 0,
                        "tableOrViewName": "incident",
                        "aggregateFunction": "AVG",
                        "aggregateField": "priority"
                    }
                ]
            }
        }
]
```

The request is an array of objects, one for each data visualization. Each visualization has a *details* property with an arbitrary value for the *visualizationId* and a boolean *followFilter* setting whether the visualization follows filter components on the page. In this case, all three visualizations follow filters.

Each visualization also has a *configurations* property, containing only a *dataConfigurations* array. Because all the visualizations are of the same type, Single Score, and this visualization type shows only a simple value, all three *dataCategory* properties are "simple." Similarly, all the visualizations use the same data source. Because the data source is the Incident [incident] table, all three visualizations have a *sourceType* of "table" and a *tableOrViewName* of "incident." The only place where the visualizations can vary is in the aggregates they use. Here you see the first one uses a COUNT aggregation, the second takes an AVG aggregate on the business_duration field, and the third takes an AVG of the priority field.

The final configuration of the data resource looks like this:

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Lastly, for each data visualization, you bind the following script to the data field. You use the arbitrary *visualizationId* value you gave each visualization as the `vizId` value in the script for that visualization.

```
function evaluateProperty({api, helpers}) {
  const data =
 api.data.data_visualization_api_for_multiple_data_visualization
s_1.output;
  if (!data) {
    return [];
  }
  const vizId = 'vis_1';
  const dataForViz = data.result.find(d =>
 d.details.visualizationId === vizId);
    return dataForViz.dataResponses;
}
```

Example: Request JSON for an indicator

The request for a visualization on an indicator differs from the previous example, which was for a table. Here is the JSON for a time series visualization, which shows a trend over time, for the Number of open incidents indicator, grouped by the Priority breakdown:

```
[
    {
        "details": {
            "visualizationId": "vis1",
            "followFilter": true
        },
        "configurations": {
            "dataConfigurations": [
                {
```

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```
                        "sortBy": "choice",
                        "sortOrder": "asc",
                        "sourceType": "indicator",
                        "dataCategory": "trend",
                        "order": 0,
                        "splitView": false,
                        "numberOfGroups": 2,
                        "uuid": {
                            "indicator": "fb007202d7130100b96d45a3ce6103b4",
                            "breakdowns": []
                        },
                        "trendBy": "anything",
                        "trendInterval": "date",
                        "groupBy": [
                            "0df47e02d7130100b96d45a3ce610399"
                        ],
                        "removeMissingIntervalData": false
                    }
                ]
            }
        }
]
```


The first and obvious differences are that the *sourceType* is "indicator" and the *dataCategory* is "trend." You also see that instead of a *tableOrViewName* property, you have a *uuid* object with the uuid of the Number of open incidents indicator and an empty array that could hold the uuid's of breakdowns for filtering that indicator. Because this visualization supports group-by values, you have a *groupBy* array that in this case contains only the uuid of the Priority breakdown. Having a group-by implies sorting, and here you see that the *sortBy* is "choice," reflecting the data type of the Priority breakdown, and the *sortOrder* is ascending.

Dashboard reference

Reference topics provide a list of roles and translatable fields for Platform Analytics dashboards.

Translatable fields in dashboard elements

For fields that show the **Translatable turned on** badge, you can add translations of the field value in the Messages [sys_ui_message] table.

Translations of ServiceNow AI Platform® User interface (UI) elements are stored in one of five tables, as described in Translation tables. When you see a field in the configuration panel of a dashboard element, and this field has the badge **Translatable turned on**, you can add translations of the field value in the Messages [sys_ui_message] table.

In the Messages table, records have a key, a language, and a message field. You set the key value equal to the original text. Then you select a language, and enter the translation in that language into the Message field. Only ServiceNow AI Platform admins can create and edit these records. For more information, see Translate a client script message.

Note:
For more information about how keys are stored for translatable fields, see this ServiceNow Community blog post. This post also includes a prototype Localization Framework artifact that finds all translatable fields in all UI Builder components on an instance, including dashboard components.

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Platform Analytics dashboard cache

Changes to the layouts of Platform Analytics dashboards are stored in the par_dashboard_cache table. Whenever a dashboard is called, a new entry is made in this table. Delete entries in this table to regenerate the cache for troubleshooting.

In the context of troubleshooting a dashboard's layout, navigate to `par_dashboard_cache_list.do` to open the PAR Dashboard Metadata Caches table. Delete a dashboard's record on this table to regenerate the cache.

These access control lists (ACLs) apply to the PAR Dashboard Metadata Caches *par_dashboard_cache* table:

- Admin only role: report_on, report_view, create, write, delete
- Any logged-in user: read

For a full guide to roles connected to Platform Analytics dashboards, see Platform Analytics roles.

Platform Analytics dashboard roles

Platform Analytics dashboards have few role restrictions. Editing rights are granted by sharing, independent of role.

Users with any role can create dashboards and share them with groups, users, and roles. These users can share a dashboard that has been shared with them if sharing rights were also granted. They can pass along editing rights if granted.

The dashboard_admin role allows a user to configure, edit, or delete any dashboards, regardless of ownership or editing rights. Certain configuration tasks also require dashboard_admin, as described in Configuring dashboards.

Tasks that integrate dashboards with Process Mining require the sn_process_optimization_analyst role. These tasks are listed in Configuring dashboards.

Users with the analytics_categories_admin role can create, edit, or delete dashboard categories.

For a full guide to roles connected to Platform Analytics dashboards, see Platform Analytics roles.

Dashboard roles

Use case	Required role
Create a dashboard	Any role
Share a dashboard	Any role to share a data visualization that you created or that was shared with you with sharing rights. With the viz_admin role or higher, you can share any data visualization on the instance. When you share a data visualization, you can pass along the rights to share that visualization further. You also decide whether to share with editing rights or only viewing rights. If a data visualization has been shared with you with sharing and editing rights, you can also pass along editing rights. dashboard_admin to share any dashboard

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Dashboard roles (continued)

Use case	Required role
	A role with read access to the Roles [sys_user_role] table to share with roles
Edit a dashboard	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard Technical dashboards also require ui_builder_admin
Duplicate a dashboard	Any role, if you can view the dashboard. You cannot duplicate technical dashboards.
Create a printer-friendly copy of a dashboard	Any role, if you can view the dashboard.
Export a dashboard	Any role, if you can view the dashboard.
Schedule the export of a dashboard	par_scheduler for dashboards that you own or that have been shared with you. dashboard_admin or higher for any dashboard
Delete the scheduled export of a dashboard	sn_par_sche_export.par_scheduler_admin (contained in dashboard_admin)
Bookmark a dashboard	Any role, if you can view the dashboard.
Delete a dashboard	Any role, if you created the dashboard. dashboard_admin or higher for any dashboard
Configure dashboard details	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard
Configure dashboard settings except scheduled refreshes	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard
Schedule dashboard refreshes	dashboard_admin or higher
Configure dashboard tab cache timeout	admin
Create dashboard categories	analytics_categories_admin or higher
Assign categories to a dashboard	Any role, if you can edit the dashboard. analytics_categories_admin or higher to assign a category to any dashboard.

Platform Analytics dashboard tables

The following tables relate to Platform Analytics dashboards and can be accessed through scripts.

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Table	Description
par_automated_kpi_promin_project	Stores references to Process Mining maps that are on Platform Analytics dashboards.
par_computed_insight	Contains all standard proactive analytics insights
par_custom_insight_content	Contains all custom-built proactive analytics insights
par_dashboard	Contains all dashboards in the dashboard library. Technical dashboards can be identified by belonging to the Advanced Dashboards experience. Extends sys_metadata.
par_dashboard_cache	Stores all changes to Platform Analytics dashboard layouts.
par_dashboard_canvas	Stores the names, descriptions, and layouts of Platform Analytics dashboards and dashboard tabs. Extends sys_metadata.
par_dashboard_config	Contains the macroponent definitions for each type of data visualization that you can create inside a dashboard. Extends sys_metadata.
par_dashboard_configuration	Contains the macroponent definitions for each type of data visualization that you can create inside a dashboard. Extends sys_metadata.
par_dashboard_filter	Lists all filters on Platform Analytics dashboards and the name of the dashboard.
par_dashboard_permission	Contains the role, group, and user permissions for all dashboards in the dashboard library. Extends sys_metadata.
par_dashboard_tab	Contains the name, domain, application scope, and parent dashboard of all Platform Analytics dashboard tabs. Extends sys_metadata.
par_dashboard_user_metadata	Contains all options set by a dashboard viewer that persist between that viewer's user sessions. Extends sys_metadata.
par_dashboard_visibility	Cross-references all dashboards in the library by which experiences and workspaces contain them. Extends sys_metadata.
par_dashboard_widget	Cross-references all components that appear on dashboards by the dashboard canvas and the library component, if any. Extends sys_metadata.
par_export	Lists all scheduled dashboard and data visualization exports.
par_export_dashboard	Stores the export details of all scheduled dashboard exports. Extends par_export.

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Table	Description
par_export_job	Stores details of every attempt to export a dashboard or data visualization.
par_indicator_model	Contains recommendations related to Performance Analytics analytics in proactive analytics insights.
par_insight_user_actions	Stores actions that viewers took on proactive analytics insights.
par_notification	Lists email notification definitions of scheduled dashboard and data visualization exports.
par_notification_email	Stores subject line and message body of scheduled dashboard and data visualization export emails. Extends par_notification.
par_notification_email_recipients	Stores groups and users who receive a notification email with a scheduled dashboard and data visualization export.
par_recommendation	Stores recommendations of Process Mining projects to create. These recommendations are given through Process Mining insights.
par_recommendation_user_action	Stores whether users accepted or dismissed a Process Mining insight recommendation.

Data visualizations in Platform Analytics

Data Visualizations use graphics to show table, indicator, and other data. They combine and extend the functions of reports and Performance Analytics widgets from the Core UI, which they replace in Platform Analytics.

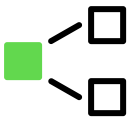
Important:
You cannot place reports or Performance Analytics widgets on a Platform Analytics dashboard. You must create data visualizations instead.

https://player.vimeo.com/video/1125354918?h=26cf18fff5&badge=0&autopause=0&player_id=0&app_id=58479

To access data visualizations, navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**. Owners of a data visualization can access and share that visualization. Users whom the owner has shared a visualization with can access that visualization. Any user with access to data can create a data visualization based on that data.

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Get started

Explore  Take a tour of the Data Visualizations library	Create data visualizations  Procedures for creating data visualizations using different data sources	Share, edit, delete  Procedures for performing the most common data visualization tasks
View  Actions viewers can take while looking at a data visualization	Configure  Details of advanced configuration options found in many data configuration types	Reference  Roles and data sources

Troubleshoot and get help

- Ask questions and explore other resources for data visualizations and Platform Analytics in general in the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

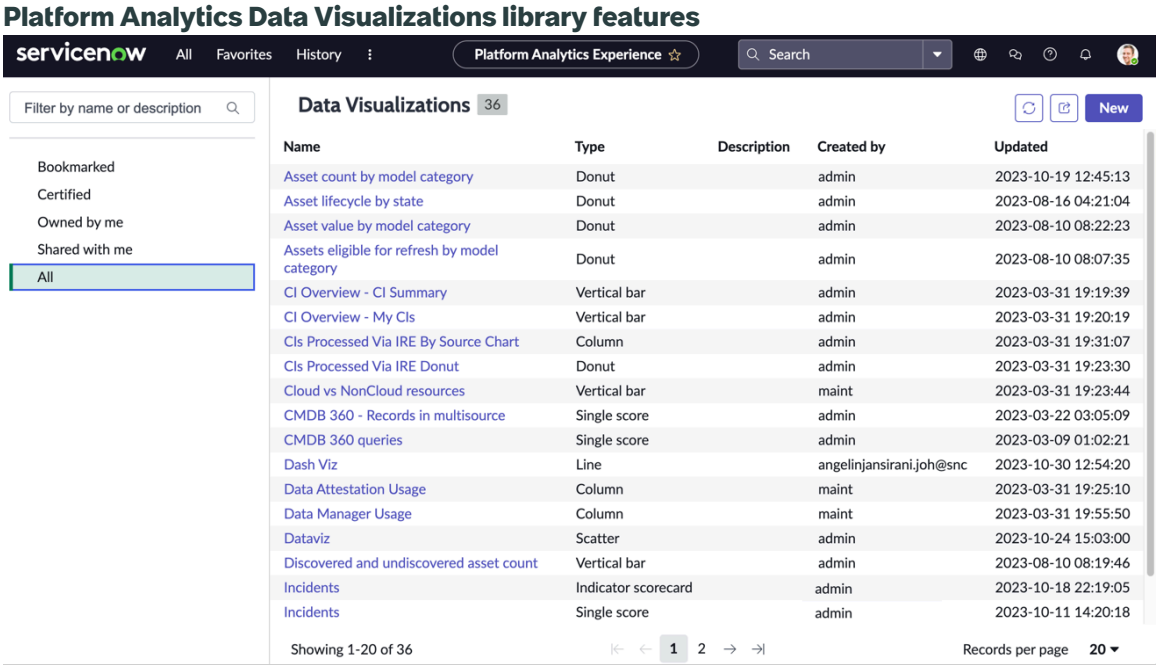
Exploring the data visualization library

Find any data visualization which you can access in the Platform Analytics data visualizations library. With the appropriate role, you can also create a visualization there.

Overview of the Data Visualizations library

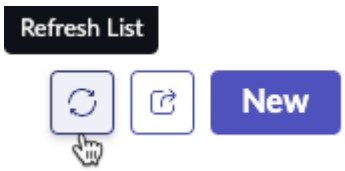
Open the data visualizations library by navigating to **All** > **Platform Analytics** > **Library** > **Data visualizations**.

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List actions

A set of buttons enables you to take the following actions on the Data Visualization list:



Refresh list

There can be a lag in the list of visualizations after you create or delete a visualization. Select **Refresh List** to update the list.



Copy URL for data visualizations

Copies the data visualizations library URL to the clipboard.

New

Create a data visualization, as described by visualization type in the subtopics of this section. For information on who can create data visualizations,see Platform Analytics roles.

List filters

A search box lets you filter the list of data visualizations by name or description. The filter panel shows you which filters are being applied. By default, the filter Active = true is always applied. For example, filtering on the word Data shows the following filters in the panel:

- Active = true
- Name contains Data
- Description contains Data

Alternatively, you can select one of these predefined filters:

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- **All** shows all the visualizations that you have access to.
- **Bookmarked** shows only your bookmarked visualizations. Bookmark any data visualization that you have access to so that you can find it here easily. To bookmark a visualization, see Bookmark a visualization in the Visualization Designer.
- **Certified** shows only the visualizations that an administrator has certified. To certify a data visualization, see Certify a data visualization in the Visualization Designer.
- **Shared with me** shows the visualizations that have been shared with you as a user, or member of a group or role. To share a data visualization, see Share a data visualization in the Visualization Designer.
- **Created by me** shows only the visualizations that you've created.

Creating data visualizations

See how to create data visualizations using different data sources.

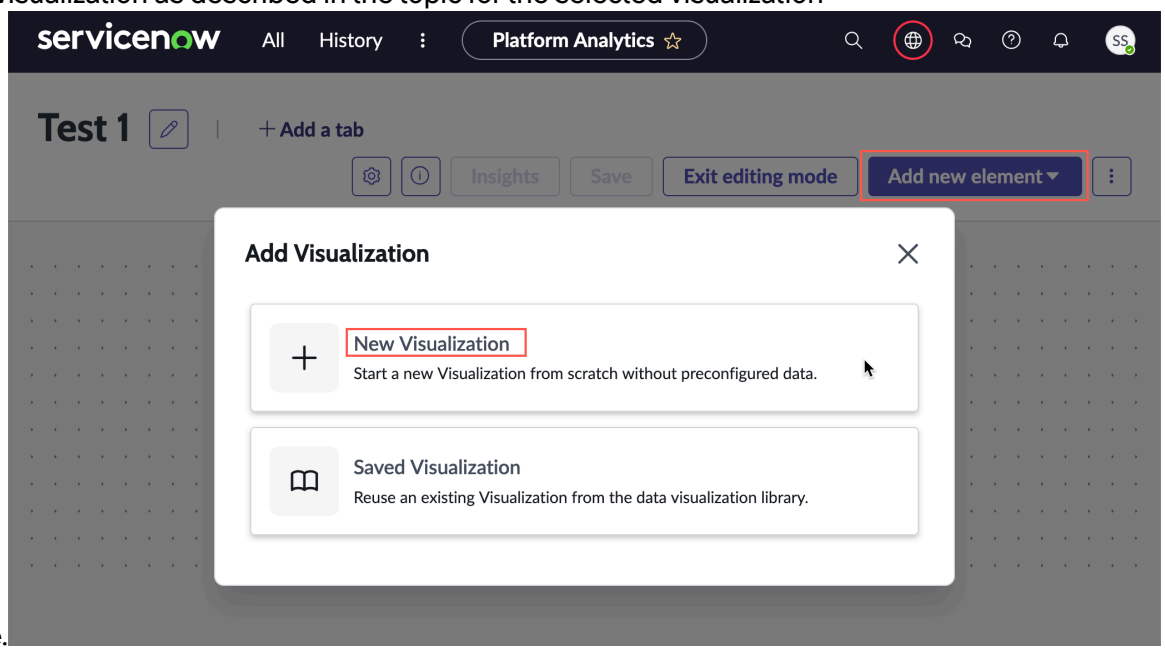
https://player.vimeo.com/video/1056788508?h=5ed0de97fd&badge=0&autopause=0&player_id=0&app_id=58479

Note:
In the Yokohamarelease, visualizations are based on Highcharts version 10.3.3.

Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

Creating data visualizations in a dashboard editor

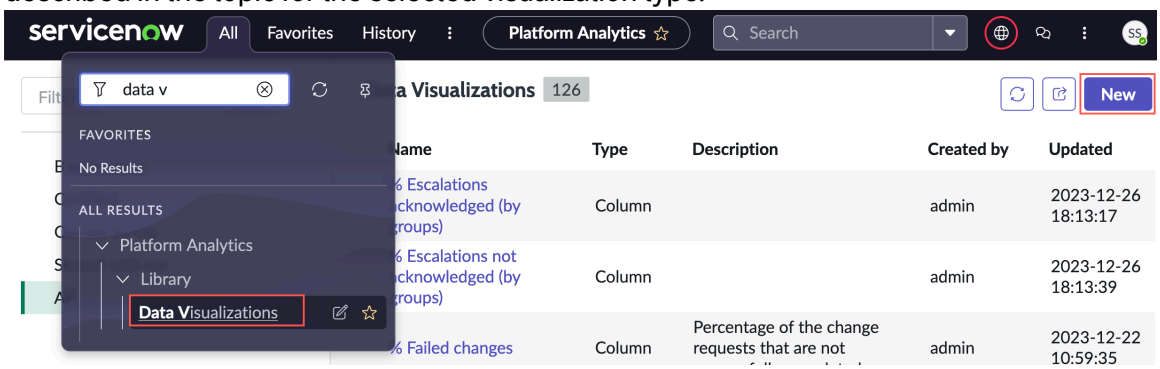
To create a data visualization from a dashboard, select **Add new element** and then choose **New visualization**. You can then configure the visualization as described in the topic for the selected visualization type.



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Creating data visualizations in the Visualization Designer

To create data visualizations in the Visualization Designer, navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** and select **New**. You can then configure the visualization as described in the topic for the selected visualization type.



Instructions for creating data visualizations by type

Overview of data visualization types

When you create a data visualization, you select the type of chart to display. Each visualization type is suited to show different data.

Score visualizations

This type of data visualization shows a single value or score as a number or percentage. Scores are often used to show how a particular value or metric compares to a target or benchmark. They can be useful for tracking progress or identifying areas for improvement, for example showing a company's or division's overall performance.

Visualization	Description
Single score visualization 	Single-score visualizations display a single aggregate value that is important to your business. Single score visualization example
Dial visualization 	Dial visualizations show where a single value lies across a range from minimum to maximum expected values. Visually, a "needle" points to the value, and the dial is colored in for values up to the needle. Dial visualization example
Gauge visualization 	Like dials, gauges show where a single value lies across a range from minimum to maximum expected values. In addition to dial functionality, you can set colored data ranges to help users understand what the value represents. Gauge visualization example

Time series visualizations

Time Series visualizations show data over time. All time series visualization types share configuration options. They differ in use case, depending on whether you want to emphasize

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data trends or the differences between individual data points. For more information about these use cases, see Create time series visualizations.

Note:
In addition to data from within your instances and imported data sources, you can also use MetricBase data in time series visualizations. For more information, see MetricBase application.

Time series visualization types

Visualization	Description and use case
Visualizing trends in a data source	
Line 	Shows how one or more values change over time by connecting a series of data points with straight lines. Use a line visualization to emphasize the trend in the data. Consider line visualizations to be the default choice for showing a time series. If you're unsure of which visualization to use, use a line.
Spline 	Shows how one or more values change over time by connecting a series of data points with a fitted curve. The curve emphasizes the trend over individual data points. Spline charts let you take a limited set of known data points and approximate intervening values.
Scatter 	Shows unconnected points for values in the Y-axis against time in the X-axis. Usually the trend line is also shown. Use with a spread of data that can't be usefully connected with a line.
Comparing scores in a data source	
Column 	Shows changes in data over time by showing values as proportional vertical columns. Use either to visualize changes in one data source or to compare data sources. To compare data sources with a column visualization, either add data sources to the visualization, or place several column visualizations next to each other in a dashboard.
Step 	Emphasizes changes in a data source between discreet points in time. Use to show small incremental changes, especially when a line visualization smudges the data.
Comparing scores or trends between data sources	
Area 	Resembles a line visualization, but the area between the axis and line is emphasized with colors. Use with multiple data sources to highlight the relative contribution that each data source makes to the whole.

Bar visualizations

Bar visualizations enable you to compare scores across data dimensions. Horizontal and vertical bar visualization types are available. They share all configuration options. In general, use horizontal bars for nominal or categorical data. Use vertical bars for ordinal or sequential

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data. Use different colors or patterns to distinguish different groups or categories. For more information, see Create a horizontal or vertical bar data visualization.

Visualization	Description
Horizontal bar visualization 	Bar visualizations show categories labeled on one axis and values on the other. Use vertical bars to compare ordinal data, especially when there aren't too many categories, such as sales numbers grouped into buckets. Use horizontal bar charts with nominal data, such as incident severity or assignment group. • Horizontal bar visualization example • Vertical bar visualization example Pareto bar visualizations help you identify the most important dimension in a large set of dimensions. Columns show data in descending order. A line shows cumulative percentage. Pareto charts contain both bar and line graphs. The bars display the data in descending order from left to right, and the line graph shows the cumulative totals from each category in the same order. The left Y axis is the record count, and the right Y axis is the cumulative percentage of the total number of records evaluated.
Vertical bar visualization 	
Pareto bar visualization 	

Pie and Donut visualizations

Pie and donut visualizations show the relationship between parts and the whole of a data set. The segments of these charts should total to 100%. For more information, see Create a pie or donut visualization in the Visualization Designer.

Visualization	Description
Pie visualizations 	Pie charts are best when comparing 5–7 segments that total 100%, when no two segments have a value within 10% of each other. Donut charts are best for comparing no more than five segments that total 100%, when no two segments have a value within 10% of each other. The center of the donut can be used to show additional information. Semi-donut charts are best for comparing no more than four segments that total 100%, when no two segments have a value within 10% of each other. • Pie visualization example • Donut visualization example
Donut visualizations 	
Semi-donut visualizations 	

Multidimensional charts

Multidimensional visualizations enable you to show multiple variables in a single chart, and it can be useful for showing the relationships between different variables. They are useful when

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you have a lot of data, and you want to find patterns or trends that might not be immediately obvious. They're also good to use when you want to show the relationship between three or more variables.

Visualization	Description
Pivot table visualization 	Pivot tables allow for several kinds of aggregation between its fields. You can also filter the data. The columns represent one field or breakdown, while a hierarchy of rows represents multiple other fields or breakdowns. Pivot visualization example
Heatmap visualization 	Heatmaps show the relationship between two table fields or indicator breakdowns. The changes in color as you move along the axes reveal patterns in the value of one or both fields/breakdowns. Heatmap visualization example
Bubble chart visualization 	Bubble charts are circles of different sizes along an x-y axis. The x and y axes represent different numeric fields, such as values or amounts. Use the relative size and position of the circles to compare fields and see their relationships. You can also group the data by a third field, which can be qualitative. The third field is differentiated by color. Use bubble charts to answer binary questions, such as whether two fields have a relationship, and to highlight patterns. Bubble visualization example

Other visualizations

Data visualizations can also show calendars, simple lists, indicator scorecards, and location.

Visualization	Description
Calendar report visualization 	Displays data-driven events in a calendar format.
Indicator scorecard 	The Indicator scorecard component enables you to visualize and compare data between multiple Performance Analytics indicators. #unique_159
Simple list 	Shows a list of table records. Has a reduced set of features compared to a List component, allowing the simple list to fit in small spaces. Simple list visualization example

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Visualization	Description
Box plot 	Use a box plot to show the median and lower and upper quartiles of numeric data along with outliers. You can also compare the distribution of different groups of this data.
Geomap 	Displays data by country, state, or city. Users can use table data that contains location information to visualize in the chart.

Create a single score data visualization in the Visualization Designer or on a dashboard

Use a single score to show a value as a number or percentage. Visualize how the value compares to a target or benchmark, to track progress, or to identify areas for improvement.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Single Score visualization in a dashboard, see the Developer Site. This site gives information about Single score data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Single score ( ) visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.

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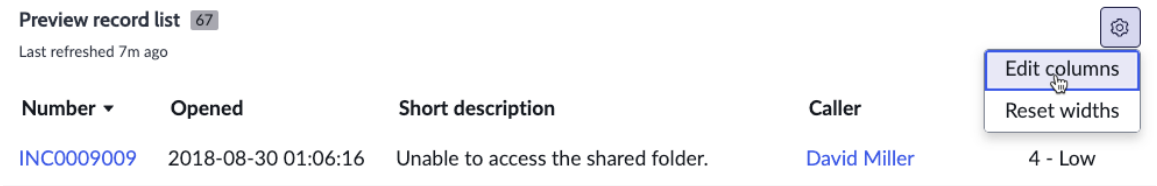
Header and border fields	Description
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

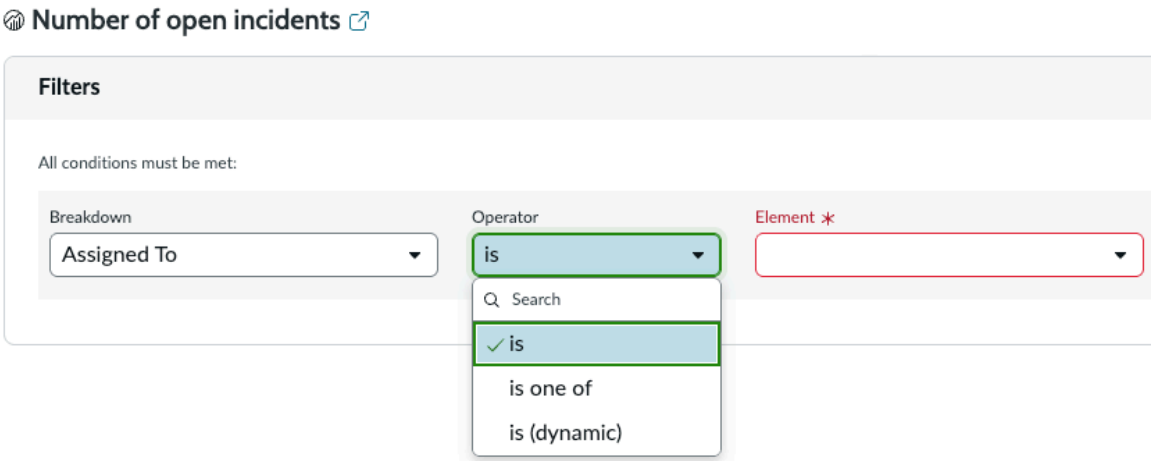
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.

   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

     Note:
     Benchmark indicators are not supported.

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Note:

You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for single score visualizations.
   - If your visualization represents indicator data, go to Indicator data options for single score visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for Single scores.
7. Under **Presentation**, provide display and color information..

Field	Description
Display settings	
Score size	Sets the size of the score. Options include: ○ XS `xs` ○ S `sm` ○ M `md` ○ L `lg` ○ XL `xl` ○ XXL `xxl` ○ Auto `auto`: Size adjusts automatically between the preceding sizes depending on

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Field	Description
	the viewport size and the space available after all details have been added in the **Additional settings**.
Score icon	Select one of the icons provided with the design system to precede the score. Optional. **Note:** See https://developer.servicenow.com/dev.do#!/reference/next-experience/xanadu/now-components/now-icon/gallery for more information.
Icon style	Select "With background" to apply color to the background of the icon. Select "No background" to apply color to the icon itself.
Metric label position	Position for the metric label. Options include: ○ Above score `top` ○ Below score `bottom` This property applies only with table data sources and when **Show metric label** is true.
Sparkline style	Style of sparkline chart. Options include: ○ Area `area`: Option to display the sparkline as a line with the area between its points and the horizontal axis colored in. ○ Line `line`: Option to display the sparkline as a line. This property applies only with indicator data sources and when **Show sparkline** is true.
Colors	
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value.

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Field	Description
	Alternatively, you can add a rule to define a dynamic color. For more information, see Create coloring rules for data visualizations.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Chart interactions

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for single score visualizations

When you select a table data source for a single score visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a single score data visualization in the Visualization Designer or on a dashboard.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.

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Field	Description
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Additional settings	

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Field	Description
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Show score update time	Option to display the time of the last update.
Use relative score time	Available if Show score update time is selected. Select to show how long ago the score was last updated.
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time. If you enable both real-time update and data caching, real-time update overrides data caching. **Note:** • When a condition is dot-walked to another table, high traffic on the table suspends real-time data updates. • For tables, real-time updating supports only COUNT data aggregations. • Real-time updating is not supported on single score, dial, and gauge visualizations based on remote tables..
No data message	

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Field	Description
This section is not available when **Show zero** is on. Zero is then the no data message.	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for single score visualizations

When you select an indicator data source for a single score visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator data source in Create a single score data visualization in the Visualization Designer or on a dashboard.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN`

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Field	Description
	• Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period.

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Field	Description
	This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Show change	Displays the change compared to the previous score or period.
Show change %	Displays the change percentage compared to the previous score or period.
Show change from	Shows the change from a previous value, the previous aggregate period, or the value at the start of the period.
Show target	If it is defined for the indicator, displays the global target value.
Show gap %	Displays the percentage difference between the current value and the target.
Show sparkline	Displays a line graph representing the change over time.
Show score date	Display the date of the score.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the

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Field	Description
	filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time. **Note:** • This setting is available for automated, non-scripted indicators with a non-scripted breakdown mapping. • Real-time score updating does not support MIN, MAX, or COUNT DISTINCT aggregations.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for Single scores

When you select a User Experience Analytics data source for a single score visualization, the following Data configuration options are available.

Field	Description
Data	

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Field	Description
Data source	You have selected a User Experience Analytics data source in Create a single score data visualization in the Visualization Designer or on a dashboard.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.

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Field	Description
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Date range	
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Show maximum range	Option to show the maximum range of available dates.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	

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Field	Description
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is false. When true, the **No data message** section is not available, because the no data message is 0.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message This section is not available when **Show zero** is on. Zero is then the no data message.	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Single score visualization example

Use a single score visualization when you want to show a single value or metric, such as overall revenue or number of open incidents. The basic score visualizes a single value with a descriptive heading and date/time stamp.

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Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

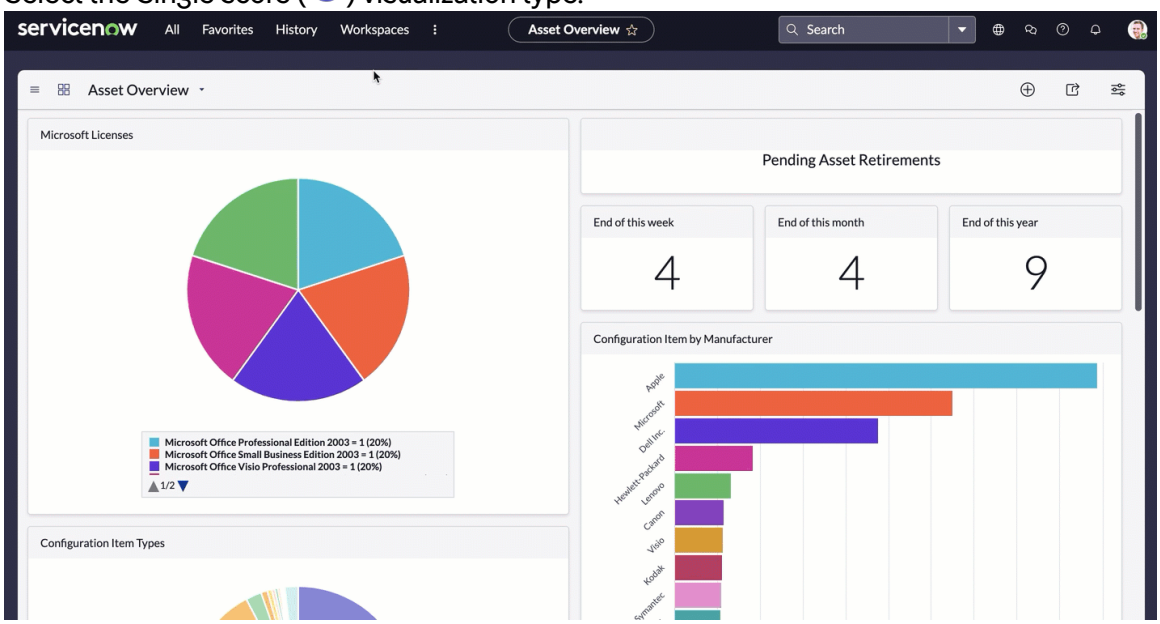
About this task

Single score visualizations have the advantage that you can color code them to show if the value is good for your business or requires improvement. For example, the number of open incidents is a value you want to keep low. Revenue, on the other hand, you want to be high. Let's create a single score for open incidents.

In this example, you create a single score visualization that shows the number of open incidents and color code the visualization to highlight the value's desirability.

Procedure

1. Follow the first steps to Create a single score data visualization in the Visualization Designer or on a dashboard:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the Single score ( ) visualization type.



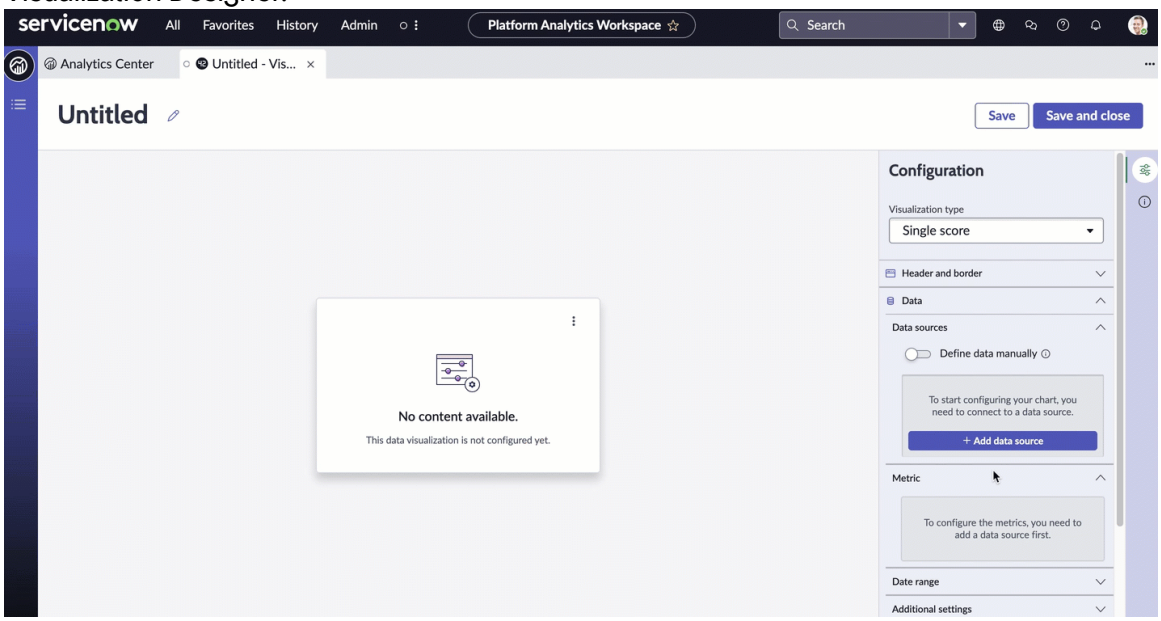
2. For the moment, skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
   With this filter selected, the visualization only shows the number of active incidents.

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d. Optional: Select **Run** to preview the records that the visualization will be based on.

e. Select **Add this source**.

A single score data visualization with the current value of the selected data appears in the Visualization Designer.



3. Now that you can see the visualization, let's add some context for the user.

a. Expand the Header and border section.

b. Select **Show header** and provide the chart title `Number of open incidents`.
When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

c. Enter a description of the visualization: `Number of open incidents of all priorities and categories`.
While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

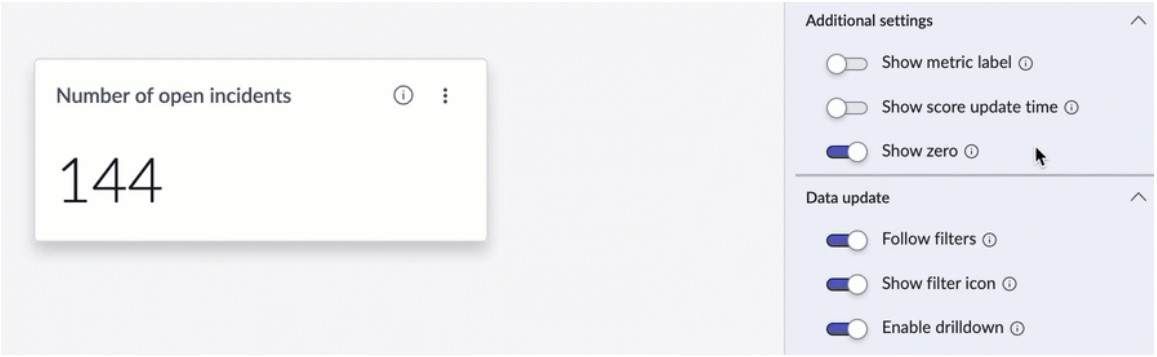
4. Skip over the Metric section.
Some data visualizations support multiple data sources, but the single score visualization doesn’t. Because we only want to see the number of open incidents, you don't need to change the default metric, Count, or its label, Incident.

5. Under Additional settings, configure some extra information about the visualization.

a. Leave the **Show metric label** unselected.
Because the name of the visualization is `Number of open incidents`, the metric label, Incident, is redundant.

b. Select **Show score update time**.
Alone, this option shows the time of day the score was last updated. You can also select Use relative score time to show the elapsed time since the last update, for example just now, five minutes ago, and so on.

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c. Select **Show zero**.
In some cases, a value of zero isn't interesting to the audience of a visualization. In this case, however, you want to show off having zero open incidents.

6. Under Data update, configure how the audience interacts with the visualization.

a. Select **Follow filters**.
This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

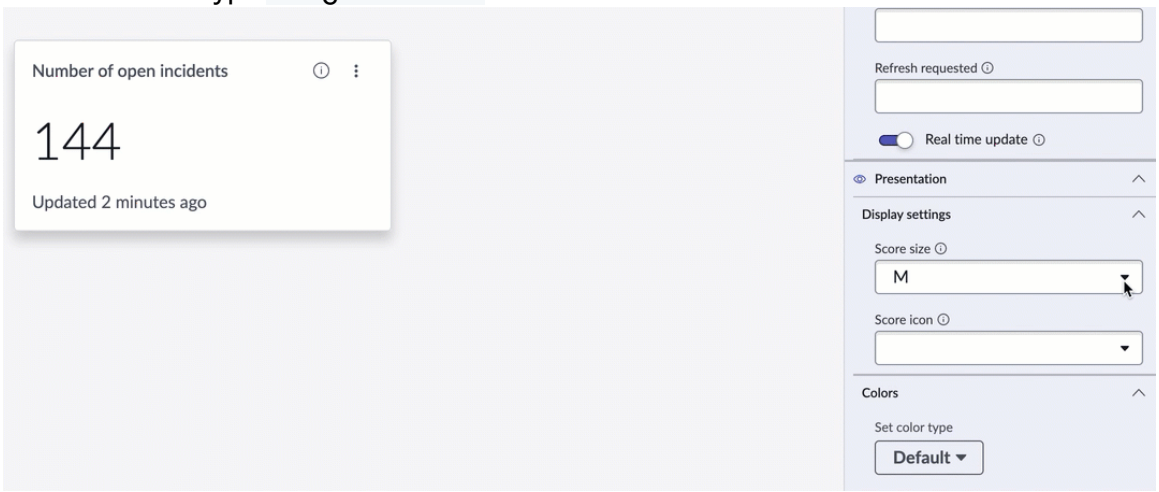
7. Under Presentation, configure the size and base color of the score value.

a. Under Display settings, change the score size from the default M (medium) to XL (extra large) to emphasize it.

b. Choose a Score icon and an icon style to distinguish this data visualization from others on the dashboard you add it to.
For example, select the Activity Outline icon with background.

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c. Select the color type `Single color`.



8. Configure a color rule for the score.
   Because you want to emphasize the state of open incidents, define a dynamic color rule that changes the score's color based on its value.

   a. In the Display settings, choose the `Single color` color type.

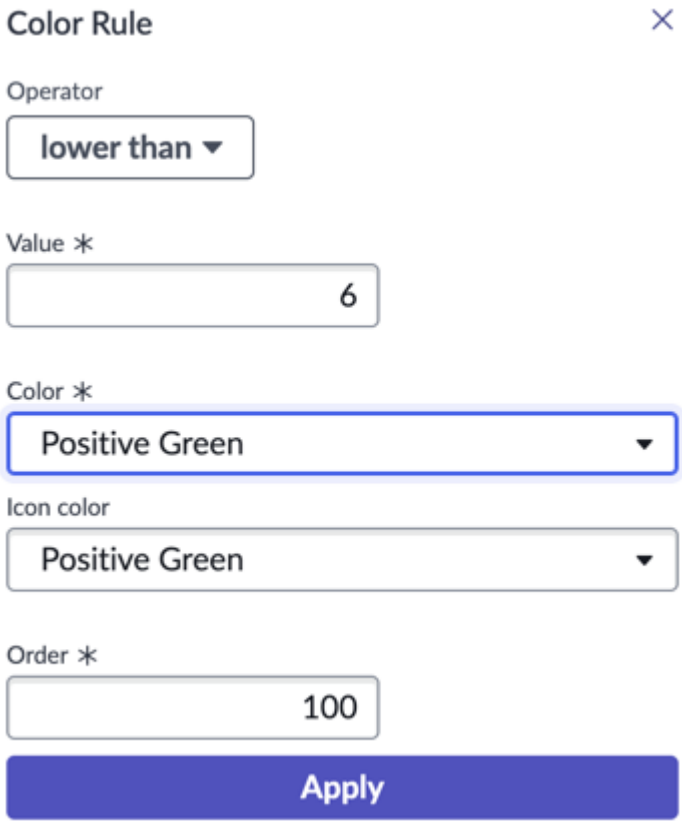
   b. Under Color Rules, select **+ Add rule**.

   c. For the first color rule, choose the **Operator** `lower than`, enter the **Value** 6, and choose the color `Positive Green` for both the color and the icon color, and select **Apply**.

      The value is up to the specified number but not including it.

      Retain the order 100.

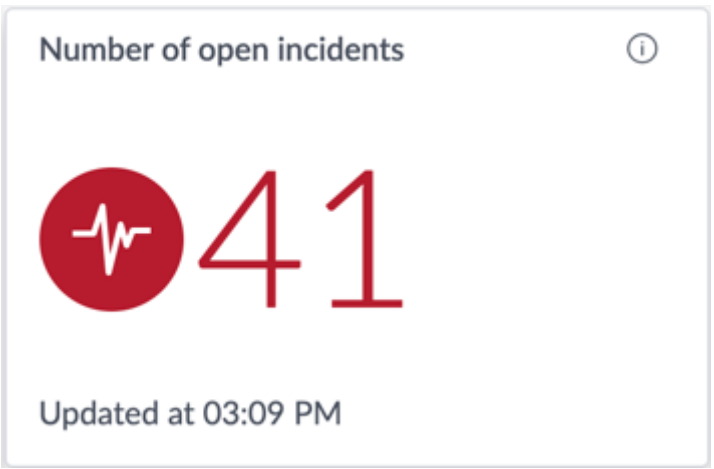
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d. To indicate a value that requires more attention, create a second rule with the **Operator** `between`, the values `5` and `25`, the color and icon color `Warning Orange`, and the order `50`.

e. To show values that require the highest attention, create a third rule with the **Operator** `greater than`, the value `25`, the color and icon color `Red`, and the order `25`.

You've created three rules to show whether the single score value is in line with what you want to see.



9. Select **Save**.

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Result

You've created a single score visualization based on a single metric, open incidents. You've also configured user options regarding filters and drilldowns, and configured a color, an icon, and coloring rules.

Create a box plot data visualization

Use a box plot to show the median and lower and upper quartiles of numeric data along with outliers. You can also compare the distribution of different groups of this data.

Before you begin

Important:
The box plot visualization is included in the latest data visualizations application from the ServiceNow® Store.

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

The Box Plot visualization only supports table data. Indicator, MetricBase, and User Experience Analytics data is not supported.

For information about the use of a Box plot visualization in a dashboard, see the Developer Site. This site gives information about Box plot components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Box Plot () visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.

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Header and border fields	Description
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Open the Data Source selector and select a table.
6. Configure the data settings as described in Table data options for box plot visualizations.
7. Under **Presentation**, provide display and color information..

Field	Description
Display settings	
Y axis	
Hide axis	Option to hide the primary axis.
Primary axis title	Title to display on the vertical axis of the visualization. This property applies only when **Hide primary axis** is false. If there is more than one Y-axis, you have additional axis titles, representing the properties yAxis1Title, yAxis2Title, etc. Add a Y-axis scale for a metric in the **More options** menu for the metric.
Axis range - from	Starting point for the values on the primary axis.
Axis range - to	End point for the values on the primary axis.
Axis position	Position of the primary axis. Options include: ○ Left ○ Right This property applies only when **Hide axis** is false. If there is more than one primary axis, such as multiple Y axes on a vertical bar

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Field	Description
	visualization, you can set each axis position separately.
Show grid	Shows a grid of fine lines perpendicular to the primary axis, to help align values against that axis.
Axis style	Style of the primary axis. ○ Clean `clean`: Adds a straight line to the primary axis. ○ No tick lines `noTicks`: Option to remove all marks from the primary axis. ○ Standard `default`: Adds a line and tick marks to the primary axis.
X axis	
X axis title	Title to display on the horizontal axis of the visualization.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Colors	
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Chart interactions

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments.

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Field	Description
	Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for box plot visualizations

When you select a table data source for a box plot visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a box plot data visualization.

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Field	Description
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component.

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Field	Description
	Note: Only available when **Use custom formatting** is true
Group by	
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields. **Note:** • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer.

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Field	Description
	Important: • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Measured by	
Field for [table]	The numeric field from the table for the Y-axis. A viewer cannot substitute this field with an alternative group-by field.
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. Limitations: • You can only order by the **Group By** or the **Stack by** field. • You can only order by one field. It is not possible to sort by Additional group by fields.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the

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Field	Description
	entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Create a bubble visualization in the Visualization Designer

Use a bubble visualization to show multiple separate metrics on a single chart. Use bubble charts to answer binary questions, such as whether two fields have a relationship, and to highlight patterns.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Bubble visualization in a dashboard, see the Developer Site. This site gives information about Bubble data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Bubble visualizations aggregate information over three different metrics, using the X axis, Y axis, and bubble size.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Bubble () visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.

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Header and border fields	Description
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   You can choose one or more tables (available in the base system). When you select a table, you can filter it by conditions.

   Note:
   You can choose to define a data source manually in JSON. However, this method is intended only for experts.

6. Select the options for your data source.
   Go to Table data options for bubble visualizations.
7. Under **Presentation**, provide display and color information. In the **Colors** section, configure the colors and color rules.

Field	Description
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Show legend	Available when you configure a group by or have more than one metric. Select to display the legend.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left.

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Field	Description
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization.

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Field	Description
	Note: The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Select the More actions menu icon ( ) to duplicate, share, export, schedule, or bookmark the visualization.

Table data options for bubble visualizations

When you select a table data source for a bubble visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You've selected a Table data source in Create a bubble visualization in the Visualization Designer.
Metric	
Metric (bubble size)	Choose the computational method for aggregating data and the field that determines the size of bubbles in the visualization. The default aggregation is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	

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Field	Description
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Dimensions	
Y axis	Numeric table field with values on the bubble chart's y-axis.
X axis	Numeric table field with values on the bubble chart's x-axis.

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Field	Description
Group by	Any table field other than the x- and y-axes. Different groups are distinguished by bubble color.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back.

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Field	Description
	Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message This section is not available when **Show zero** is on. Zero is then the no data message.	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Bubble visualization example

The bubble data visualization is used to do compare fields and see their relationships.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

Use bubble chart to show two ordinal fields, such as Priority and Age, as circles of different sizes along an x-y axis. Use the relative size and position of the circles to compare fields and see their relationships. You can also group the data by a third field, which can be qualitative. The third field is differentiated by color.

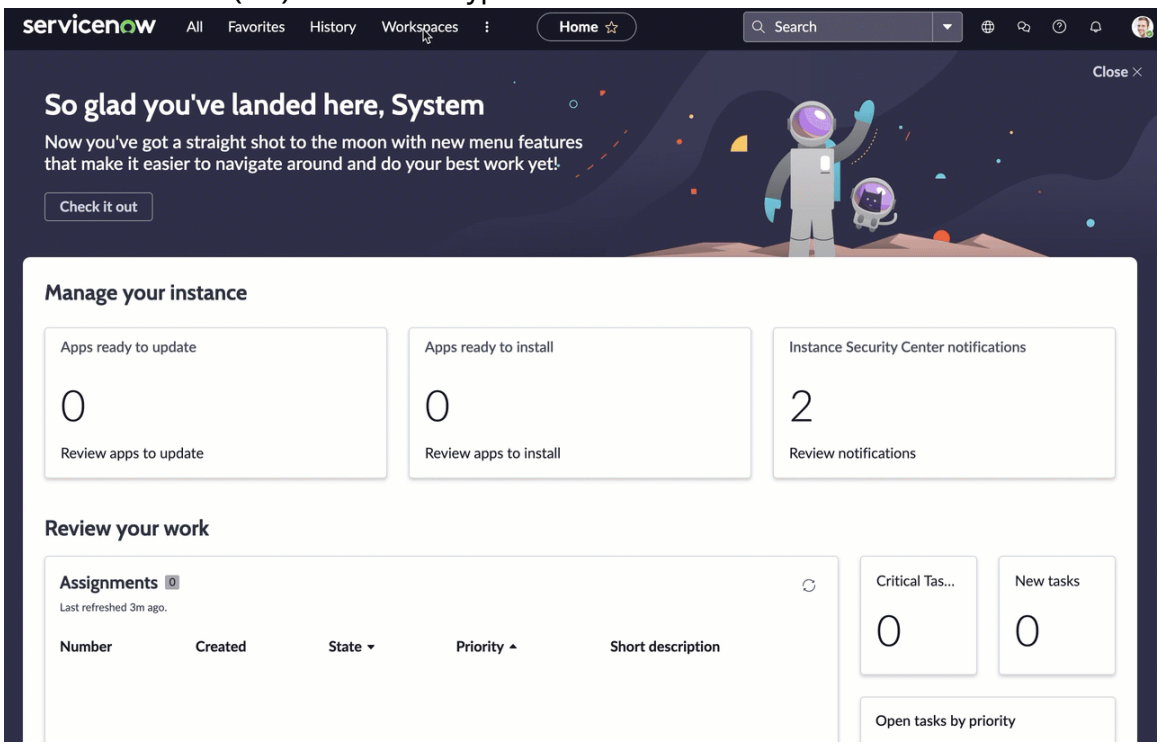
In this example, you create a bubble visualization that shows the number of open incidents and color code the visualization to highlight the value's desirability.

Procedure

1. Follow the first steps to Create a bubble visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.

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c. Select the Bubble ( ) visualization type.



2. For the moment, skip the header and border section and move to the data source.

a. Select **Add data source**.

b. Choose the Incident [incident] table.

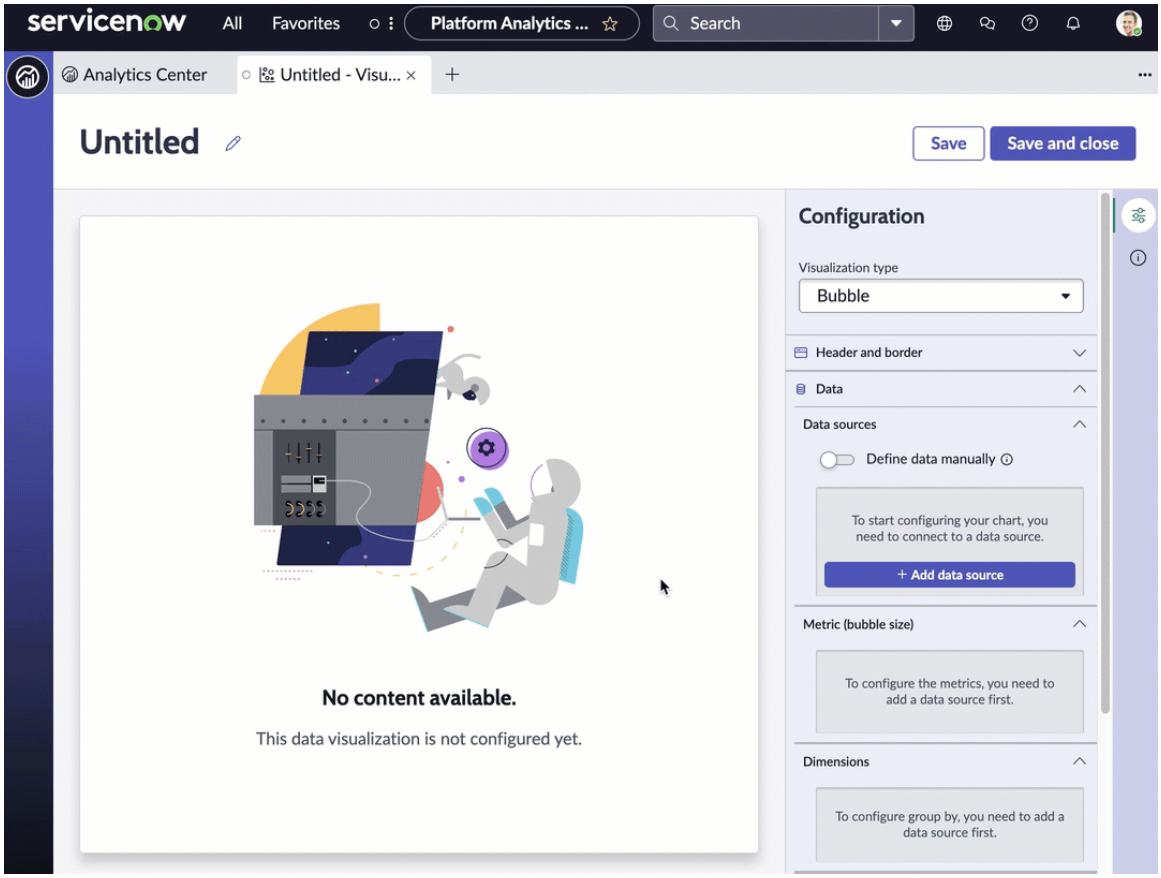
c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
With this filter selected, the visualization only shows the number of active incidents.

d. Optional: Select **Run** to preview the records that the visualization will be based on.

e. Select **Add this source**.

A bubble visualization with the current values of the selected data appears in the Visualization Designer.

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3. Now that you can see the visualization, let's add some context for the user.

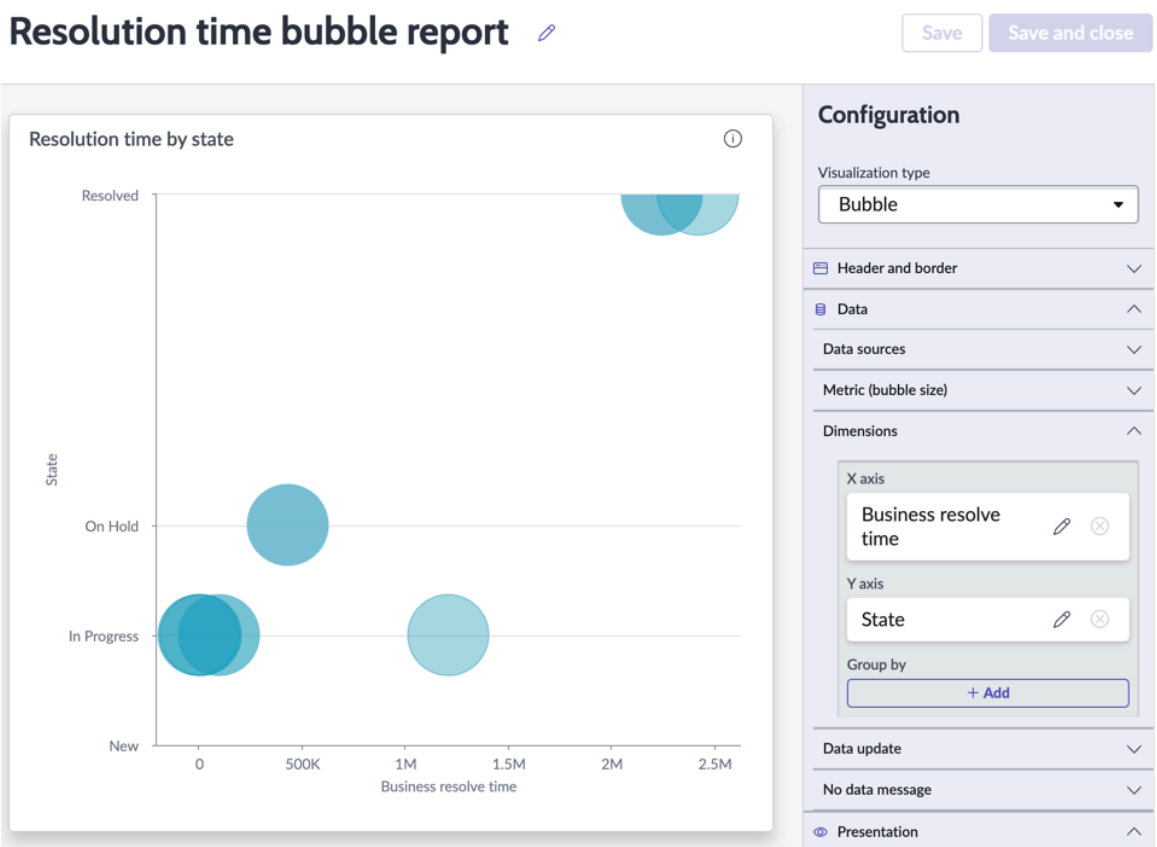
   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Resolution time by state`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Bubble report showing incident resolution times with state`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

4. Skip the Data source sections
   While the bubble report does support multiple data sources, we're just working with incidents. Because we only want to see the number of open incidents, you don't need to change the default metric, Count, or its label, Incident.
5. In the Dimensions section, keep the X axis field, Business resolve time and select State for the Y axis field.

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6. Under Data update, configure how the audience interacts with the visualization.

   a. Select **Follow filters**.
   This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

   b. Select **Show filter icon** to show the number of filters applied to the visualization.
   For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

   c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
   Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

   This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

7. Choose the **Default** color type for the visualization.
   - **Default** applies the colors associated with your UX theme.
   - **Single** specifies the same color for each bubble. All data visualizations that use fixed element colors show the same element in the same color.

Result

You've created a bubble visualization sorted on two values. You've also configured the visualization's colors.

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Create a dial visualization in the Visualization Designer

Use a dial visualization to show where a value lies between expected minimum and maximum values. Use the dial visualization to show how a value compares to a target or benchmark, track progress, or to identify areas for improvement.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Dial visualization in a dashboard, see the Developer Site. This site gives information about Dial data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Dial ( ) visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact

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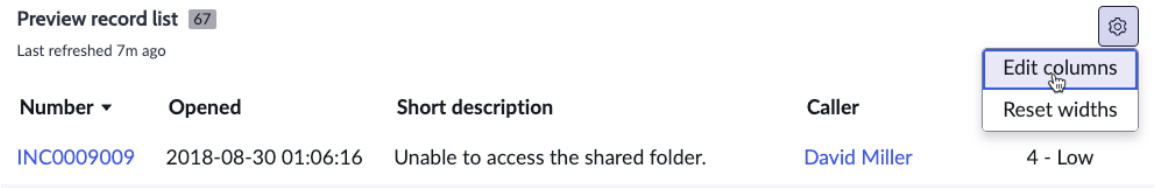
Header and border fields	Description
	positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

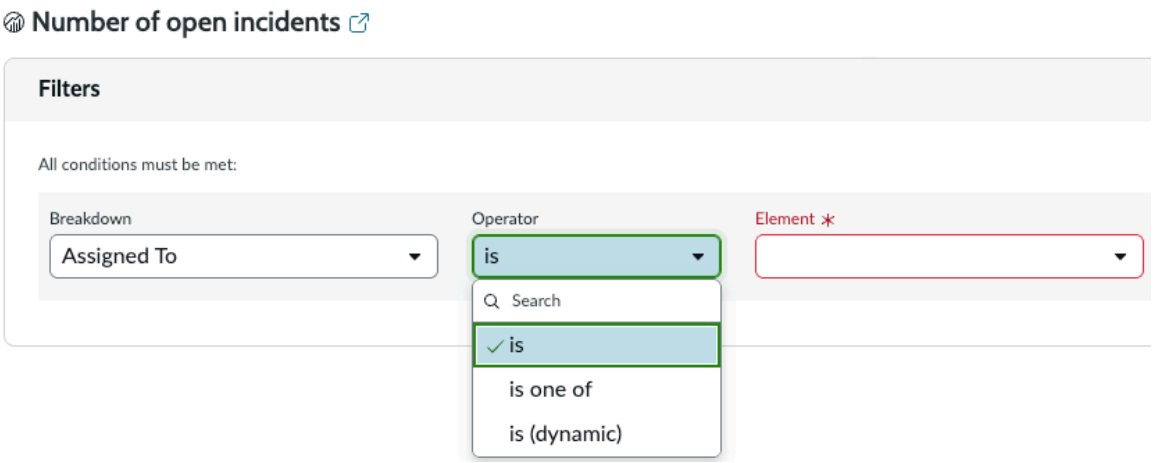
     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.

   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

     Note:
     Benchmark indicators are not supported.

     Note:

     You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

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- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for dial visualizations.
   - If your visualization represents indicator data, go to Indicator data options for dial visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for dial visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings	
Value label size	Characters that represent dynamic sizes: small (S), medium (M), or large (L). The actual size of the type changes in proportion to the size of the chart.
Min value	Set the lowest value shown on the visualization. If not specified, zero is the default.
Max value	Set the highest value shown on the visualization.
Inner radius	Specify the ratio of the visualization's inner radius to the outer. Allowed values are 0.7–0.95.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Colors	
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value.

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Field	Description
	Alternatively, you can add a rule to define a dynamic color. For more information, see Create coloring rules for data visualizations.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for dial visualizations

When you select a table data source for a dial visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a dial visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.

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Field	Description
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Additional settings	

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Field	Description
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is false. When true, the **No data message** section is not available, because the no data message is 0.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time. If you enable both real-time update and data caching, real-time update overrides data caching. **Note:** • When a condition is dot-walked to another table, high traffic on the table suspends real-time data updates. • For tables, real-time updating supports only COUNT data aggregations. • Real-time updating is not supported on single score, dial, and gauge visualizations based on remote tables..
No data message This section is not available when **Show zero** is on. Zero is then the no data message.	

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Field	Description
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for dial visualizations

When you select an indicator data source for a dial visualization, the following Data configuration options are available.

Field	Description
Data source	You have selected an indicator data source in Create a dial visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP`

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Field	Description
	• Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period.

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Field	Description
	This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time.

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Field	Description
	Note: • This setting is available for automated, non-scripted indicators with a non-scripted breakdown mapping. • Real-time score updating does not support MIN, MAX, or COUNT DISTINCT aggregations.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for dial visualizations

When you select a User Experience Analytics data source for a dial visualization, the following Data configuration options are available.

Field	Description
Data source	You have selected a User Experience Analytics data source in Create a dial visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include:

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Field	Description
	• Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.

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Field	Description
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back.

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Field	Description
	Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Dial visualization example

Dial visualizations show where a single value lies across a range from minimum to maximum expected values. Visually, a "needle" points to the value, and the dial is colored in for values up to the needle.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

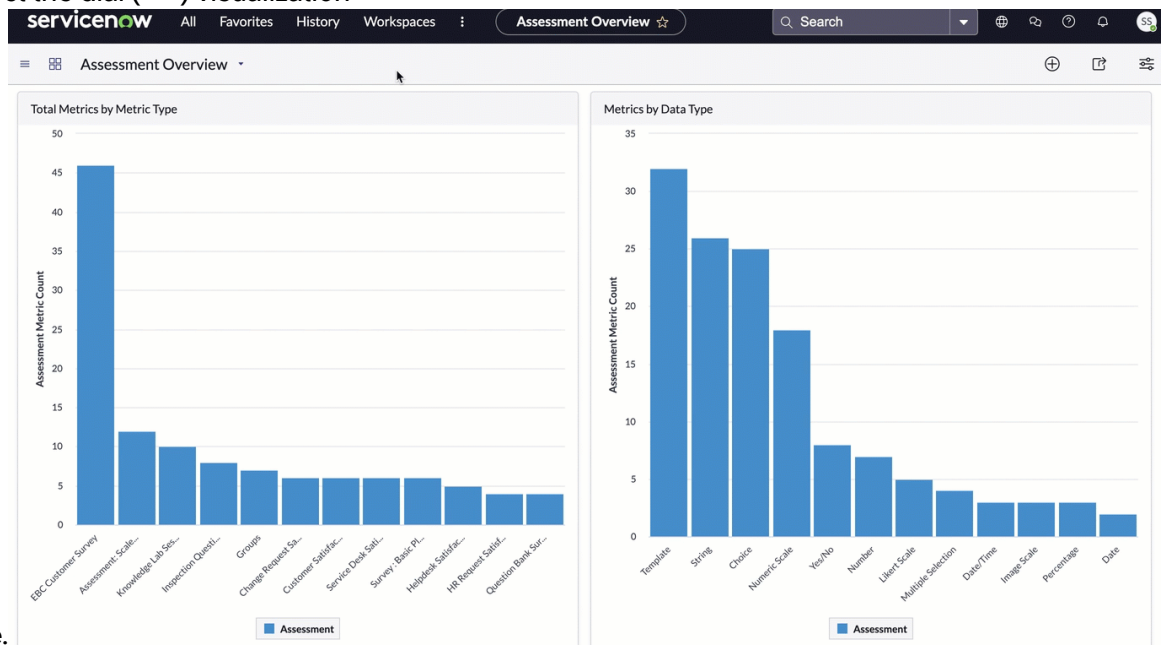
About this task

Use the dial visualization when you want to compare a current value to a target or benchmark, such as a company's sales compared to its goal. You can configure the dial visualization with colors to show where the current value lies compared to the goal. In a single score, you can color code the value to show if it's in a positive or negative range. With a dial, you color code the part of the visualization that represents the value.

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Procedure

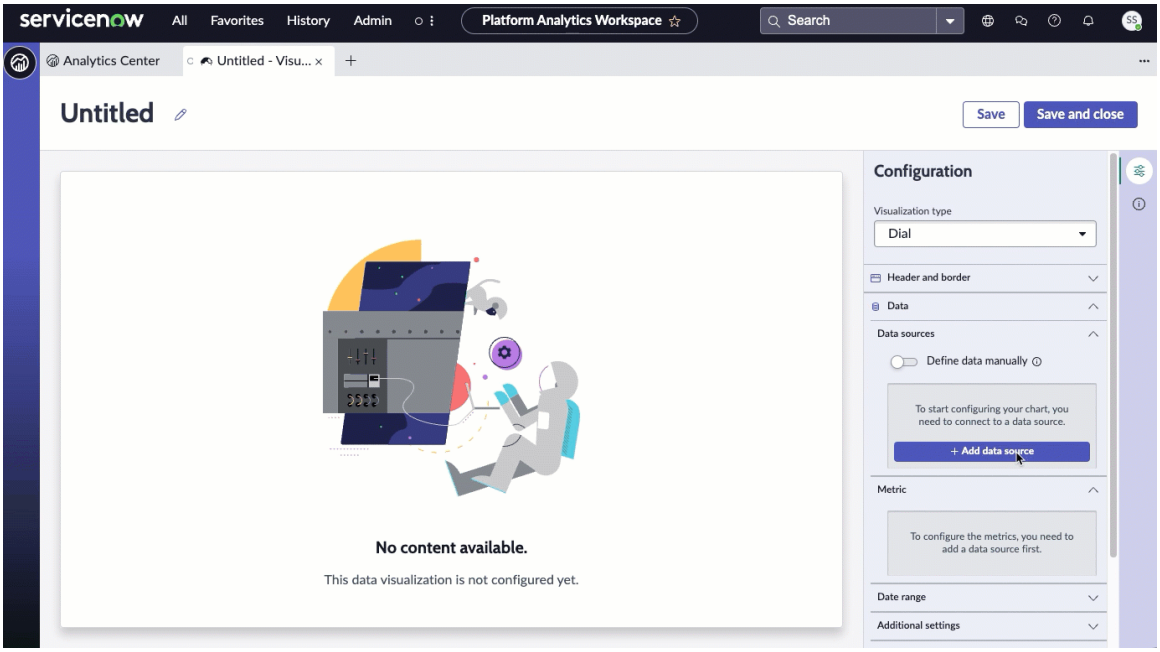
1. Follow the first steps to Create a dial visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the dial ( ) visualization type.



2. For the moment, skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
   With this filter selected, the visualization only shows the number of active incidents.
   d. **Optional:** Select **Run** to preview the records that the visualization will be based on.
   e. Select **Add this source**.

   A dial data visualization with the current value of the selected data appears in the Visualization Designer.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Open incidents - Dial`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Number of open incidents of all priorities and categories`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

4. Skip over the Metric section.
   Some data visualizations support multiple data sources, but the dial visualization doesn’t. Because you only want to see the number of open incidents, you don't need to change the default metric, Count, or its label, Incident.

5. Under Additional settings, leave **Show metric label** unselected and select **Show Zero**.
   Because the name of the visualization is `Number of open incidents`, the metric label, Incident, is redundant.

   In some cases, a value of zero isn't interesting to the audience of a visualization. In this case, however, you want to show off having zero open incidents.

6. Under Data update, configure how the audience interacts with the visualization.

   a. Select **Follow filters**.
   This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

   b. Select **Show filter icon** to show the number of filters applied to the visualization.

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For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

7. Under Presentation, configure the sizes of the score and the dial itself, and the visualization's minimum and maximum values.

a. Under Display settings, change the score size from the default M (medium) to L (large) to emphasize it.

b. Choose a minimum and maximum value for the dial.
The default values are 0 and 100. In this case, the minimum is zero if there are no open incidents. Keep the default value for the maximum as well, but consider realistic maximum values when you create your own dial visualizations.

c. Ignore the inner radius parameter for the purposes of this example.
The inner radius is the ratio of the visualization's inner radius to the outer. Allowed values are 0.7–0.95.

8. Configure a color rule for the score.
Because you want to emphasize the state of open incidents, define a dynamic color rule that changes the dial's color based on its value.

a. In the Display settings, choose the `Single color` color type.

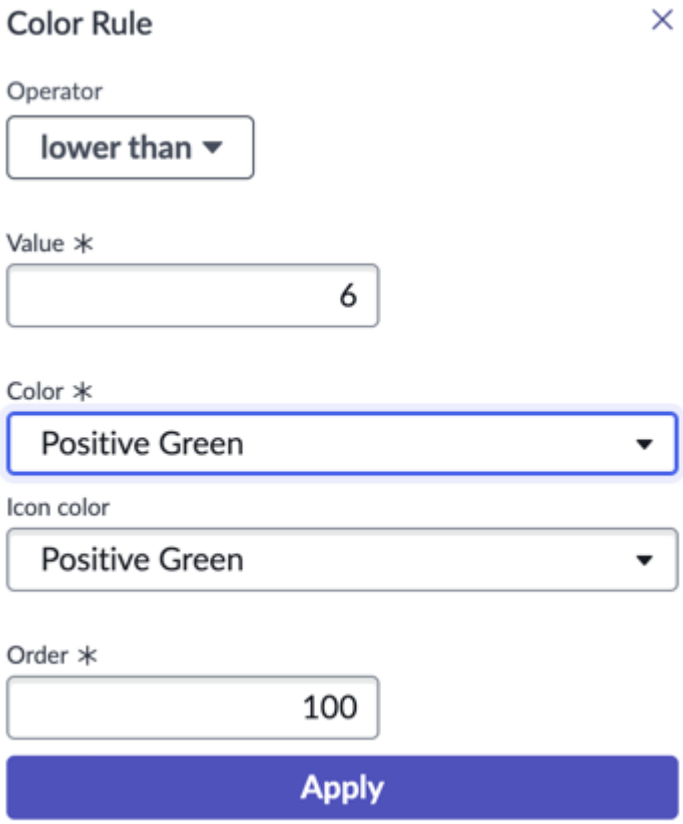
b. Under Color Rules, select **+ Add rule**.

c. For the first color rule, choose the **Operator** `lower than`, enter the **Value** `6`, and choose the color `Positive Green` for both the color and the icon color, and select **Apply**.

The value is up to the specified number but not including it.

Retain the order 100.

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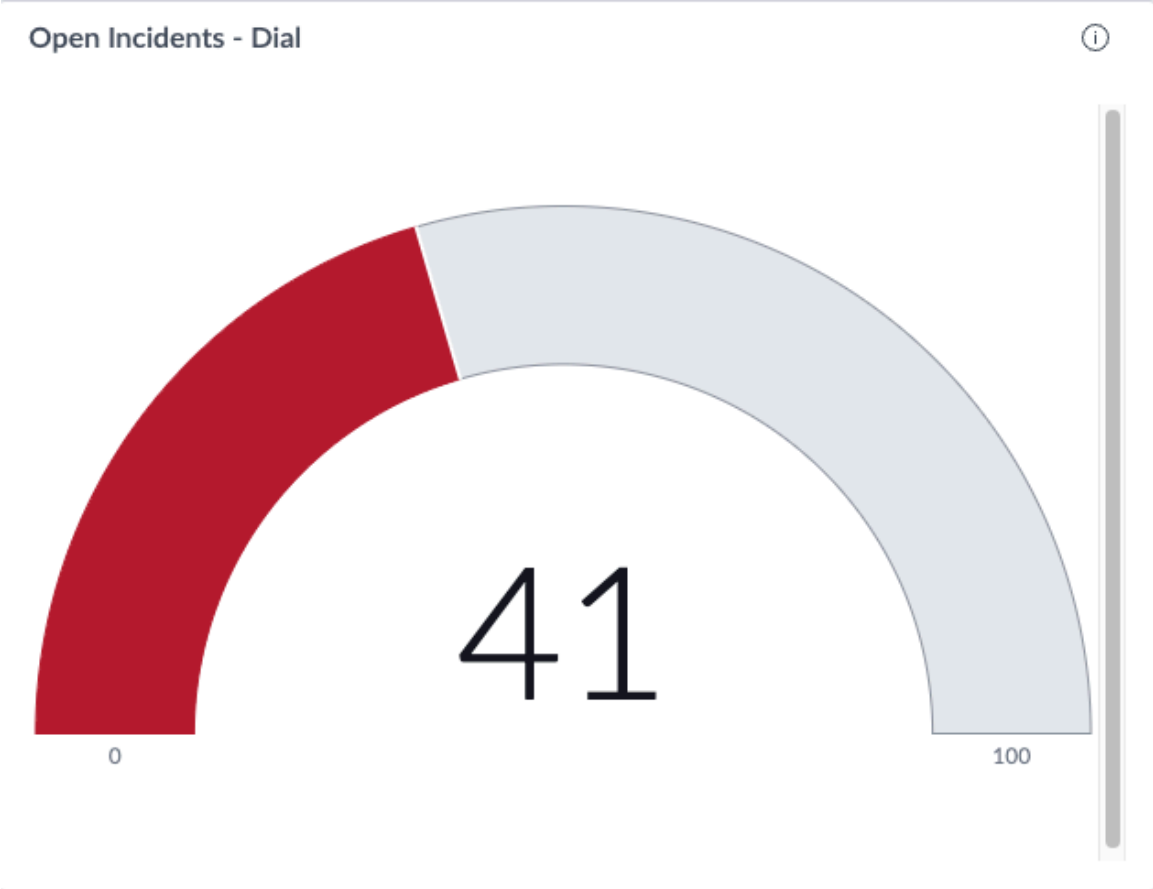


d. To indicate a value that requires more attention, create a second rule with the **Operator** `between`, the values `5` and `25`, the color and icon color `Warning Orange`, and the order `50`.

e. To show the values that require the highest attention, create a third rule with the **Operator** `greater than`, the value `25`, the color and icon color `Red`, and the order `25`.

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You've created three rules to show whether the single score value is in line with what you want to see.



Result

You've created a dial visualization based on a single metric, open incidents. You've also configured user options regarding filters and drilldowns, and configured the visualization's size and coloring rules.

Create a gauge visualization in the Visualization Designer

A gauge visualization shows where a value lies between expected minimum and maximum values. Use the gauge visualization to follow progress with color-coded value ranges.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Gauge visualization in a dashboard, see the Developer Site. This site gives information about Gauge data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.

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3. Select the Gauge ( ) visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

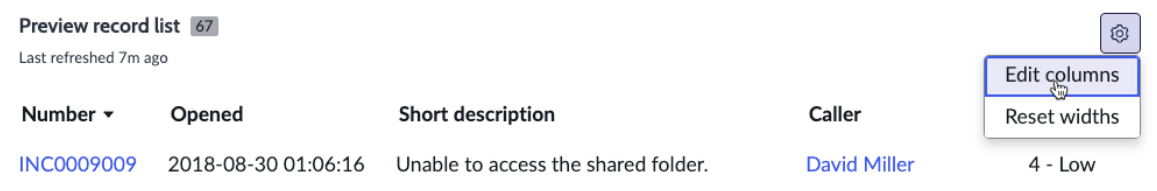
Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

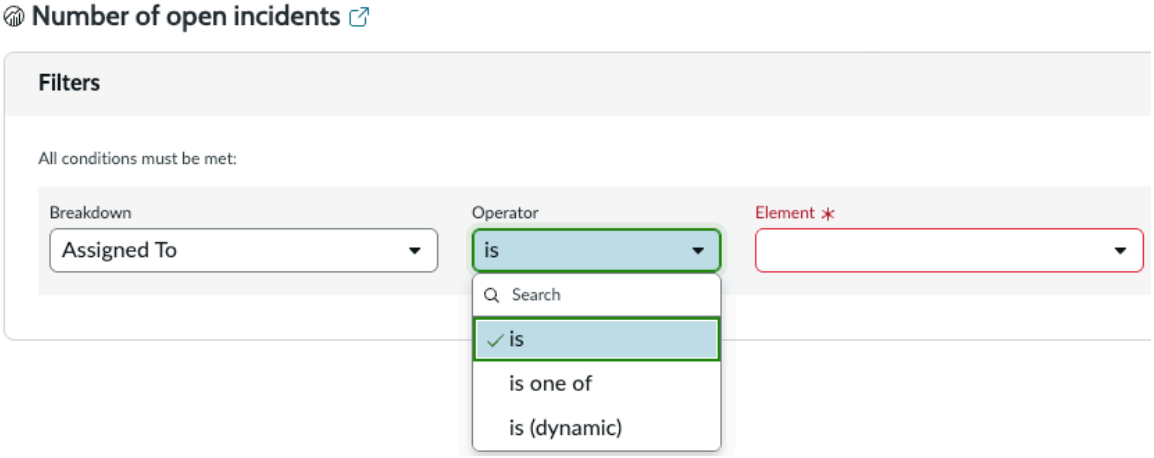
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.



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- Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

  Note:
  Benchmark indicators are not supported.



  Note:

  You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for gauge visualizations.
   - If your visualization represents indicator data, go to Indicator data options for gauge visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for gauge visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings	
Gauge arc angle	Choice of sizes for the gauge, in degrees.
Value label size	Characters that represent dynamic sizes: small (S), medium (M), or large (L). The actual

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Field	Description
	size of the type changes in proportion to the size of the chart.
Inner radius	Specify the ratio of the visualization's inner radius to the outer. Allowed values are 0.7–0.95.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Range	
Min value	Set the lowest value shown on the visualization. If not specified, zero is the default.
Max value	Set the highest value shown on the visualization.
Configure ranges	Specify the number of ranges to divide the gauge into; default 3. You select the number of ranges, the start and end values of each range, the labels, and the color spectrum.
Legend	
Show legend	Option to display the legend. Activated automatically at 400% zoom.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left
Legend orientation	Options for how to display the register. ○ Horizontal `horizontal`: Option to display the legend horizontally. ○ Vertical `vertical`: Option to display the legend vertically up to five lines. This property applies only when **Legend position** is Below.
Horizontal alignment	Horizontal alignment of elements in the legend: Start, Center, or End
Max legend item width, px	Number of pixels after which the item in the legend is truncated.
Labels	
Score label [scoreLabel]	The label of the score in the center of the gauge:

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Field	Description
	○ No label (None) ○ The same label as the visualization metric (Metric label) ○ The label that you set for the range that the score falls into, in Configure ranges (Range label) Labels are disabled and replaced by legends at 400% zoom.
Show range limit [showRangeLimit]	When true, the limits that you configured for the ranges are shown. If you did not configure any ranges, the default min and max values are shown.
Show range labels [showRangeLabels]	When true, any labels you configured for ranges are shown. This property is available only if you configured ranges and specified labels for them.
Show label as primary	Available when the score label is configured as Range label. Changes the places of the score value and label to make the score value small and emphasize the range value.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** [chartInteractionEnabled] is true. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You

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Field	Description
	have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for gauge visualizations

When you select a table data source for a gauge visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a gauge visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration**

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Field	Description
	on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component.

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Field	Description
	Note: Only available when **Use custom formatting** is true
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is false. When true, the **No data message** section is not available, because the no data message is 0.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time. If you enable both real-time update and data caching, real-time update overrides data caching. **Note:** • When a condition is dot-walked to another table, high traffic on the table suspends real-time data updates. • For tables, real-time updating supports only COUNT data aggregations. • Real-time updating is not supported on single score, dial, and gauge visualizations based on remote tables..

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Field	Description
No data message This section is not available when **Show zero** is on. Zero is then the no data message.	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for gauge visualizations

When you select an indicator data source for a gauge visualization, the following Data configuration options are available.

Field	Description
Data source	You have selected an indicator data source in Create a gauge visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN`

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Field	Description
	• Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period.

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Field	Description
	This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Real-time update	Option to update score in real time.

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Field	Description
	Note: • This setting is available for automated, non-scripted indicators with a non-scripted breakdown mapping. • Real-time score updating does not support MIN, MAX, or COUNT DISTINCT aggregations.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for gauge visualizations

When you select a User Experience Analytics data source for a gauge visualization, the following Data configuration options are available.

Field	Description
Data source	You have selected a User Experience Analytics data source in Create a gauge visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include:

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Field	Description
	• Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another

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Field	Description
	page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Gauge visualization example

Like dials, gauges show where a single value lies across a range from minimum to maximum expected values. In addition to dial functionality, you can set colored data ranges to help users understand what the value represents.

Before you begin

Role required: No role is required to see the Platform Analytics workspace. With any internal role, you can create a data visualization, but you need the viz_creator role to save your visualizations to the Visualization Library. To create a meaningful visualization, you must have the right to access the data you want to report on.

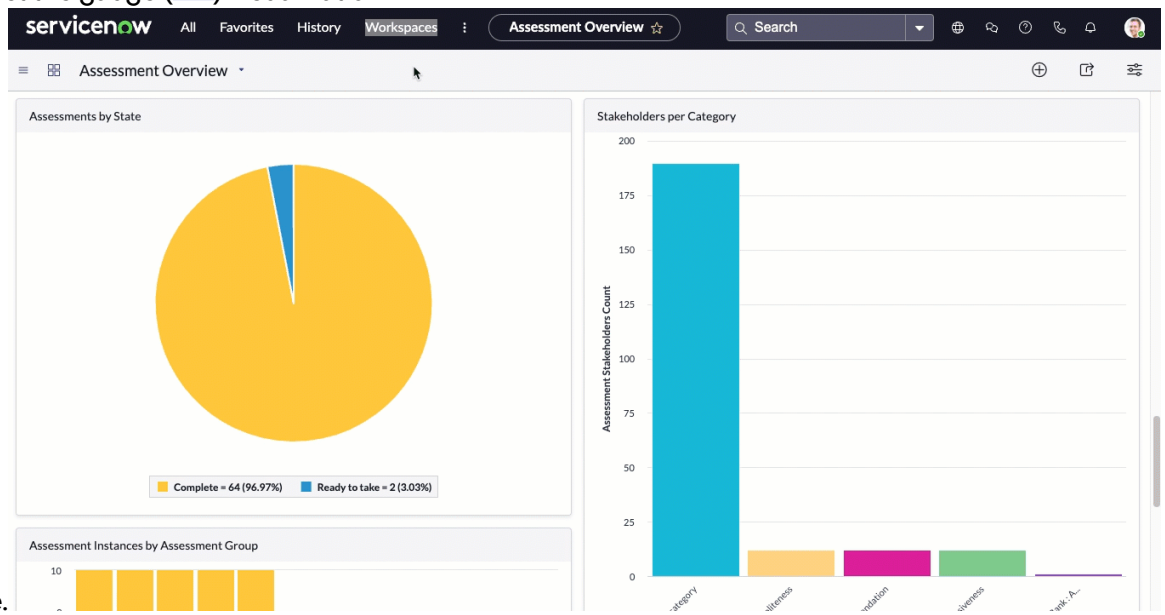
About this task

Use the gauge visualization when you want to compare a value to a target or benchmark, such as a company's sales compared to its goal. You can configure the visualization with colors to show where the current value lies compared to the goal. With a dial, you color code the part of the visualization that represents the value. With a gauge visualization, you color code the ranges and a needle points to the value.

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Procedure

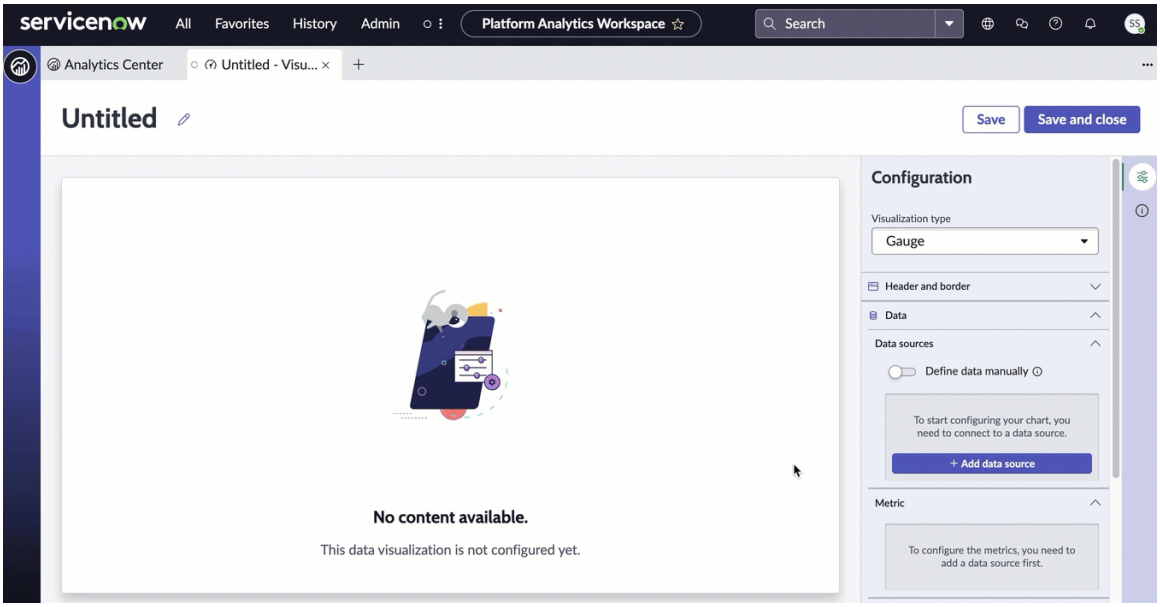
1. Follow the first steps to Create a gauge visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the gauge ( ) visualization type.



2. For the moment, skip the header and border section and move on to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Open condition in the Filters section.
   Because this visualization shows open incidents, let's add the Incidents. With this filter selected, the visualization only shows the number of active incidents.
   d. **Optional:** Select **Run** to preview the records that the visualization will be based on.
   e. Select **Add this source**.

   A gauge data visualization with the current value of the selected data appears in the Visualization Designer.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Open incidents - Gauge`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Number of open incidents of all priorities and categories`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

4. Under Additional settings, select **Show Zero**.
   In some cases, a value of zero isn't interesting to the audience of a visualization. In this case, however, you want to show off having zero open incidents. When you don't select **Show Zero**, you have the option to configure a message to show when there is no data.
5. Under Data update, configure how the audience interacts with the visualization.

   a. Select **Follow filters**.
   This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

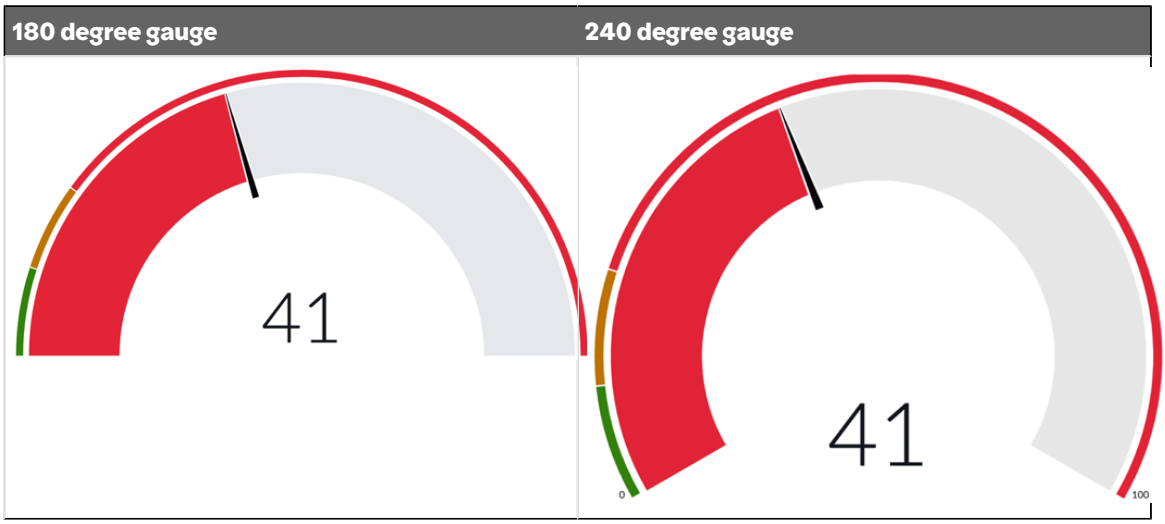
   b. Select **Show filter icon** to show the number of filters applied to the visualization.
   For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

   c. Select **Enable drilldown** to let viewers see the associated data in a different way.
   Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

6. Under Presentation, configure the shape of the gauge and the size of the gauge value.

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a. Under Display settings, choose 180 degrees as the gauge arc angle.
180 degrees shows the gauge as a semicircle. 240 degrees shows the gauge as three quarters of a circle.



b. Change the score size from the default M (medium) to L (large) to emphasize it.

c. Ignore the inner radius parameter for the purposes of this example.
The inner radius is the ratio of the visualization's inner radius to the outer. Allowed values are 0.7–0.95.

7. Under Ranges, choose the minimum and maximum values of the gauge.
The default values are 0 and 100. In this case, the minimum is zero if there are no open incidents. Keep the default value for the maximum as well, but consider realistic maximum values when you create your own gauge visualizations.

8. Select **Configure ranges**.
Ranges are the color bands that show how the value meets the goals associated with the visualization. For the purpose of this example, you configure three ranges to illustrate the value.

a. Keep the default number of ranges, 3, and the default color scheme of `Green to red`.

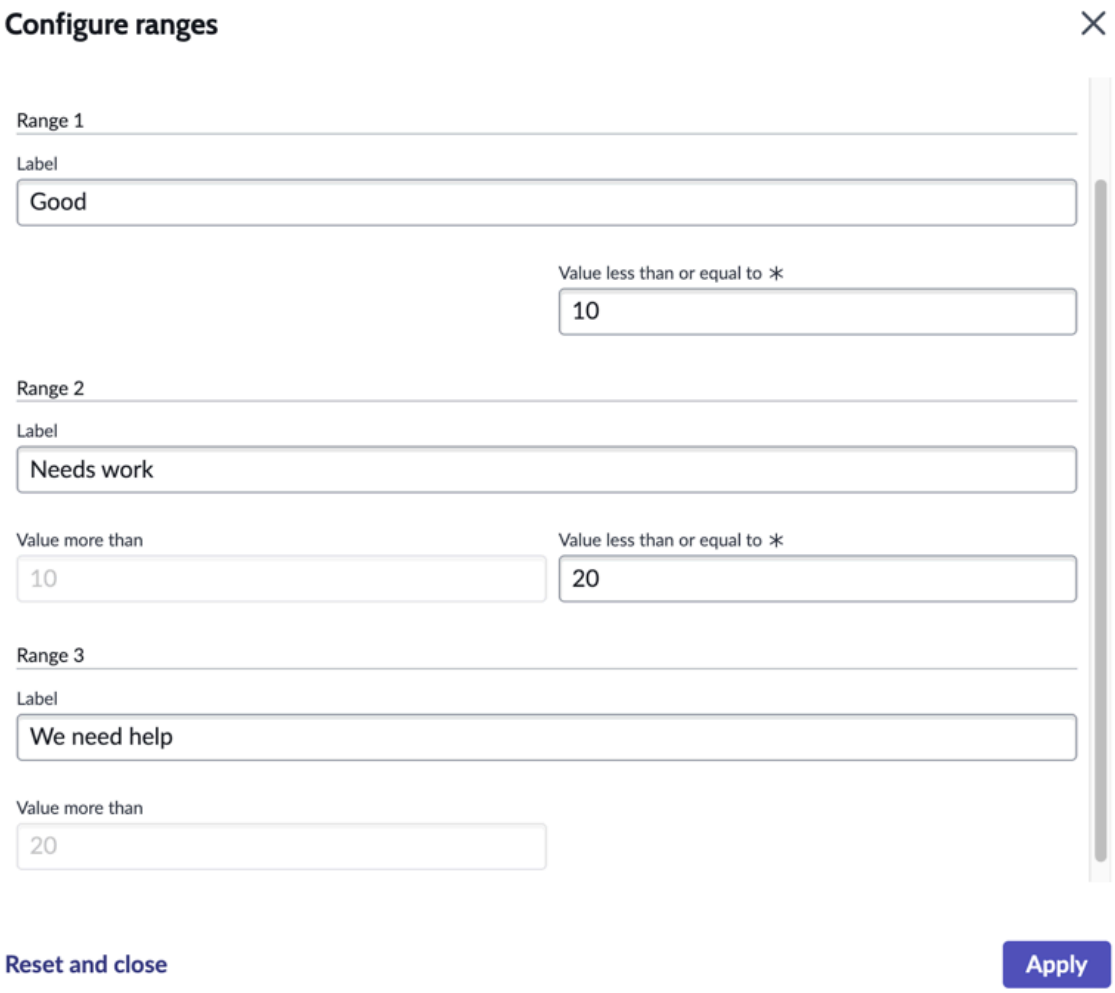
b. Label the first range `Good` and specify **Values less than or equal to** 5.

c. Label the second range `Needs work` and specify **Values less than or equal to** 20.
The lower value is taken from the first range.

d. Label the third range `We need help`.
The value of this range is taken from the second range.

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e. Select **Apply**.



9. Configure the **Labels** for the gauge.

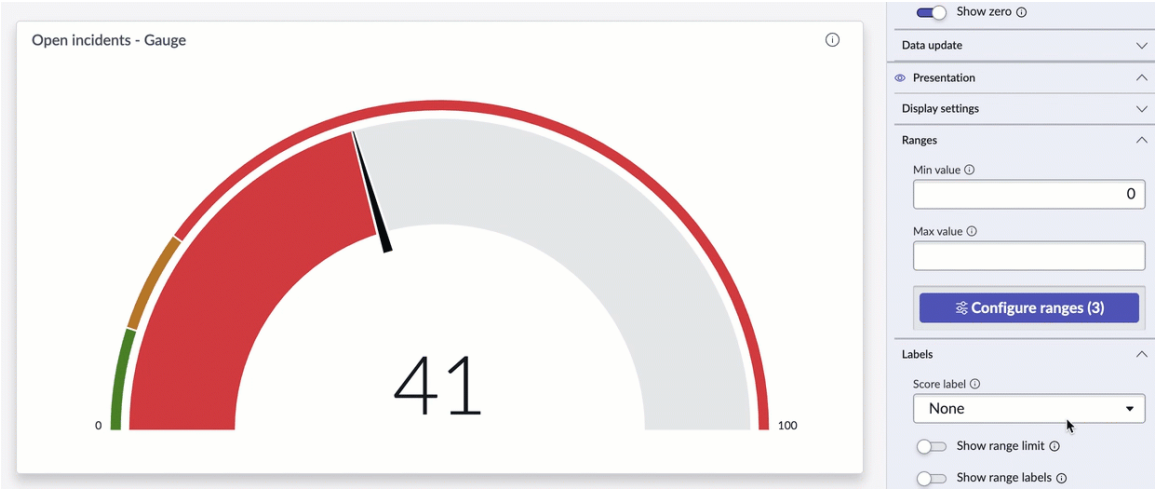
a. Choose the Score label `None`.
The other choices are Metric label and Range label. Because the metric is in the name of the visualization, it's redundant to label the value in the gauge with Incidents. The Range label provides the option to make the label the visualization's primary text rather than the value.

b. Select **Show range limit**.
The range limit adds the lower values of each range, and the upper limit of the gauge to the visualization.

c. Select **Show range labels**.
The range labels that you configured add context for each of the ranges.

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You've created three rules to show whether the single score value is in line with what you want to see.



Result

You've created a gauge visualization based on a single metric, open incidents. You've also configured user options regarding filters and drill downs, and configured the visualization's size, labeling, and ranges.

Create a geomap visualization in the Visualization Designer

A geomap visualization shows the geographical distribution of data for a world, country, region, or province/state. Use Geomaps use table data that contains location information.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Geomap visualization in a dashboard, see the Developer Site. This site gives information about Geomap data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Geomap visualization type.
4. Choose a table data source.
   For general descriptions of the data sources, see Data sources for data visualizations.
   a. Configure the map settings.
   b. Enable drill-down to enable or disable map navigation between levels and list redirection.
5. Configure the **Header and border**. Header and border options are the same for all data sources.

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Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

6. Set the options for your data source.
   Go to Table data options for Geomap visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Map	Map to plot the data, such as the world map or the map of a country.
Show data label	Enables the data labels.
Legend	Displays the legend.
Legend position	Legend location in relation to the chart. Options include: ○ Above ○ Below ○ Right ○ Left
Set color type	Type of color scheme to apply to the component. The choices are:

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Field	Description
	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Color range: A spectrum of colors between a color for the lowest value and a color for the highest value. You can select these colors from a set of icons, from a list of colors including their icons, or by searching for the color name or hexadecimal value. The colors are taken from the Color Definition [sys_report_color] table.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Only the **Go to data view** interaction is available for geomaps. This action opens the underlying records view.

9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for Geomap visualizations

When you select a table data source for a Geomap visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a geomap visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.

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Field	Description
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP`

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Field	Description
	• Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Field for [table]	Select a field that is in a geomap for map sources. By default, the fields you can select point to the Location [cmn_location] table, such as Assigned to.Location. You must select a reference field that points to a table, like Location, that has an associated entry in the Map sources [viz_map_source] table. If only one field on the main level references a location table, this field is selected by default. For more information, including how to create map sources for geomaps, see Map sources for geomap data visualizations.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter

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Field	Description
	is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Map sources for geomap data visualizations

Geomap data visualizations are connected to location tables in a special map source.

Map sources for geomaps are organized in map source hierarchies. All map sources that reference the same table are in the same hierarchy. A map source hierarchy consists of a parent source and up to four levels of child sources. The parent source references only the table and the child sources reference fields in the table.

By default, your instance has a map source hierarchy for geomaps that references the Location [cmn_location] table. You can therefore have a Group by field on your geomap that references a field on Location. The Group by field can be at the top level of the data source table, or you can dot-walk to it. You can create additional map source hierarchies that reference custom location tables.

Differences between map sources for data visualizations and for reports

If you're familiar with Map reports in Core UI, you might have noticed that the map sources for geomaps are different than map sources for map reports. They're different enough to be on different Map sources tables, sys_report_map_source and viz_map_source. The most significant difference is in how they reference tables.

In map reports, the map source references the facts table, such as Incident [incident]. The map source also includes a reference field that points to the location table. Child map sources dot-

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walk to a field on the location table. This structure results in a separate map source hierarchy for every data table you want as a data source for a map.

Map sources for map reports

Name	Table	Field
Search	Search	Search
Table: change_request (4)		
Change request by location	Change Request [change_request]	location
Change request by location (level 1)	Change Request [change_request]	location.country
Change request by location (level 2)	Change Request [change_request]	location.state
Change request by location (level 3)	Change Request [change_request]	location.city
Table: change_task (4)		
Change task by location	Change Task [change_task]	location
Change task by location (level 1)	Change Task [change_task]	location.country
Change task by location (level 2)	Change Task [change_task]	location.state
Change task by location (level 3)	Change Task [change_task]	location.city

Map sources for geomaps point directly to location tables. They don't reference facts tables. The facts table is specified only in the geomap data visualization. Thanks to this structure, you can reuse one map hierarchy for all geomaps on your instance, regardless of the data they display.

Map sources for geomap data visualizations

Name	Table	Field
Search	Search	Search
Location mapping	Location [cmn_location]	
Location mapping (level 1)	Location [cmn_location]	country
Location mapping (level 2)	Location [cmn_location]	state
Location mapping (level 3)	Location [cmn_location]	city

Create a data visualization map source

To use a custom location table in geomap data visualizations, define a map source that links to the table. Add more map sources at different levels of the hierarchy.

Before you begin

Role required: report_admin, viz_admin, pa_admin

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About this task

Procedure

1. Append `viz_map_source_list.do` to your instance URL in the browser URL field.

   Example
   For example, if your instance is `https://instance.example.com`, enter `https://instance.example.com/viz_map_source_list.do`.

2. Verify whether the location table that you want to reference is already used in a map source. The set of map sources that reference the same table is called a map source hierarchy.
3. If there are no map sources that reference the desired location table, create the top-level map source for that table:

   a. Select **New**.
   An empty Map source [viz_map_source] record opens.

   b. Specify the following information:

Field	Description
Name	Add a name for the map source. Use a descriptive name that suggests the table contents. Include this name as part of the names of all other map sources that you create in this hierarchy.
Table	Select a location table that is not already being used in a data visualization map source. The table you select must also not reference a table, such as cmn_location, that is already being used in a data visualization map source.

   c. Select **Submit**.

   You now have the parent map source of a new map source hierarchy. You can add more levels to the hierarchy.

4. If a map source hierarchy for your table exists, open the map source that is one level above the map source that you want to create.

   Note:
   You can have no more than four levels of map source below the top-level parent.

5. In the **Map sources** related list, select **New**.
   A new Map source [viz_map_source] record opens, with the Table and Parent fields read-only.
6. Specify the following information:

Map source fields

Field	Description
Name	Enter a name for the map source. Include the level in the names of map source levels. Generally give all map sources in the same

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Field	Description
	hierarchy the same root name. Differentiate them only by level, such as Location mapping (level 2) and Location mapping (level 3).
Table (read-only)	The same table is used throughout a map source hierarchy, and is specified in the top-level map source.
Field	Select a field of location data that is one level more granular than the map you are displaying it on. For example, imagine you are configuring data for a level 1 map source that is displayed on the world map. Because the data for countries are displayed on the world map, select **Location Country**. Similarly, if you are configuring data to display on a map of Germany or the United States, select **Location State / Province**. **Note:** The city is the most granular location level that you can display when drilling down into a map report. For example: If you want to report on various site locations within a city, and define the bottom-level map source field to include location.name, the map report displays the multiple locations as the corresponding city labels. As a result, reporting on multiple locations which have the same location.city value results in displaying multiple map dots with the same label, but with different aggregated values, and which drill down to different locations.
Level	Select a hierarchy level for this map source. You must select a level that is one level lower than the parent map source's level. You can have a maximum of four levels. Each map source level corresponds to a drill level on the map hierarchy, and these levels much match. Only one map source of the same level can exist in a hierarchy at the same time.
Active	Clear this check box to make this map source unavailable when creating map reports.

7. In the **Data transformation** section, specify the following information:

Field	Description
How to use data	Select how to use data in this map source. ○ **Use data on table**: Use the data in the ServiceNow AI Platform® without transforming it. Select this option when the data already matches the JSON key values that you're mapping to. ○ **Use mapping**: The most common use case. Transform data so it matches the JSON key values that you're mapping to. For geographical map sources that use the hc-key geoJSON key, always select this option. This option can't be used with data below the state/province level, because **Region and state** is the lowest level mapping.

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Field	Description
	○ **Use latitude and longitude**: Always select this option for the bottom map level, such as level 3. Ensure that your data has latitude and longitude values. **Warning:** Because the **Use longitude and latitude** option disables drilling down, select this option only on map source levels that are the bottom level in a hierarchy.
Use these mappings	If you selected **Use mapping**, select a mapping group to use. A mapping group is a collection of key-value pair mappings that transform data. To review the mappings in a mapping group, go to the Locations Mappings [sys_report_map_source_mapping] table. For example, if you're transforming field value **USA** to hc-key value **us**, select **Country mappings**, which contains the relevant key-value pair mapping.

8. In the **JSON key** section, select a JSON key to connect the map source data to maps. Geographical maps typically use hc-key.

   Every geomap has a JSON definition. Select one JSON key-value pair to map the data to. The data to appear on the map must match the JSON key values. So the key that you select determines whether you must transform your data with the settings in the **How to use data** section. All default platform maps and mappings use the geoJSON hc-key and ISO 3166 standard values. For custom maps, you can enter a different JSON key.

9. Select **Update**.

Create a heatmap visualization in the Visualization Designer

Use a heatmap visualization to show the relationship between two table fields or indicator breakdowns. The changes in color as you move along the axes reveal patterns in the value of one or both fields/breakdowns.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Heatmap visualization in a dashboard, see the Developer Site. This site gives information about Heatmap data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Heatmap ( ) visualization type.

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4. Configure the **Header and border**. Header and border options are the same for all data sources.

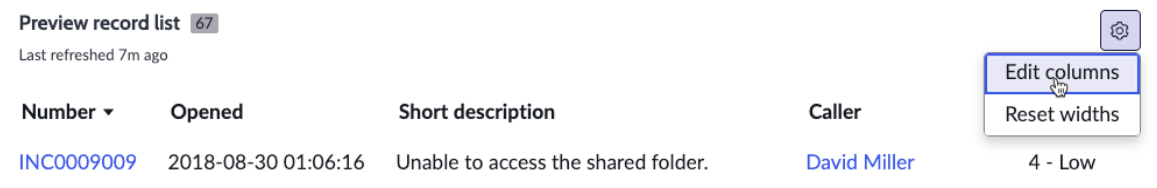
Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by conditions.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

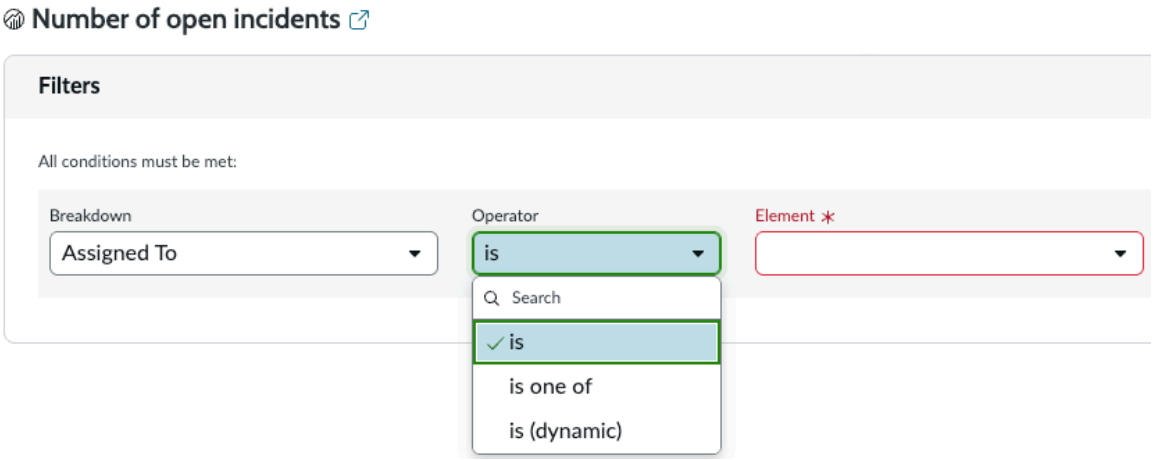
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.



   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

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Note:
Benchmark indicators are not supported.



Note:

You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for heatmap visualizations.
   - If your visualization represents indicator data, go to Indicator data options for heatmap visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings	
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Data label	
Show data labels	Option to display the score for each data point.
Legend	
Show legend	Option to display the legend. Activated automatically at 400% zoom.

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Field	Description
Legend position	Legend location relative to the chart: Above, Below, Right, or Left
Colors	
Set color type	Type of color scheme to apply to the component. The choices are: ○ Default `default`: A color from the UX Theme Properties [sys_ux_theme_property] table. The specific colors depend on which theme variant in the UX Themes [sys_ux_theme] table is applied to the instance. ○ Color range: A spectrum of colors between a color for the lowest value and a color for the highest value

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization.

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Field	Description
	Note: The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for heatmap visualizations

When you select a table data source for a heatmap visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a heatmap visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may

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Field	Description
	further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million.

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Field	Description
	Note: Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Show original number in tooltips	Option to include a tooltip to show the unformatted number on point to. **Note:** Only available when **Use custom formatting** and **Enable abbreviation** are true.
Group by, for column and row	
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields. **Note:** • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Max number of groups	Select the maximum number of groups to display. Groups in excess of this number, determined by sorting, are aggregated into the Others group. You can show that aggregate with the **Show others** option. By default, you cannot show more than 50 groups. If you have the admin role, you can change this limit in the

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Field	Description
	par_viz.table_data.max_groups system property. Data for the Max number of groups is evaluated across all periods in the time series to ensure consistent group membership across all dates in the visualization.
Show others	If **Max number of groups** is set and this option is turned on, an aggregate of the groups beyond the maximum number is displayed as the Others group.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table,

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Field	Description
	either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back.

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Field	Description
	Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for heatmap visualizations

When you select an indicator data source for a heatmap visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator data source in Create a pivot table visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.

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Field	Description
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores.
Max number of groups	The maximum number of breakdown elements to display in columns. This property does not apply to rows.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the

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Field	Description
	visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)

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Field	Description
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.

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Field	Description
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Heatmap visualization example

The heatmap data visualization shows the relationship between two table fields or indicator breakdowns as a spectrum of shading between two colors. The changes in color as you move along the axes reveal patterns in the value of one or both fields or breakdowns.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

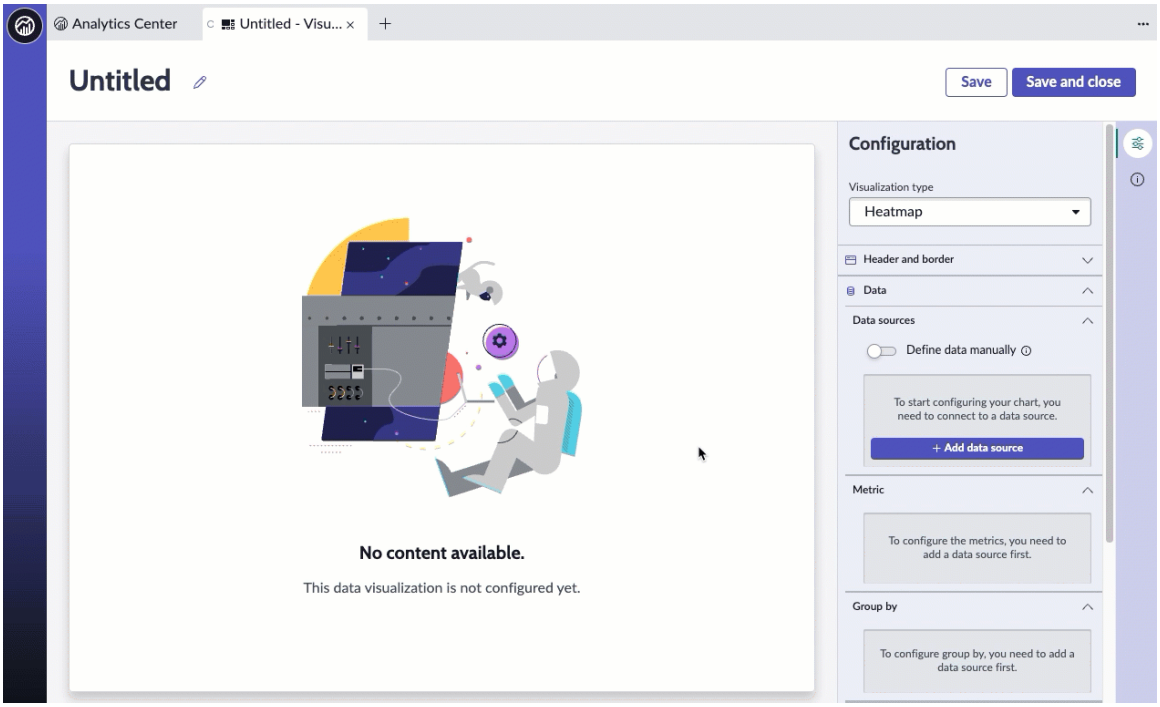
By observing how cell colors change across each axis, you can observe if there are any patterns in value for one or both variables.

Procedure

1. Follow the first steps to Create a dial visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the Heatmap () visualization type.
2. For the moment, skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Because this visualization shows completed incidents, let's add the Incidents.Closed condition in the Filters section.
   With this filter selected, the visualization only shows the non-active incidents.
   d. **Optional:** Select **Run** to preview the records that the visualization will be based on.
   e. Select **Add this source**.

   A heatmap data visualization with the current value of the selected data appears in the Visualization Designer. Because the only information you've given is that the visualization represents closed incidents, you see only a single block indicating open incidents. You add columns and rows in the next step.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Open incidents - Priority and Assignment Group`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Open incidents of all assignment groups grouped by priority and assignment group`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

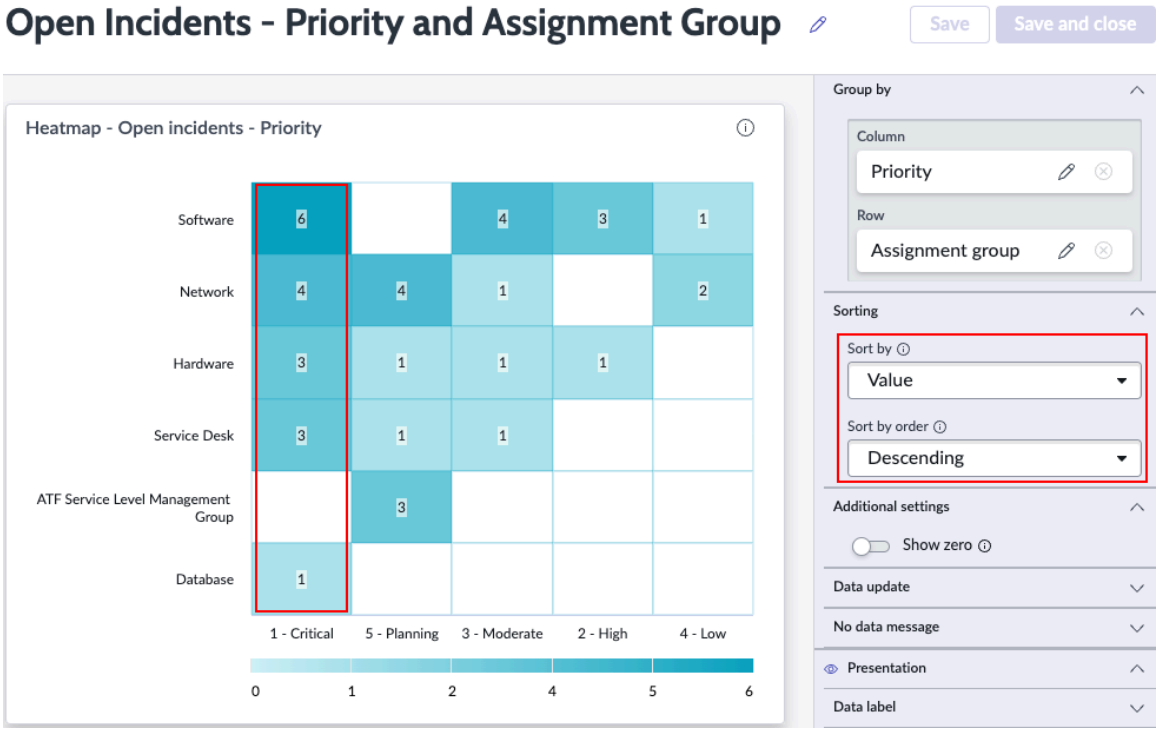
   d. Select **Save** and give the report the title `Heatmap - Open Incidents - Priority and Assignment Group`.

4. Skip the Metric section.
5. Under Group by, add one column and multiple rows to show the data from multiple perspectives.
   a. Add the **Priority** column to show the top level of information.
   b. Add the row **Assignment group**.
6. Under Sorting, choose the field to sort by and the order of the sorting.

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a. Choose to sort by `Value`.

b. Choose `Descending` for the sort order.
The columns are ordered with those assignment groups having the highest number of incidents at the top.



7. Under Additional settings, select **Show zero**.
When you show zero, no cells are left empty. The cells with no open incidents also get a color coding.



8. Under Data update, configure how the audience interacts with the visualization.

a. Select **Follow filters**.
This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

9. Choose how to show what the cells in the heatmap describe.

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- **Show data labels** controls whether the value is shown in the heatmap's cells. This option is enabled by default. When it's disabled, only the colors give an idea of the cells' relative values.
- **Show Legend** gives examples of the color coding for each cell in the visualization and its associated value. You can choose whether to show the legend and where to place it.

a. Select **Show legend** to enable legend options.

b. Play with where to place the legend above of the visualization.
You can choose to place the legend above, below, or to the right or left of the visualization.

10. Play with the color settings.
The default color type has shades of blue. You can also choose a custom color range with specified colors for upper and lower values.

Result
You've created a heatmap visualization sorted on two values and configured its values, labels, and data updates. You've also configured the visualization's colors.

Create a horizontal or vertical bar data visualization

Use bar visualizations to show information in segments that are proportional to the values they represent. Vertical bar and horizontal bar visualizations compare numeric values that represent either nominal or ordinal data.

Before you begin
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

For more information about this visualization type, see Bar Visualization Overview on the ServiceNow Developer Site. This site gives information about Horizontal and Vertical bar data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

About this task
In general, use horizontal bars to graph nominal data, such as the number of users in each assignment group. Use vertical bars to graph ordinal data, such as the number of open incidents in different age buckets. For information about the use of a Bar visualization in a dashboard, see the Developer Site.

Procedure
1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.

2. Select **New**.

3. Select the horizontal bar ( ) or vertical bar ( ) visualization type.

4. Configure the **Header and border**. Header and border options are the same for all data sources.

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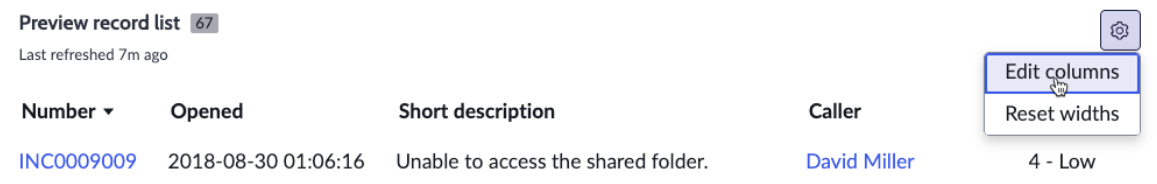
Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

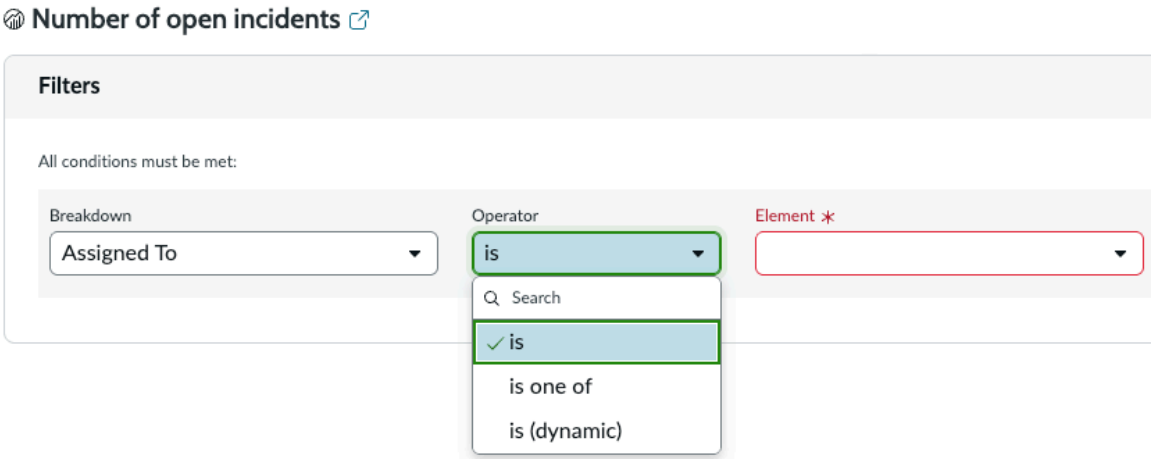
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.

   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

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Note:
Benchmark indicators are not supported.



Note:

You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

Note:
You can choose multiple data sources for this visualization. However, all data sources must be of the same type: table, indicator, or User Experience Analytics. For more information, see Multiple data sources.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for horizontal and vertical bar visualizations.
   - If your visualization represents indicator data, go to Indicator data options for horizontal and vertical bar visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for bar visualizations.
7. Under **Presentation**, provide display and color information.

Note:
For horizontal bar visualizations, the X axis is the primary. For vertical bar visualizations, the Y axis is primary.

Field	Description
Display settings	

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Field	Description
Show only one data point in tooltip	When turned on, the tooltip shows only the data point being hovered over. When turned off, the tooltip shows all data points. Default: Off, except when zoom is 400%, which automatically turns it on.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
X and Y axis (Some options are only available on the primary or secondary axis. On horizontal bar visualizations, the X axis is primary. On vertical bar visualizations, the Y axis is primary.)	
Hide axis	Option to hide the primary axis.
Axis title	Title to display on the X or Y axis.
Axis range - from	Starting point for the values on the primary axis.
Axis range - to	End point for the values on the primary axis.
Axis position	Position of the primary axis. Options include: ○ Left ○ Right This property applies only when **Hide axis** is false. If there is more than one primary axis, such as multiple Y axes on a vertical bar visualization, you can set each axis position separately.
Show grid	Shows a grid of fine lines perpendicular to the primary axis, to help align values against that axis.
Axis style	Style of the primary axis. ○ Clean `clean`: Adds a straight line to the primary axis. ○ No tick lines `noTicks`: Option to remove all marks from the primary axis. ○ Standard `default`: Adds a line and tick marks to the primary axis.
Wrap labels	Wrap long labels in the secondary axis.
Max label size, px.	The length in pixels at which the label of the secondary axis is wrapped or truncated.
Truncation type	Determines where to truncate long labels for the secondary axis. Options include:

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Field	Description
	○ Start `start` ○ Middle `middle` ○ End `end`
Legend	
Show legend	Option to display the legend. Activated automatically at 400% zoom.
Show legend value	Option to display the value corresponding to the area of the chart you hover on. The value displays as a tooltip and in the chart legend.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left
Horizontal alignment	Horizontal alignment of elements in the legend: Start, Center, or End
Max legend item width, px	Number of pixels after which the item in the legend is truncated.
Expand legend vertically	When turned on, the legend contents take as much space as needed to fit the legend without scrolling, instead of the maximum 2 lines.
Data label	
Show data labels	Option to display the score for each data point.
Colors	
Set color type	Type of color scheme to apply to the component. Options include: ○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Color palette: List of color palettes to select from predefined system palettes in the Chart Color Scheme [pa_chart_color_schemes] table. For grouped or stacked data, the colors apply in order from highest value to lowest. For multiple data sources, palette colors apply in the order of data sources. For example, the first color of a palette applies to the first data source, and the second palette

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Field	Description
	color applies to the second source. All visualizations that use the same color palette show the same colors, regardless of what data they display. ○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value. If the visualization has more than one metric, you see the Colors per metric option instead. This option lets you select a single color for each metric. ○ Fixed element color: Use a specific color from the Chart Colors table [sys_report_chart_color] for each element. All data visualizations that use fixed element colors show the same element, such as critical incidents in the Global scope, in the same color. This option is available only for Table data sources and only if no more than one data source or metric is added, and a Group by is defined.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources.

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Field	Description
	○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Apply as filter** filters all data visualizations on the dashboard by the value of the selected segment, where applicable. **Note:** **Apply as filter** is available only for table and indicator data sources. It does not work when the Group by field is a duration field. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for horizontal and vertical bar visualizations

When you select a table data source for a horizontal or vertical bar visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a horizontal or vertical bar data visualization.

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Field	Description
Metric You can set multiple metrics. You can set whether dashboard filters apply to individual metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include:

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Field	Description
	• Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields. Only one **Group by** can be defined in the Pareto chart. The **Alternative Group By** can be defined for a Pareto visualization. For vertical bar, horizontal bar, and pivot reports with multiple data sources: If you group the first source by a choice field, you can

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Field	Description
	group the second source by any applicable choice field. • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Max number of groups	Select the maximum number of groups to display. Groups in excess of this number, determined by sorting, are aggregated into the Others group. You can show that aggregate with the **Show others** option. By default, you cannot show more than 50 groups. If you have the admin role, you can change this limit in the *par_viz.table_data.max_groups* system property. Data for the Max number of groups is evaluated across all periods in the time series to ensure consistent group membership across all dates in the visualization.
Show others	If **Max number of groups** is set and this option is turned on, an aggregate of the groups beyond the maximum number is displayed as the Others group.
Hide elements with values of 0	When toggled on, elements with a value of NULL or 0, such as rows or data points, are not displayed. This control is not available when the metric is COUNT.
Group by	The first group by determines the bars in the visualization. Select a second value to stack by. For example, select Priority first to show the number of tasks of each priority and then choose Active to stack the active and inactive tasks of each priority.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether

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Field	Description
	this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. Limitations: • You can only order by the **Group By** or the **Stack by** field. • You can only order by one field. It is not possible to sort by Additional group by fields.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back.

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Field	Description
	Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for horizontal and vertical bar visualizations

When you select an indicator data source for a horizontal or vertical bar visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator data source in Create a horizontal or vertical bar data visualization.
Metric You can set multiple metrics. You can set whether dashboard filters apply to individual metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.

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Field	Description
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores.

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Field	Description
	Important: • Scripted breakdowns are not supported in dashboard filters. • Only two levels of breakdown are supported in total, including data visualization and dashboard filters.
Group by	The first group by determines the bars in the visualization. Configure additional group by elements to enable presentation based on additional items in the data. **Note:** It is not possible to stack bars in data visualizations based on indicator data.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include:

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Field	Description
	• Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. Limitations: • You can only order by the **Group By** or the **Stack by** field. • You can only order by one field. It is not possible to sort by Additional group by fields.
Date range	

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Field	Description
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if

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Field	Description
	Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for bar visualizations

When you select a User Experience Analytics data source for a horizontal or vertical bar visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a User Experience Analytics data source in Create a horizontal or vertical bar data visualization.
Metric You can set multiple metrics. You can set whether dashboard filters apply to individual metrics. For more information, see Options for time series data visualizations with multiple metrics.	

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Field	Description
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true

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Field	Description
Group by	
Event property	Properties of the event in the User Experience Analytics data source. **Note:** Only applies to Events metrics, in which case it is mandatory.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field.

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Field	Description
	• Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. Limitations: • You can only order by the **Group By** or the **Stack by** field. • You can only order by one field. It is not possible to sort by Additional group by fields.
Date range	
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period.

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Field	Description
	This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the

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Field	Description
	entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

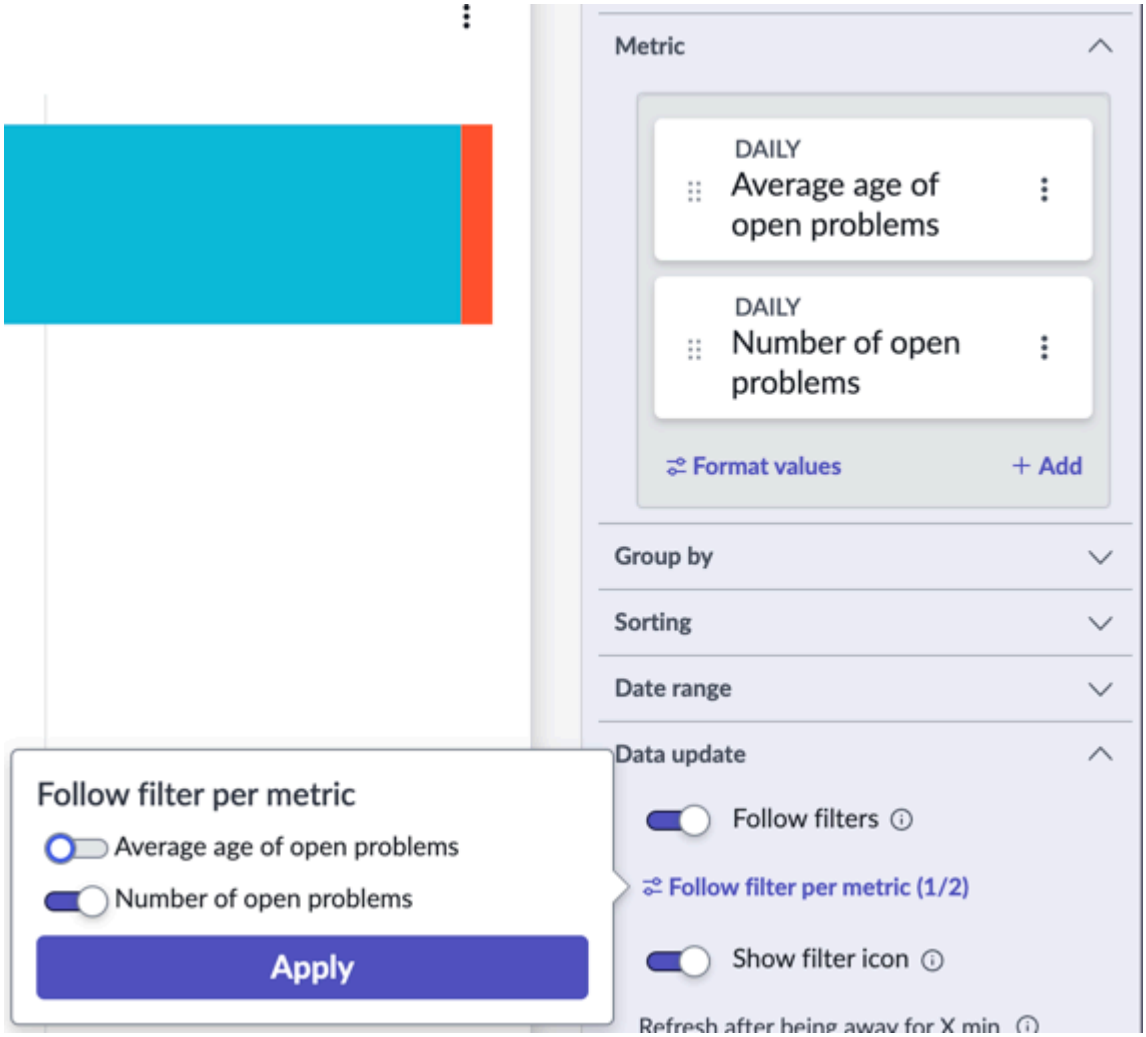
Following filters per metric

If you are showing multiple metrics in a horizontal or vertical bar visualization, you can have filters on a dashboard apply only to specific metrics.

If **Follow filters** is activated on a time series or bar visualization that shows multiple metrics, the configuration panel shows an expandable item called **Follow filters per metric**. Expand this item to toggle filter following on or off for each metric.

For example, consider a bar visualization that shows the Number of open problems and the Average age of open problems. You can configure this visualization so that the Number of open problems follows any applicable filters on a dashboard, but the Average age of problems does not.

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Bar visualization examples

Bar visualizations enable you to show the comparative size or frequency of different categories or groups, for example, sales in different regions or over different periods of time.

Horizontal bar use case

Use the horizontal bar to show data by named values, such as departments, agencies, or regions.

Vertical bar use case

Use vertical bar to show numbered values, such as age or monetary ranges, or time periods.

Horizontal bar visualization example

Horizontal bar visualizations enable you to show the comparative size or frequency of different categories or groups, such as incident priority or sales group. You can also add a group by or stack by to a bar visualization, such as the assignment group.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

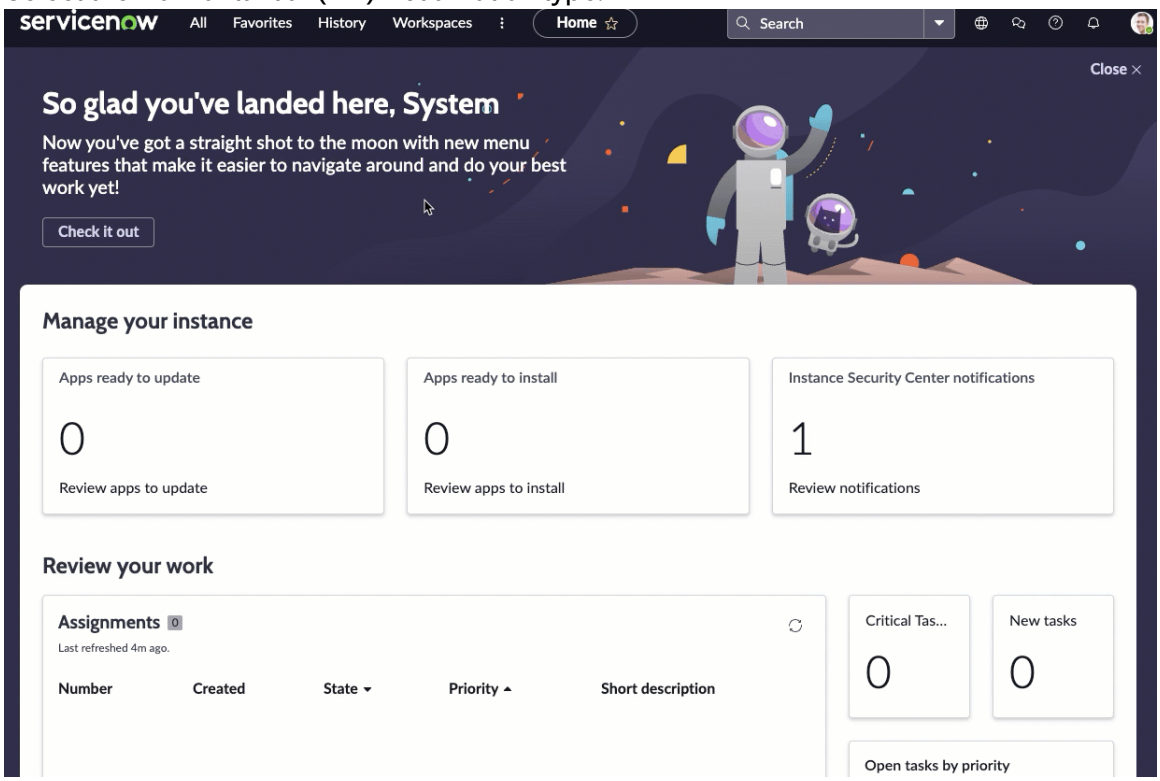
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About this task

Use the horizontal bar visualization type to compare different categories or groups and clearly show the distribution of a data set. In this example, you show incidents by priority and stack them by assignment group.

Procedure

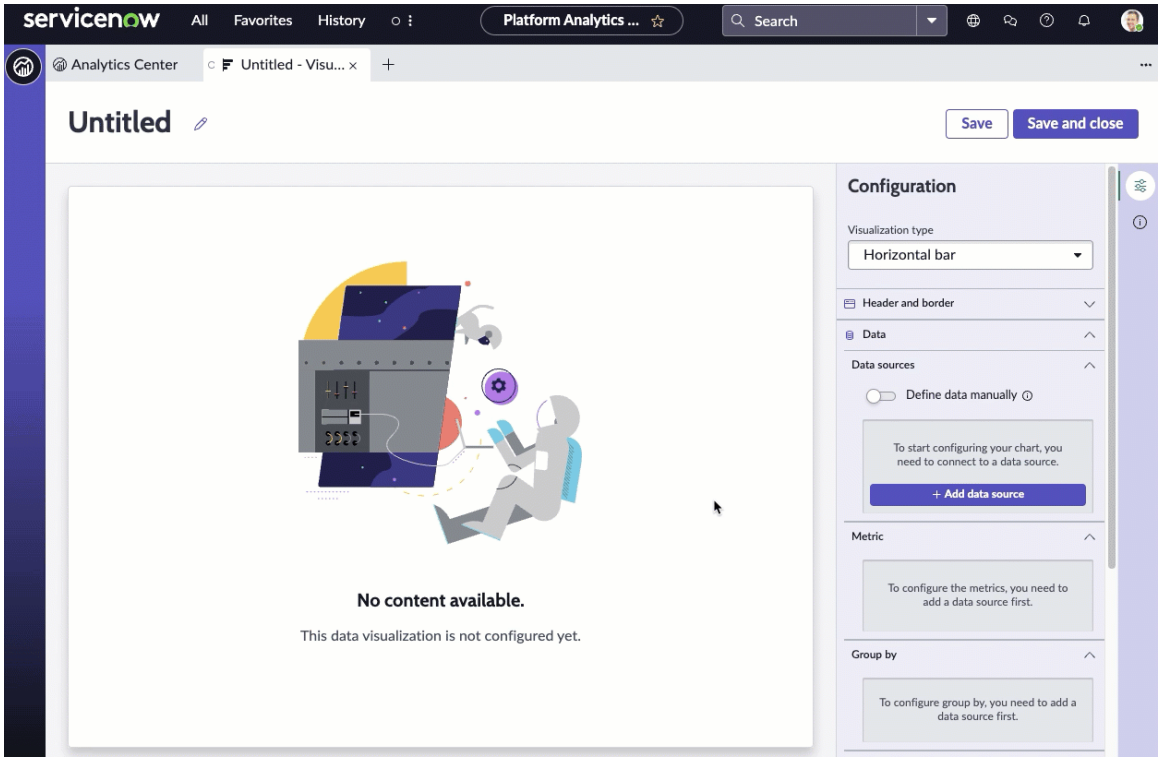
1. Follow the first steps to Create a horizontal or vertical bar data visualization:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the Horizontal bar ( ) visualization type.



2. For the moment, skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
   With this filter selected, the visualization only shows the number of active incidents.
   d. **Optional:** Select **Run** to preview the records that the visualization will be based on.
   e. Select **Add this source**.

   A horizontal bar data visualization with the current value of the selected data appears in the Visualization Designer. Because the only information you've given is that the visualization represents active incidents, you see only a single block. You add priority and assignment group in step 4.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Number of open incidents - Priority and Assignment Group`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Number of open incidents of all priorities grouped by assignment group`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

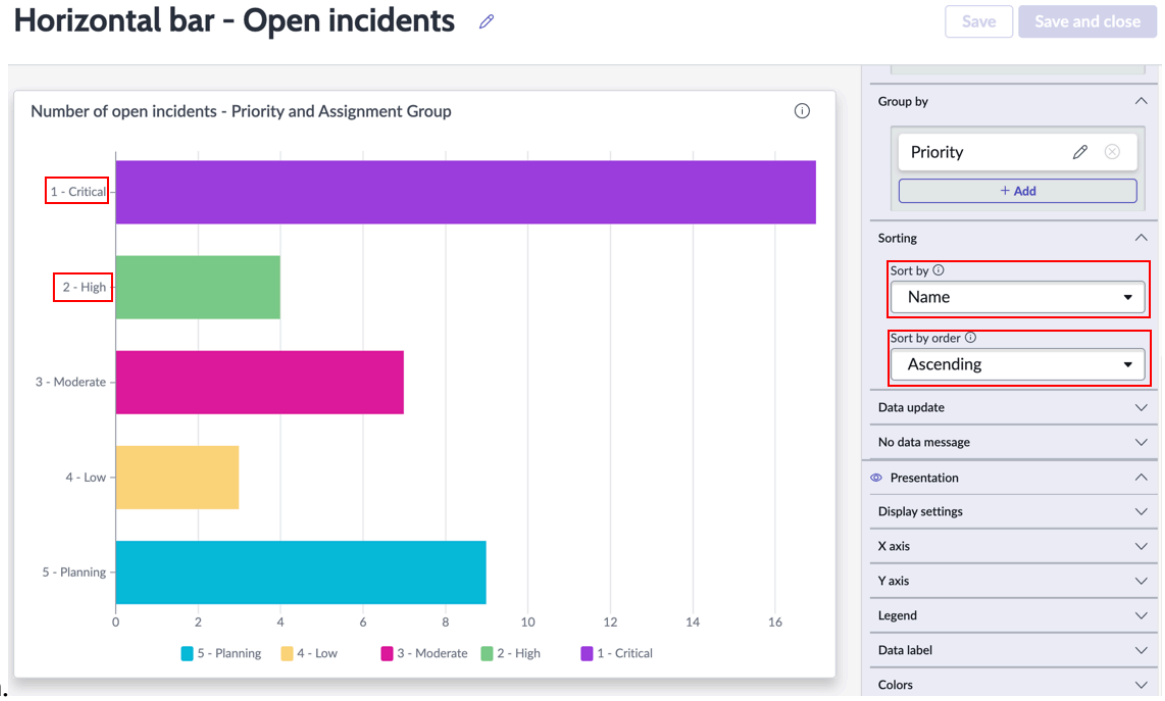
   d. Select **Save** and give the report the title `Horizontal bar - Open incidents`.

4. Skip the Metric section.
5. Add a Group by to differentiate the information in the chart.
   Under Group by, select **Active** and change the grouping to `Priority`.
6. Under Sorting, choose the field to sort by and the order of the sorting.

   a. Choose to sort by `Name`.
   The priority names each start with a number so that the bars are 1 - Critical, 2 - High, and so forth.

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b. Choose `Ascending` for the sort order.
The bars are ordered with 1 - Critical at the top followed by 2 - High, 3 - Moderate, and so forth.



7. Under Data update, configure how the audience interacts with the visualization.

a. Select **Follow filters**.
This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

8. Configure the X axis.
You can specify several options including the text on the axis, the range of values, and the axis position. You can even select **Hide axis** if you want to hide the axis and its values and show only the comparative sizes of the bars.

a. You can give the X axis the title `Open Incidents`, but this information is already in the title of the visualization, so leave it empty.

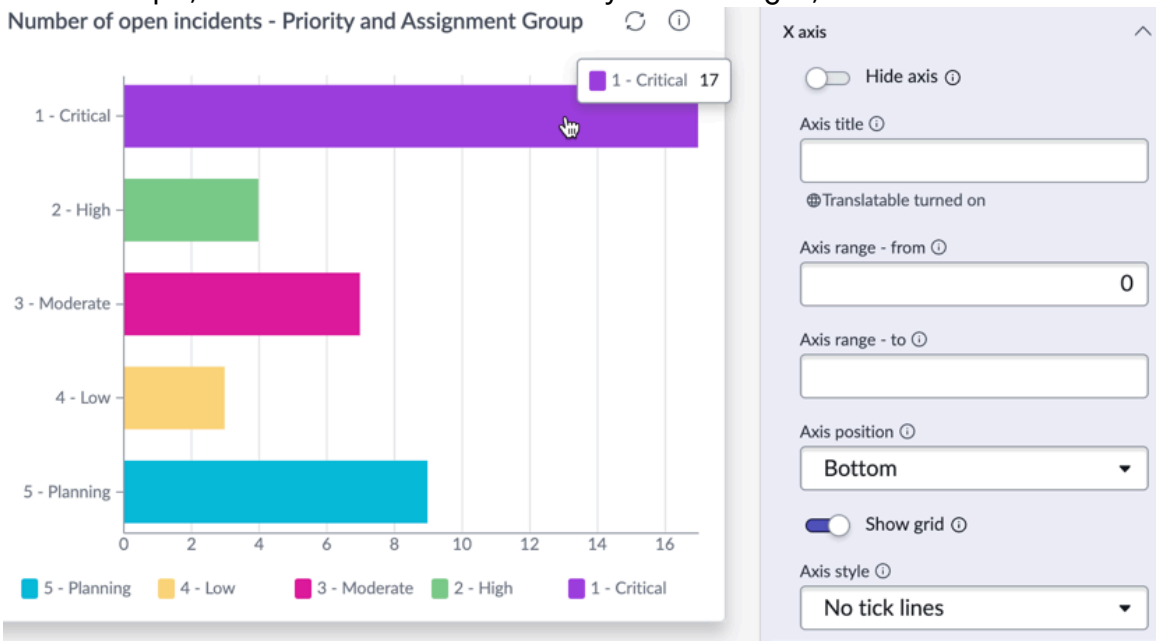
b. Keep the default of 0 for the Axis range's **From** value.

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There are cases in which a larger value makes sense, but the downside is that the relative sizes of the bars become less accurate, and may be misleading.

c. Keep the default empty value for the Axis range's **To** value.
When this value is empty, the highest value in the range is the same as the highest value of the largest bar in the visualization. In this example, that value is 17.

d. The Show grid and Axis style options are minor aesthetic changes that you can adjust to your own preference.
In this example, select **No tick lines** because they extend the grid, which is shown.



9. Configure the Y axis.
Y axis configuration addresses how the labels are displayed for the vertical axis. In this example, you have relatively short labels. However, if the maximum label size is smaller than the labels, you can choose to truncate or wrap the label text. You can truncate the text at the beginning of the label or at the end.

a. You can give the Y axis the title `Priority`, but this information is already in the title of the visualization, so leave it empty.

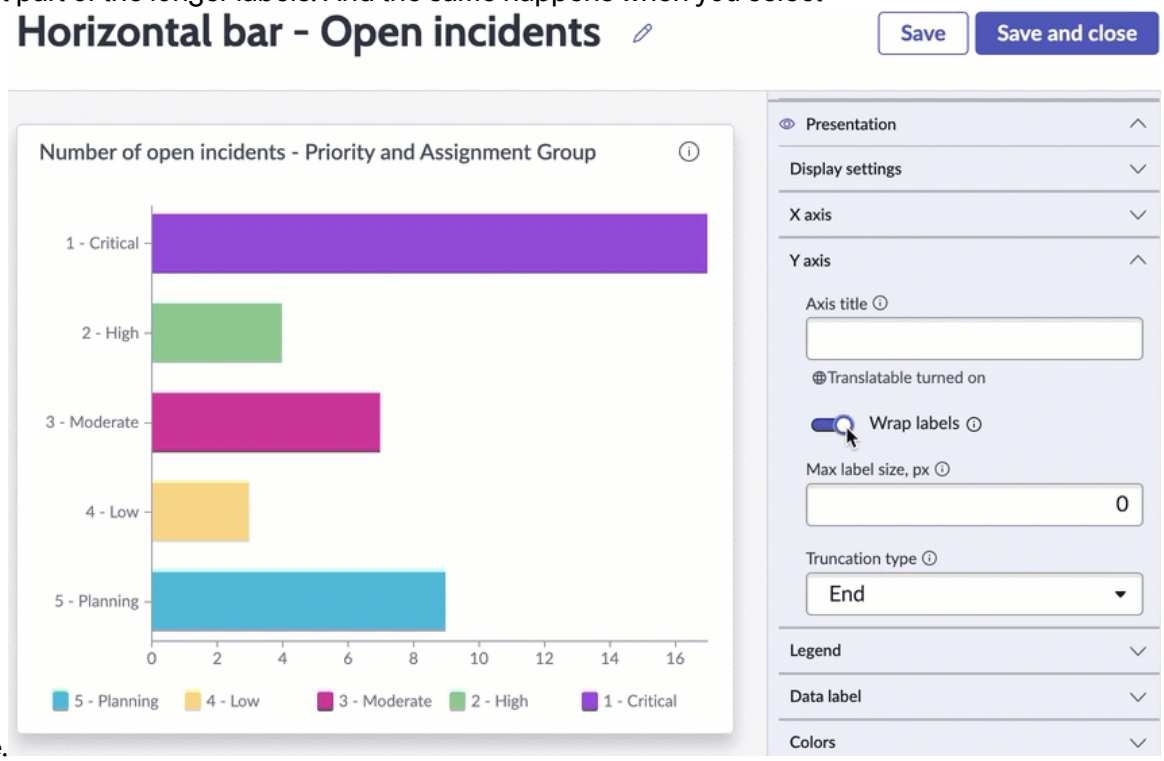
b. Select **Wrap labels**.
You don't see any change in the label's display because the Max label size of 0 means that the largest label determines the size.

c. Change the Max label size to 50.
The labels wrap to additional lines. The Truncation type doesn't make a difference, because the labels are wrapped.

d. Clear the **Wrap labels** option.

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When you change the Truncation type, you can see that End replaces the ends of the longer labels with three dots. Select Start and the three dots replace the first part of the longer labels. And the same happens when you select middle.



10. Configure the visualization's legend.
    The legend gives examples of the color coding for each value on the Y axis. You can choose whether to show the legend, where to place it and how much to show. Ideal placement depends on the size of its container on a dashboard. If you have more horizontal space, place the legend to the left or right. If you have more vertical space, place it above or below.

    a. Select **Show legend** and **Show legend value**.
    Show legend value adds the number associated with the metric. In this case, 17 is added to the **1 - Critical** incidents because that is how many Critical incidents there are. Alternately, you can choose **Show data labels** (in the Data label section) to place this value on the bar itself.

    b. Place the legend above the visualization.
    You can choose to place the legend above, below, or to the right or left of the visualization.

    c. Select the Center **Horizontal alignment**.
    Start and End move the legend to the left or right of the visualization. (Start and End are right and left for languages that read from right to left.)

    d. Change the Max legend item width to give those values more or less room.

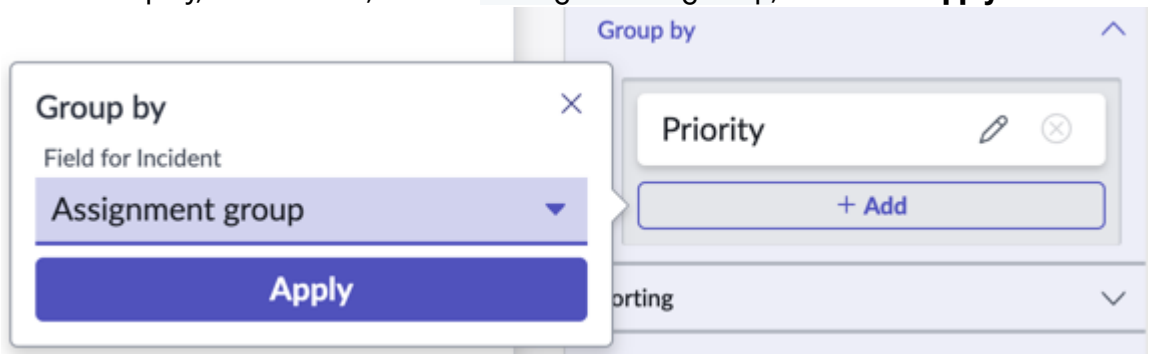
    e. **Expand legend vertically** provides additional lines to the legend so that users don't have to scroll beyond the default two lines.
    In this example, you only need one line for the five incident priorities. In a visualization that has bars for 15 or 20 different regions or assignment groups, you might want to show more in the legend without a scrollbar.

11. Add an additional Group by to provide more information in the visualization.

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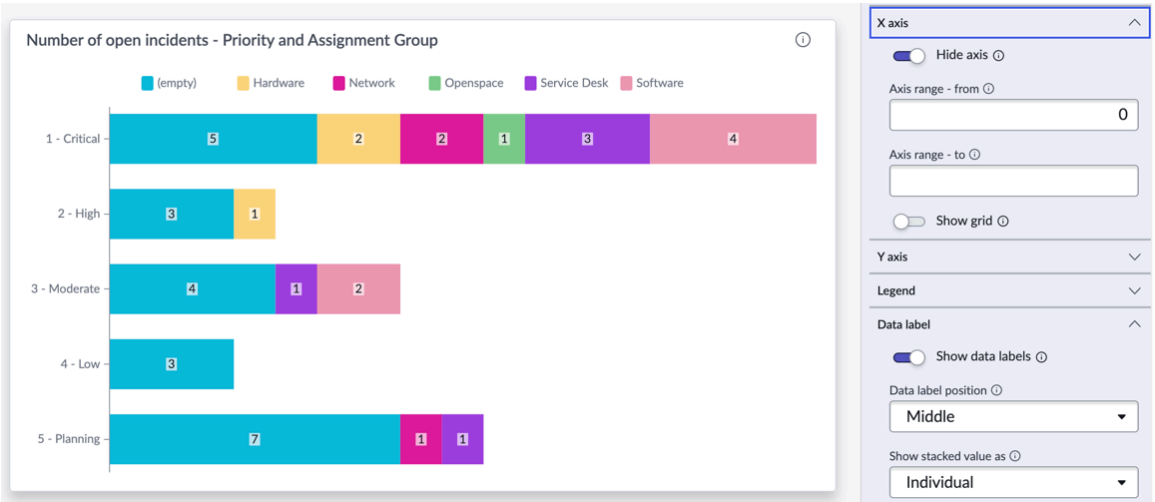
Remember that you called this visualization `Number of open incidents - Priority and Assignment Group`. Add the assignment group.

a. Under Group by, select **+ Add**, choose `Assignment group`, and select **Apply**.



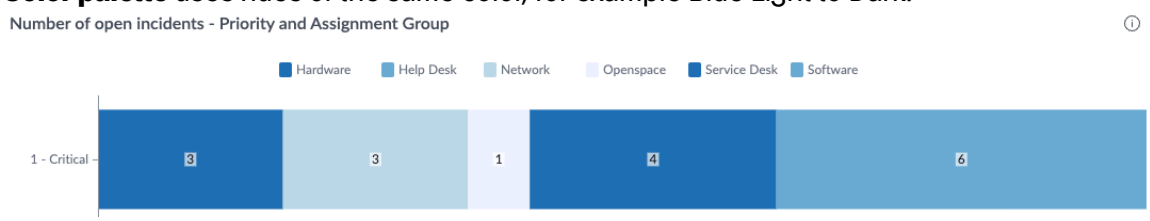
b. Show the data labels in the middle.
With the additional group by, you have stacked values: Assignment group on top of Priority. You can choose to show the data value as the individual number of incidents per assignment group, as a cumulative value (each segment added to the previous value), or simply show the total. Choose Individual to show each segment's value.

c. Hide the X Axis.
Because you added the values to each segment, the values on the axis are redundant.



12. Choose the **Default** color type for the visualization.

- **Default** applies the colors associated with your UX theme.
- **Color palette** uses hues of the same color, for example Blue Light to Dark.



- **Fixed element** specifies the same color for each element, such as hardware incidents. All data visualizations that use fixed element colors show the same element in the same color.

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Result

You've created a horizontal bar visualization grouped on two fields. You've also configured the visualization's labeling, legend and ranges.

Vertical bar visualization example

Vertical bar visualizations enable you to show the comparative size or frequency of different categories or groups, for example, sales in different regions or over different periods of time. The X axis of a vertical usually shows a numerical value such years or date ranges, age ranges, or salary ranges.

Before you begin

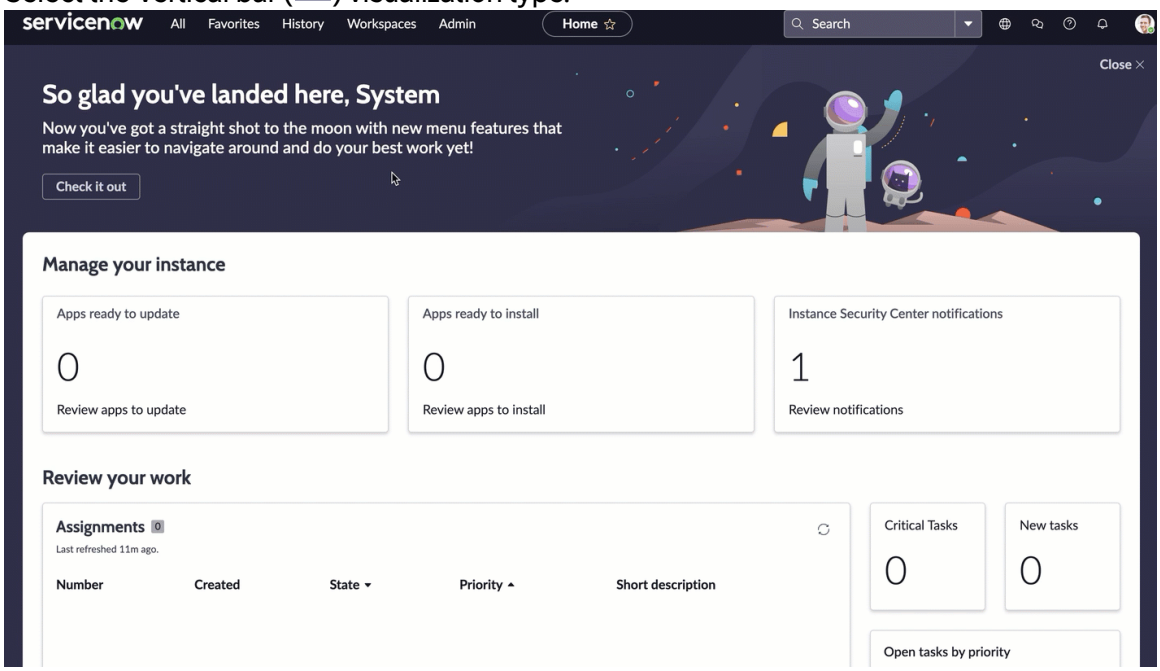
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

Use the vertical bar visualization type to compare different categories or groups and clearly show the distribution of a data set. In this example, you show outages by type.

Procedure

1. Follow the first steps to Create a horizontal or vertical bar data visualization:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the Vertical bar ( ) visualization type.



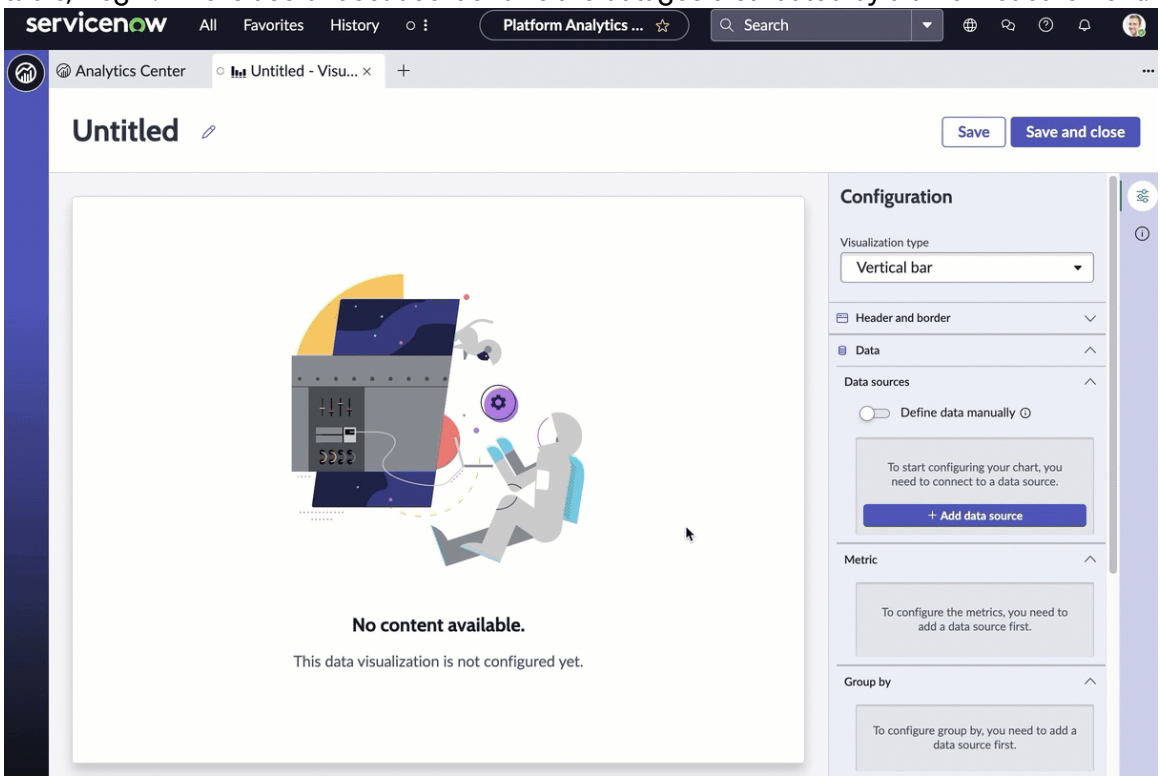
2. For the moment, we can skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Outage [cmdb_ci_outage] table.
   This table lists outages of various services.

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c. Optional: Select **Run** to preview the records that the visualization will be based on.

d. Select **Add this source**.

A vertical bar data visualization with the current value of the selected data appears in the Visualization Designer. The visualization is grouped by the first field (alphabetically) in the table, Begin. This is useful because it shows the outages distributed by a time measurement.



3. Now that you can see the visualization, let's add some context for the user.

a. Expand the Header and border section.

b. Select **Show header** and provide the chart title `Outages by type`.
When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

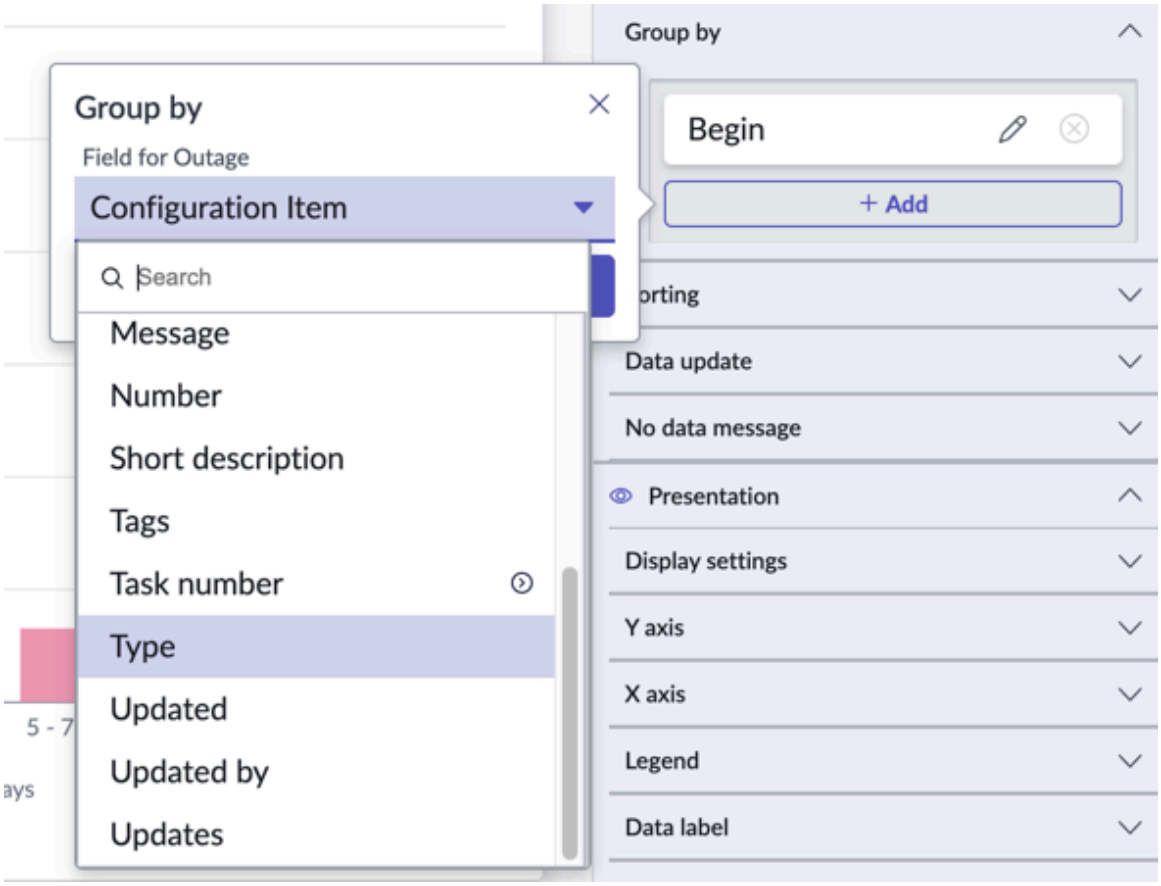
c. Enter a description of the visualization: `CMDB outages grouped by when they began and stacked by type.`.
While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

d. Select **Save** and give the report the title `Vertical bar - CMDB outages`.

4. Skip the Metric section.

5. In the Group by section, select **Add** to differentiate the information in the chart.
Select **Type** and choose **Apply**. The columns now show different colours to distinguish the different types of outages.

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6. Under Sorting, maintain the Sort by `Value` and Sort by order `Descending`.
   These options show one logical way of visualizing the data. Change the sorting options to see what works best for you.
7. Under Data update, configure how the audience interacts with the visualization.

   a. Select **Follow filters**.
      This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

   b. Select **Show filter icon** to show the number of filters applied to the visualization.
      For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

   c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
      Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

      This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

8. Choose the chart variation to show the data one of three different ways:

   Stacked

   Shows the grouped elements (type in our case) stacked one type above the next.

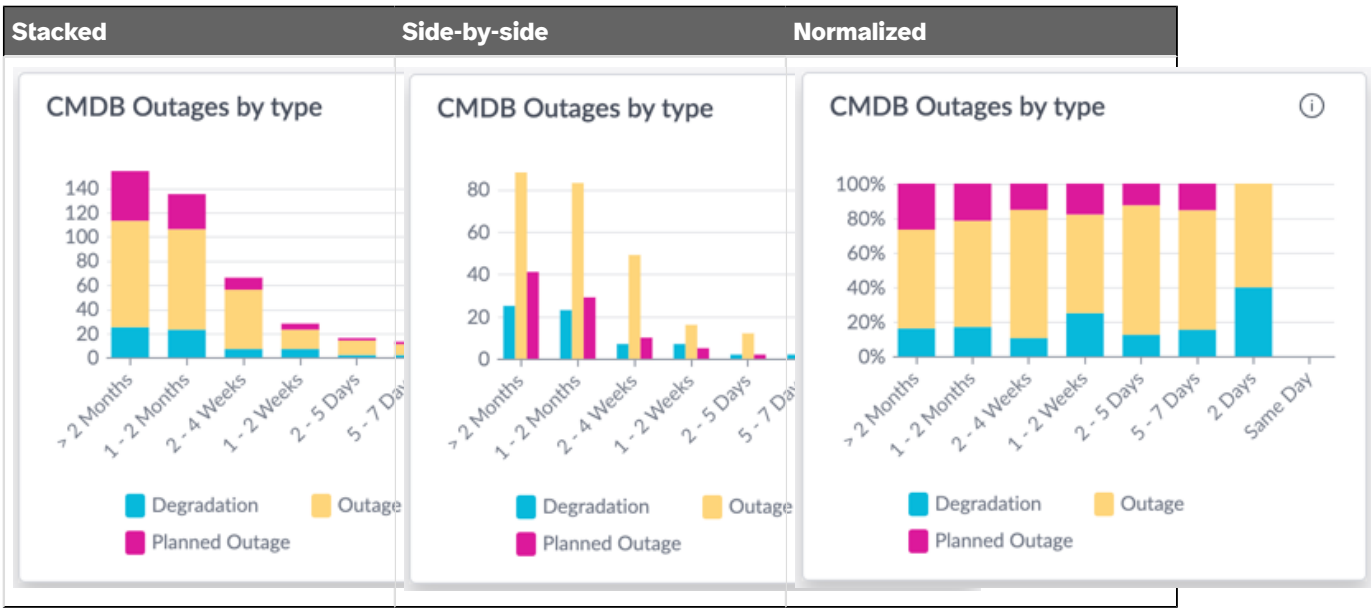
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Side-by-side

Shows a different bar for each type.

Normalized

Shows stacked bars of the same height for each group, with the colors showing the percent of the total.



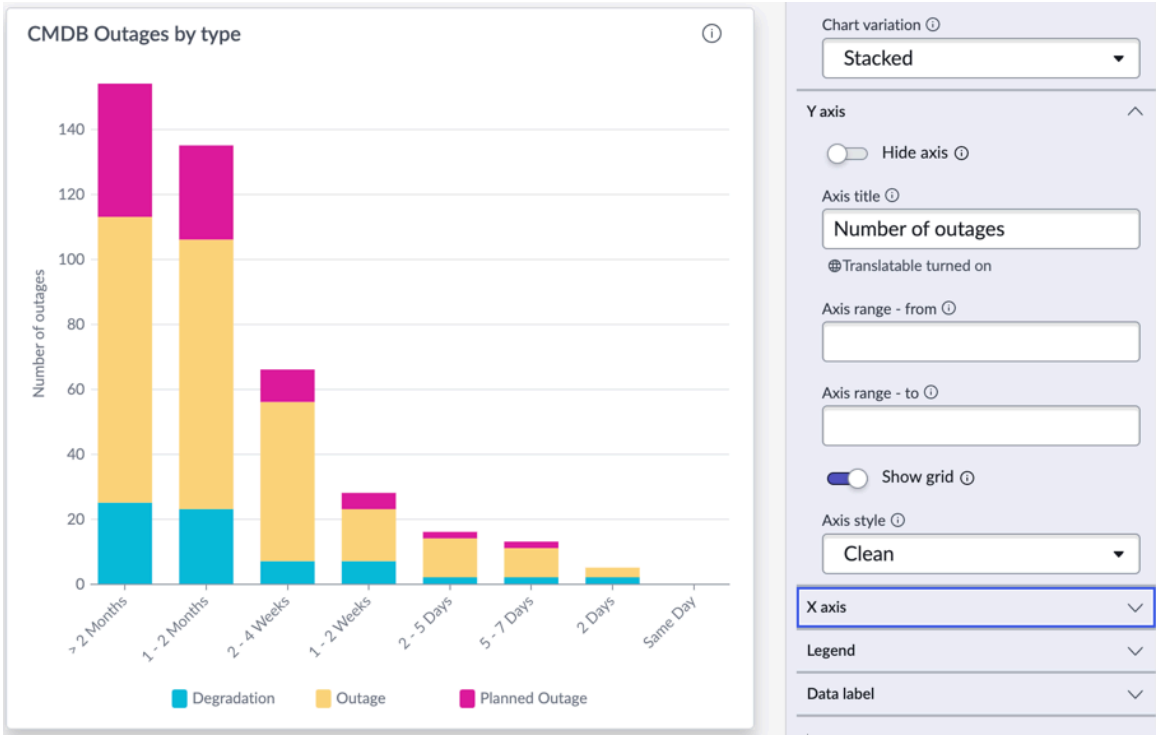
9. Configure the Y axis.
   You can specify several options including the text on the axis, the range of values, and the axis position. You can even select **Hide axis** if you want to hide the axis and its values and show only the comparative sizes of the bars.

   a. You can give the Y axis the title `Number of outages`, but this information is already in the title of the visualization, so leave it empty.

   b. You can specify lower and upper ranges for the bars, but because both of these values are useful, leave **Axis range - from** and **Axis range - to** empty.
   There are cases in which a larger **From** value makes sense, but the downside is that the relative sizes of the bars become less accurate. When the **To** value is empty, the highest value in the range is the same as the highest value of the largest bar in the visualization.

   c. The Show grid and Axis style options are minor aesthetic changes that you can adjust to your own preference.
   In this example, select **Clean** because it's a little bit neater.

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d. Change the Max label size to `50`.
The labels wrap to additional lines. The Truncation type doesn't make a difference, because the labels are wrapped.

10. Configure the X axis.
You can specify several options including the text on the axis, the range of values, and the axis position.

X axis configuration addresses how the labels are displayed for the vertical axis. In this example, you have relatively short labels. However, if the maximum label size is smaller than the labels, you can choose to truncate or wrap the label text. You can truncate the text at the beginning of the label or at the end.

a. You can give the X axis the title `CMDB Outages`, but this information is already in the title of the visualization, so leave it empty.

b. Select **Wrap labels**.
You don't see any change in the label's display because the Max label size of 0 means that the largest label determines the size.

11. Configure the visualization's legend.
The legend gives examples of the color coding for each value on the X axis. You can choose whether to show the legend, where to place it and how much to show. Ideal placement depends on the size of its container on a dashboard. If you have more horizontal space, place the legend to the left or right. If you have more vertical space, place it above or below.

a. Select **Show legend** and **Show legend value**.
Show legend value adds the number associated with the selected metric. Alternately, you can choose **Show data labels** (in the Data label section) to place these value on the bar itself.

b. Place the legend above the visualization.

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You can choose to place the legend above, below, or to the right or left of the visualization.

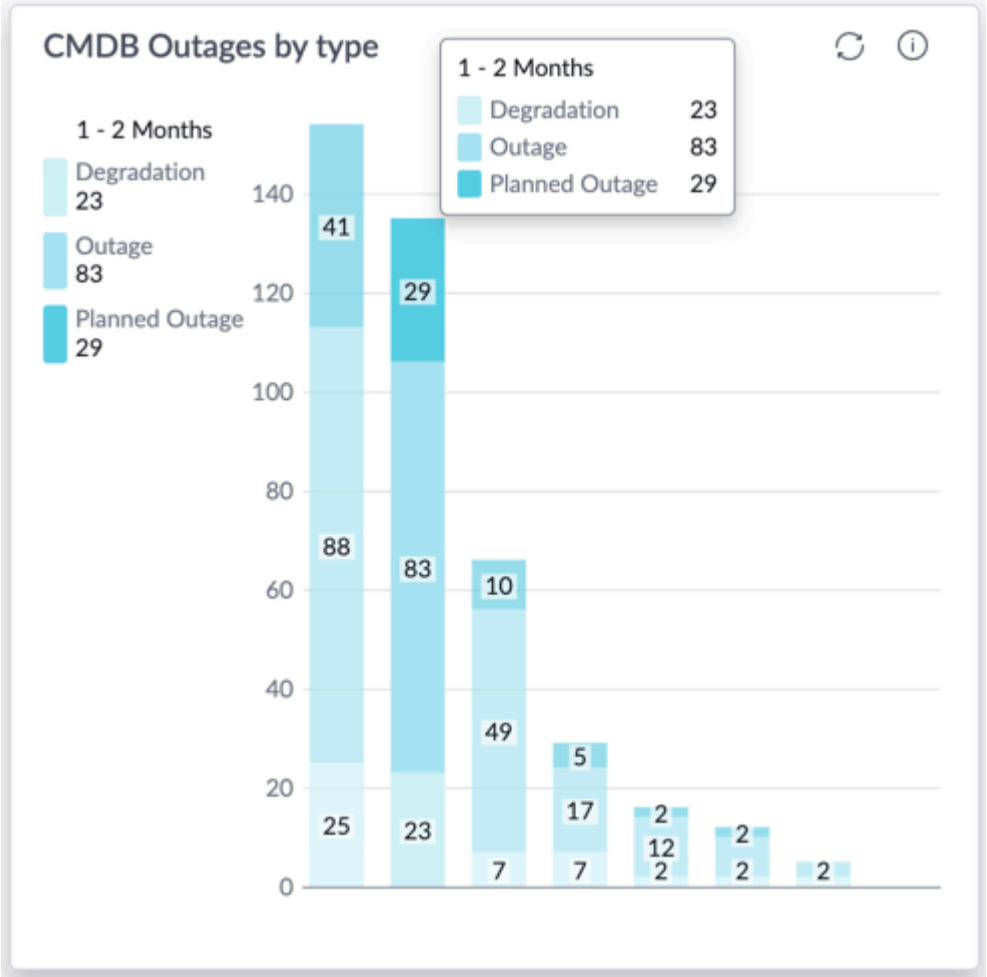
c. Select the Center **Horizontal alignment**.
Start and End move the legend to the left or right of the visualization. (Start and End are right and left for languages that read from right to left.)

d. Change the Max legend item width to give those values more or less room.

e. **Expand legend vertically** provides additional lines to the legend so that users don't have to scroll beyond the default two lines.
In this example, you only need one line for the three outage types. In a visualization that has bars for 15 or 20 different regions or assignment groups, you might want to show more in the legend without a scrollbar.

12. Choose the **Default** color type for the visualization.

- **Default** applies the colors associated with your UX theme.
- **Color palette** uses hues of the same color, for example Sequential - Blues Light to Dark.



- **Fixed element color** specifies the same color for each element, such as hardware incidents. All data visualizations that use fixed element colors show the same element in the same color.

Result

You've created a vertical bar visualization grouped on two fields. You've also configured the visualization's labeling, legend and ranges.

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Create a pie or donut visualization in the Visualization Designer

Use pie, donut, and semi-donut visualizations to compare the size of parts of a data set to the whole. The segments of these charts should total to 100%.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

For more information about this visualization type, see Pie/Donut Visualization Overview on the ServiceNow Developer Site.

About this task

For information about the use of a Pie, Donut, or Semi-donut visualization in a dashboard, see the Developer Site. This site gives information about Pie and donut data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the pie (), donut (), or semi-donut () visualization type.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.

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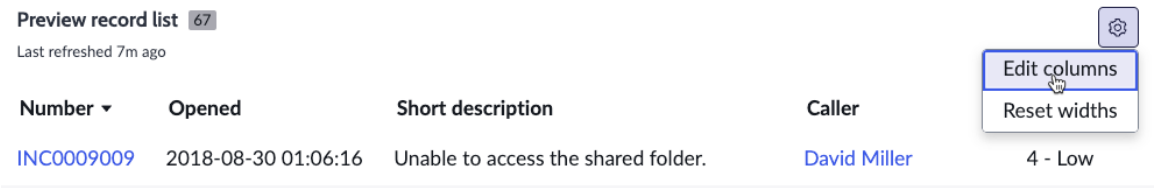
Header and border fields	Description
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

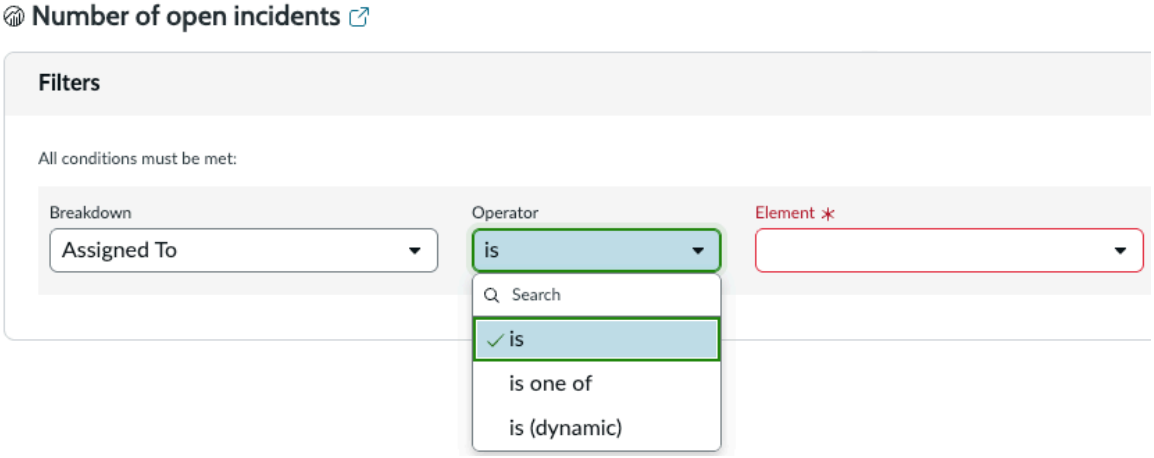
     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.

   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

     Note:
     Benchmark indicators are not supported.

     Note:

     You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

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- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for pie and donut visualizations.
   - If your visualization represents indicator data, go to Indicator data options for pie and donut visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for pie and donut visualizations
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings	
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Legend	
Show legend	Option to display the legend. Activated automatically at 400% zoom.
Show legend value	Option to display the value corresponding to the area of the chart you hover on. The value displays as a tooltip and in the chart legend.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left
Legend orientation	Options for how to display the register. ○ Horizontal `horizontal`: Option to display the legend horizontally. ○ Vertical `vertical`: Option to display the legend vertically up to five lines. This property applies only when **Legend position** is Below.
Horizontal alignment	Horizontal alignment of elements in the legend: Start, Center, or End
Max legend item width, px	Number of pixels after which the item in the legend is truncated.

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Field	Description
Expand legend vertically	When turned on, the legend contents take as much space as needed to fit the legend without scrolling, instead of the maximum 2 lines.
Data label	
Show data labels	Option to display the score for each data point.
Colors	
Set color type	Type of color scheme to apply to the component. Options include: ○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Color palette: List of color palettes to select from predefined system palettes in the Chart Color Scheme [pa_chart_color_schemes] table. For grouped or stacked data, the colors apply in order from highest value to lowest. For multiple data sources, palette colors apply in the order of data sources. For example, the first color of a palette applies to the first data source, and the second palette color applies to the second source. All visualizations that use the same color palette show the same colors, regardless of what data they display. ○ Fixed element color: Use a specific color from the Chart Colors table [sys_report_chart_color] for each element. All data visualizations that use fixed element colors show the same element, such as critical incidents in the Global scope, in the same color. This option is available only for Table data sources and only if no more than one data source or metric is added, and a Group by is defined.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

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Chart interaction

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Apply as filter** filters all data visualizations on the dashboard by the value of the selected segment, where applicable. **Note:** **Apply as filter** is available only for table and indicator data sources. It does not work when the Group by field is a duration field. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

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What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for pie and donut visualizations

When you select a table data source for a pie or donut visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a pie or donut visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.

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Field	Description
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	

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Field	Description
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields. **Note:** • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Max number of groups	Select the maximum number of groups to display. Groups in excess of this number, determined by sorting, are aggregated into the Others group. You can show that aggregate with the **Show others** option. By default, you cannot show more than 50 groups. If you have the admin role, you can change this limit in the *par_viz.table_data.max_groups* system property. Data for the Max number of groups is evaluated across all periods in the time series to ensure consistent group membership across all dates in the visualization.
Show others	If **Max number of groups** is set and this option is turned on, an aggregate of the groups beyond the maximum number is displayed as the Others group.
Hide elements with values of 0	When toggled on, elements with a value of NULL or 0, such as rows or data points, are not displayed. This control is not available when the metric is COUNT.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the

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Field	Description
	additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Additional settings	
Show total value	Option to show the overall total value. Value is still hidden if it does not fit in the donut, due to width/height settings, page resizing, or similar issues. Clicking the total value opens a list of contributing table records or KPI Details for the indicator.
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back.

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Field	Description
	Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for pie and donut visualizations

When you select an indicator data source for a pie or donut visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator data source in Create a pie or donut visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.

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Field	Description
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores. **Important:** • Scripted breakdowns are not supported in dashboard filters. • Only two levels of breakdown are supported in total, including data visualization and dashboard filters.

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Field	Description
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group.

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Field	Description
	• Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true.

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Field	Description
	Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Additional settings	
Show total value	Option to show the overall total value. Value is still hidden if it does not fit in the donut, due to width/height settings, page resizing, or similar issues. Clicking the total value opens a list of contributing table records or KPI Details for the indicator.
Show metric label	Option to show the metric label. In donut charts, the value is not shown if it cannot fit the donut.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the

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Field	Description
	entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for pie and donut visualizations

When you select a User Experience Analytics data source for a pie or donut visualization, the following Data configuration options are available.

Important:
Pie and donut visualizations are only suitable for Events data, not Users or Sessions. Only Events have a value to group by.

Field	Description
Data	
Data source	You have selected a User Experience Analytics data source in Create a pie or donut visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Group by	
Event property	Properties of the event in a User Experience Analytics data source. **Note:** Available only for Events metrics, in which case it is mandatory.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of

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Field	Description
	these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be

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Field	Description
	configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
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Pie visualization example

The pie data visualization uses a circular shape to show the proportion or percentage of different categories or groups. Each part of the circle (or "slice") represents a different category or group, and the size of each slice is proportional to the size of the group or category it represents.

Before you begin

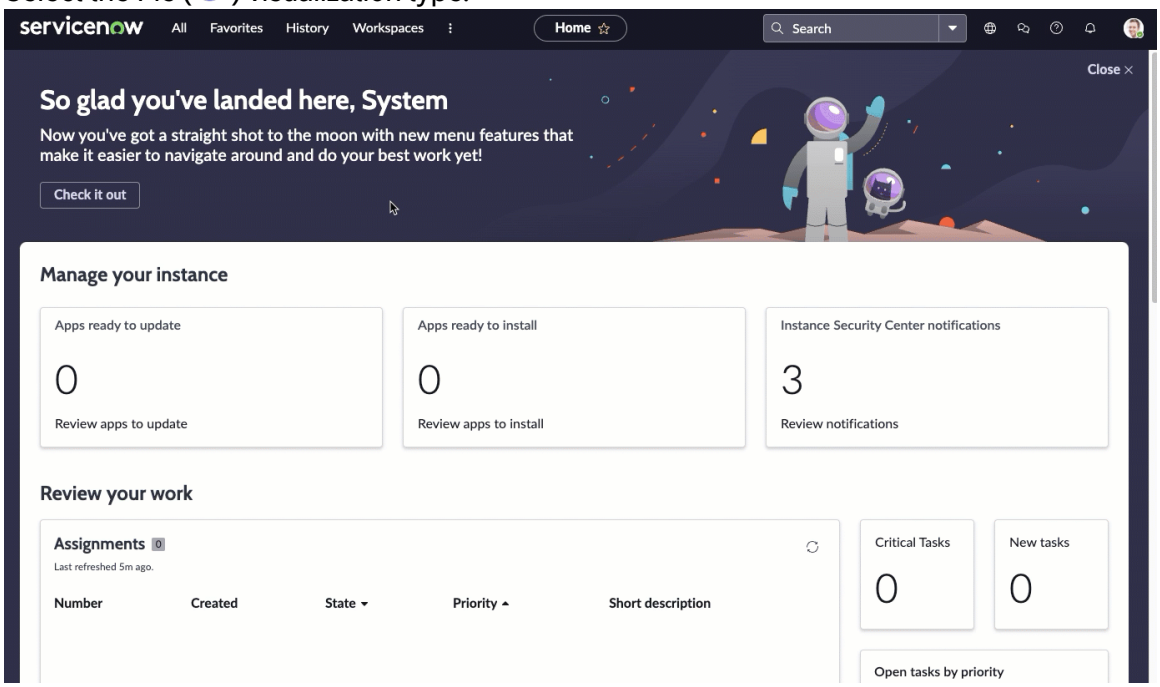
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

Use this visualization type to show the proportion of parts that make a whole, such as the distribution of expenses in a budget or the distribution of incidents across assignment groups.

Procedure

1. Follow the first steps to Create a pie or donut visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the Pie ( ) visualization type.



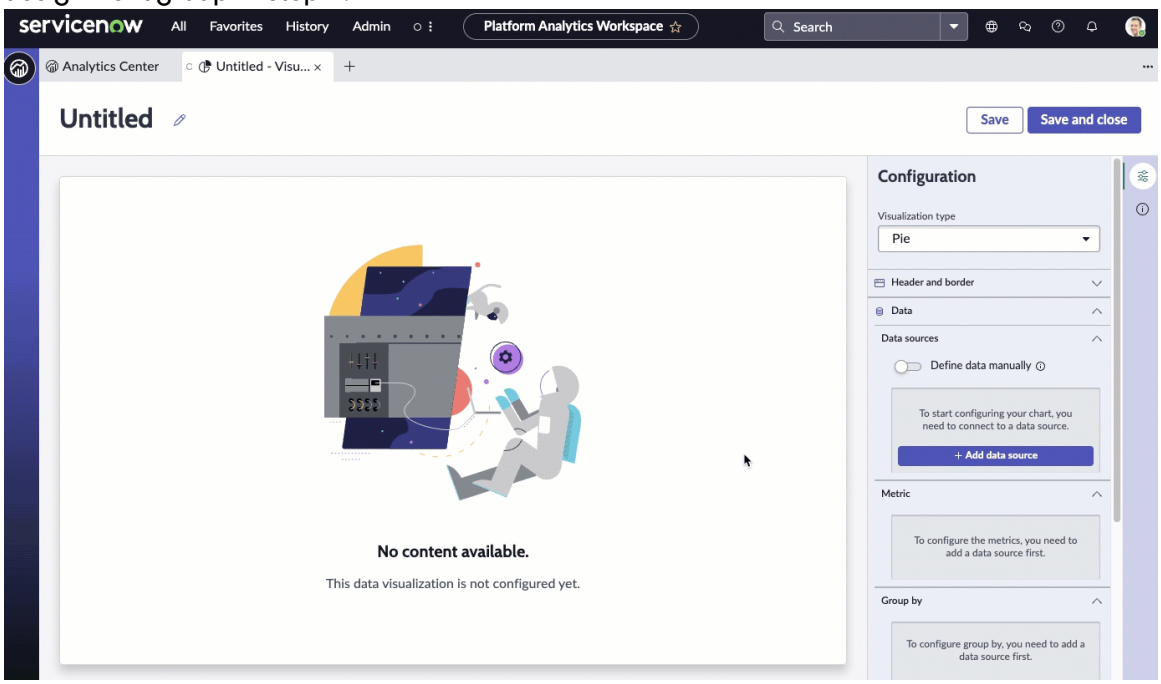
2. For the moment, skip the header and border section and move to the data source.
   a. Select **Add data source**.
   b. Choose the Incident [incident] table.
   c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
   With this filter selected, the visualization only shows the number of active incidents.

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d. Optional: Select **Run** to preview the records that the visualization will be based on.

e. Select **Add this source**.

A pie visualization with the current value of the selected data appears in the Visualization Designer. Because the only information you've given is that the visualization represents active incidents, you see only a two wedges for Active=True and Active=False. You add priority and assignment group in step 4.



3. Now that you can see the visualization, let's add some context for the user.

a. Expand the Header and border section.

b. Select **Show header** and provide the chart title `Open incidents - Assignment Group`.
When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

c. Enter a description of the visualization: `Open incidents of all priorities by assignment group`.
While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

d. Select **Save** and give the report the title `Pie - Open incidents`.

4. Skip the Metric section.

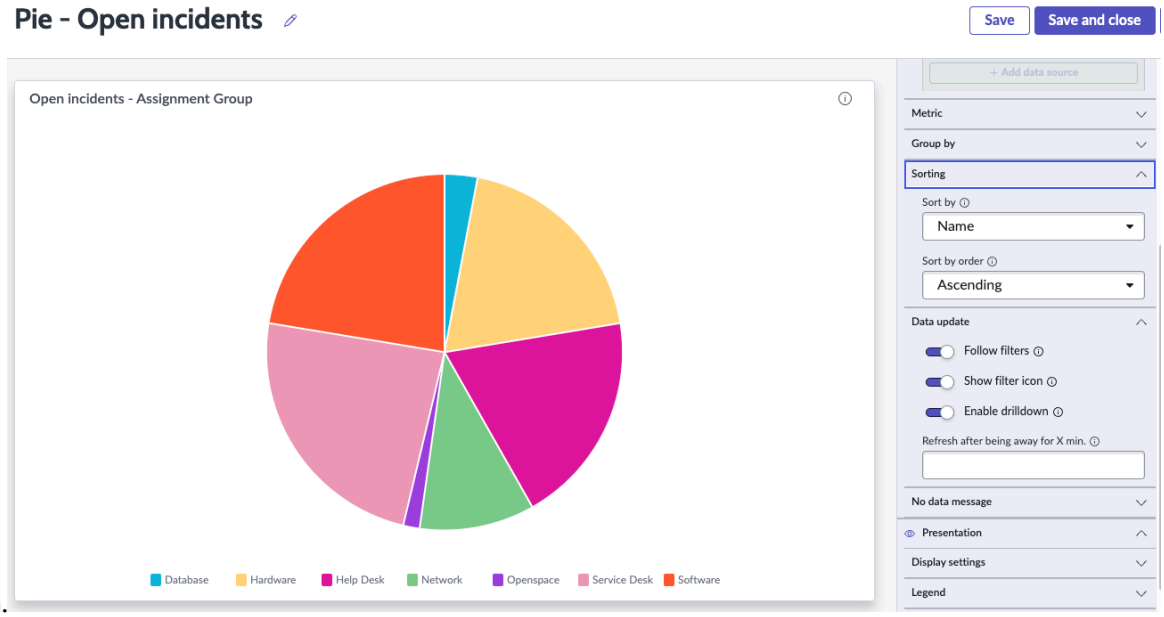
5. Add a Group by to differentiate the information in the chart.
Under Group by, select **Active** and change the grouping to `Assignment group`.

6. Under Sorting, choose the field to sort by and the order of the sorting.

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a. Choose to sort by `Name`.

b. Choose `Ascending` for the sort order.
The segments are ordered by the assignment group name starting with Database, Hardware, and so on.



7. Under Data update, configure how the audience interacts with the visualization.

a. Select **Follow filters**.
This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

8. Choose how to show what the wedges in the pie describe.

- **Show Legend** gives examples of the color coding for each value in the visualization. You can choose whether to show the legend, where to place it and how much to show. Ideal placement depends on the size of its container on a dashboard. If you have more horizontal space, place the legend to the left or right. If you have more vertical space, place it above or below.
- **Show data labels** adds the label and value information next to the segments of the visualization.

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a. Select **Show legend** to enable legend options.

b. Select **Show legend value**.
This option adds the number associated with the metric. In this case, 7 is added to the incidents assigned to the **Network** assignment group because that is how many Network incidents there are.

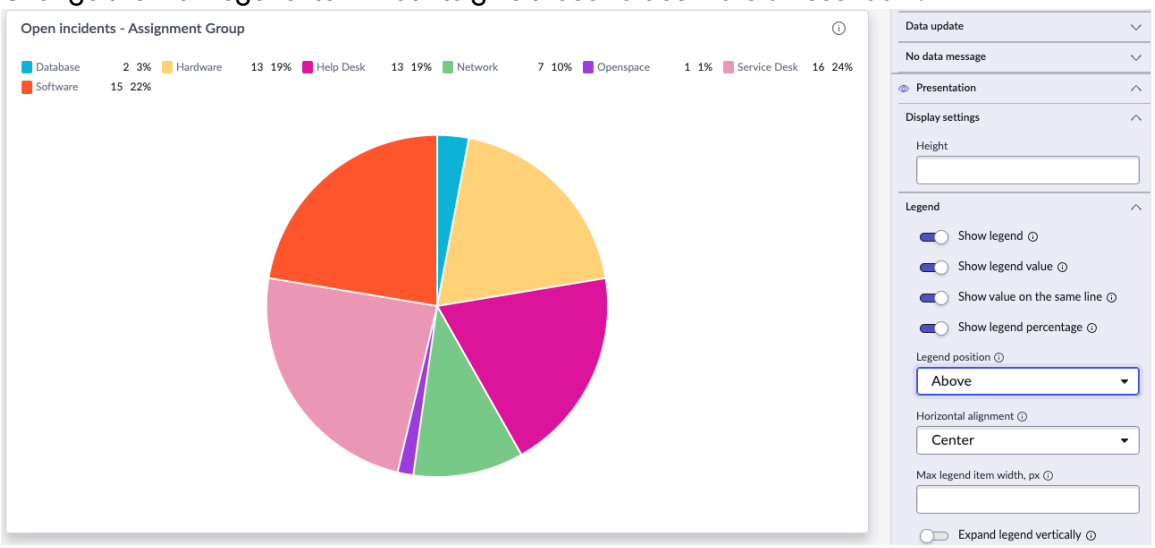
c. Select **Show value on the same line** to keep the value with the assignment group name.

d. Select **Show legend percentage** to provide more information about the value.

e. Play with where to place the legend above of the visualization.
You can choose to place the legend above, below, or to the right or left of the visualization.

f. Select the Center **Horizontal alignment**.
Horizontal alignment is not available if you place the legend to the right or left of the visualization. Start and End move the legend to the left or right of the visualization. (Start and End are right and left for languages that read from right to left.)

g. Change the Max legend item width to give those values more or less room.



9. Clear **Show legend** and select **Show data labels**.

a. Choose the **Data label type**.
You can choose Value to show the number next to the label, Percent to show the percentage the value represents, or Value and percent to show both.

b. Change the Max label size to 50.
The labels wrap to additional lines. The Truncation type doesn't make a difference, because the labels are wrapped.

c. Clear the **Wrap labels** option.
When you change the Truncation type, you can see that End replaces the ends of the longer labels with three dots. Select Start and the three dots replace the first part of the longer labels. And the same happens when you select middle.

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10. Choose the **Default** color type for the visualization.
    - **Default** applies the colors associated with your UX theme.
    - **Color palette** uses hues of the same color, for example Blue Light to Dark.
    - **Fixed element** specifies the same color for each element, such as hardware incidents. All data visualizations that use fixed element colors show the same element in the same color.

Result
You've created a pie visualization grouped on one value. You've also configured the visualization's labeling, legend, and colors.

Donut visualization example

The donut visualization uses a hollow circular shape to show the proportion or percentage of different categories or groups. The semi-donut visualization does the same job as the donut using a semicircle instead of a full circle.

Before you begin
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task
Use this visualization type when you want to compare subcategories or additional data set in a simple and easy to understand format.

Procedure
1. Follow the first steps to Create a pie or donut visualization in the Visualization Designer:

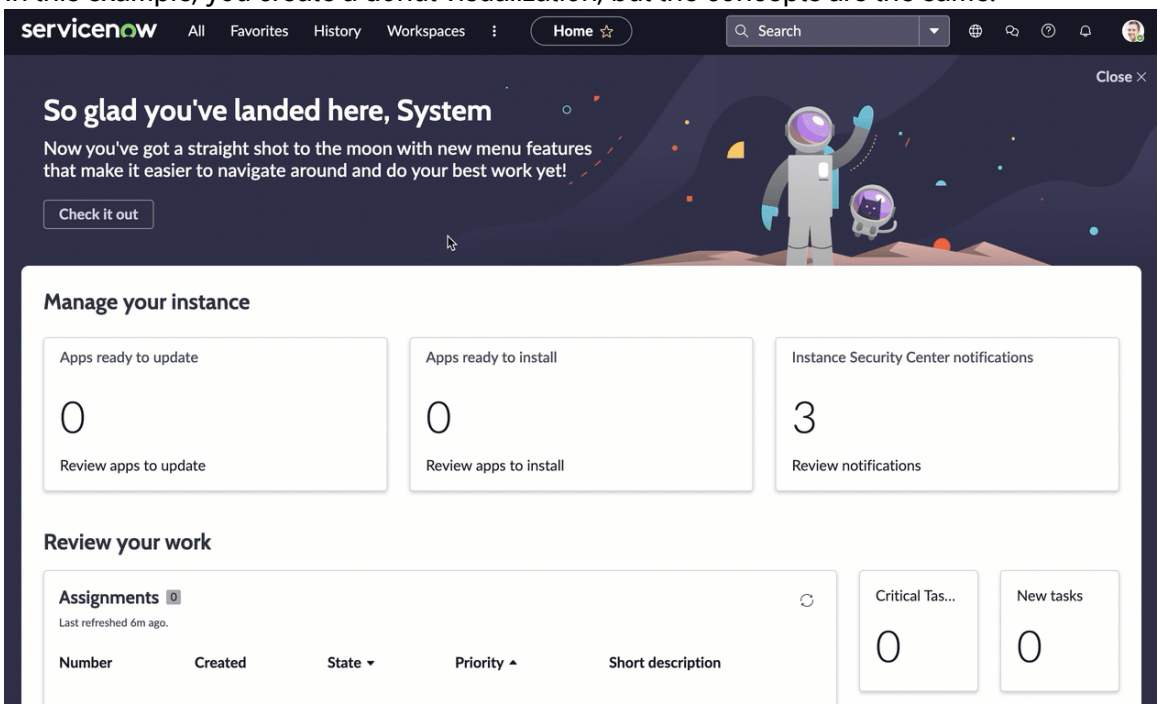
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.

   b. Select **New**.

   c. Select the Donut ( ) or Semi-donut (visualization type.

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In this example, you create a donut visualization, but the concepts are the same.



2. For the moment, we can skip the header and border section and move to the data source.

   a. Select **Add data source**.

   b. Choose the Incident [incident] table.

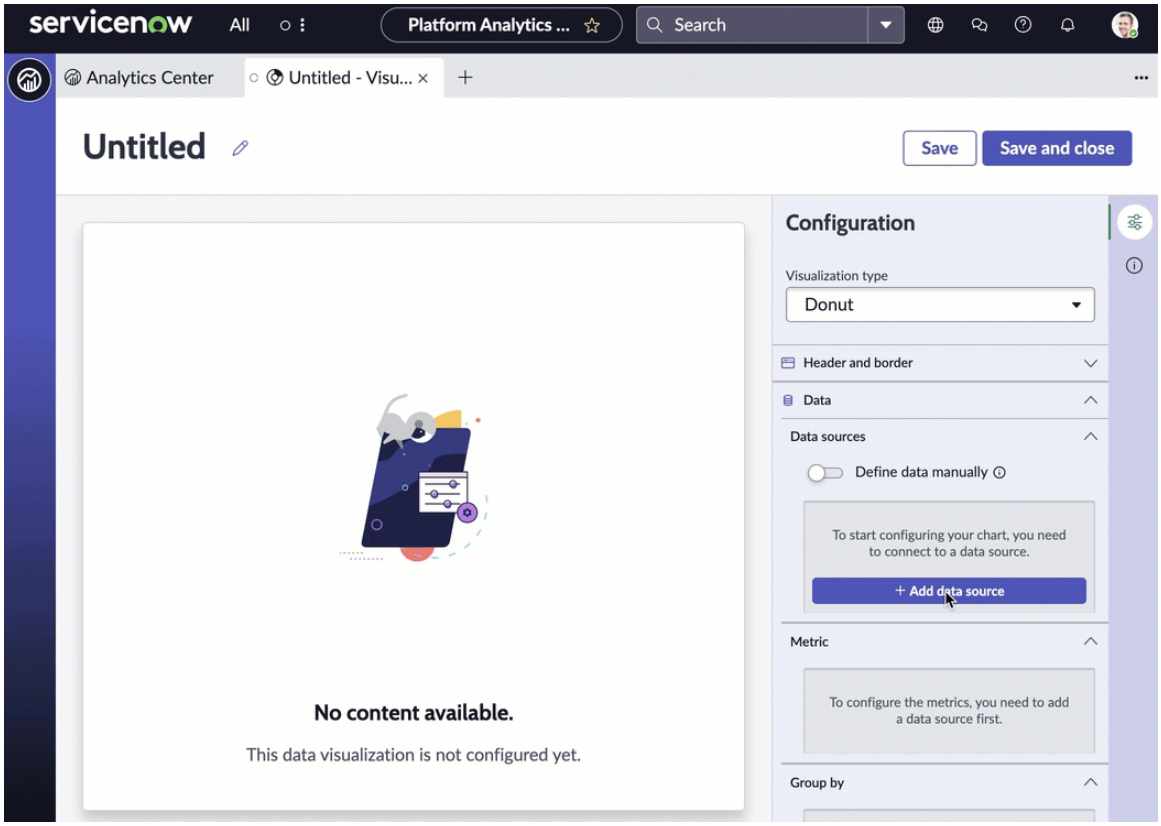
   c. Because this visualization shows open incidents, let's add the Incidents.Open condition in the Filters section.
   With this filter selected, the visualization only shows the number of active incidents.

   d. **Optional:** Select **Run** to preview the records that the visualization will be based on.

   e. Select **Add this source**.

   A pie visualization with the current value of the selected data appears in the Visualization Designer. Because the only information you've given is that the visualization represents active incidents, you see only a two wedges for Active=True and Active=False. You add priority and assignment group in step 4.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

   b. Select **Show header** and provide the chart title `Open incidents - Priority`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Open incidents of all priorities`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

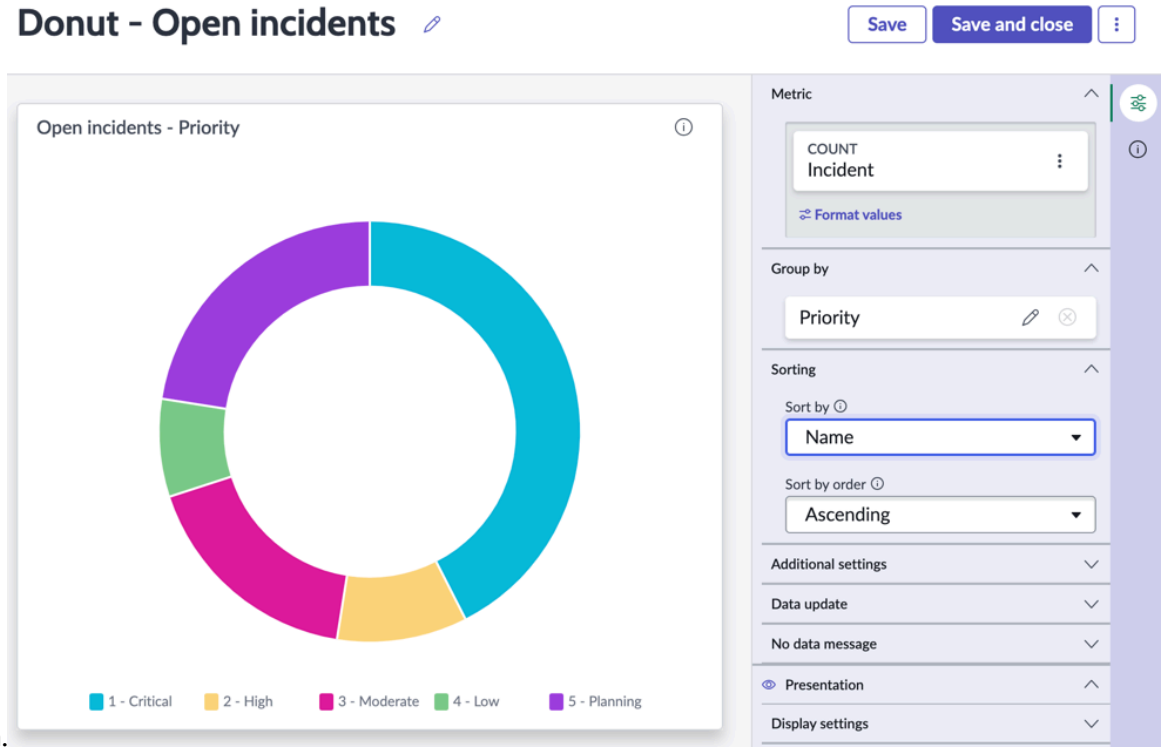
   d. Select **Save** and give the report the title `Donut - Open incidents`.

4. Skip the Metric section.
5. Add a Group by to differentiate the information in the chart.
   Under Group by, select **Priority**.
6. Under Sorting, choose the field to sort by and the order of the sorting.

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a. Choose to sort by `Name`.

b. Choose `Ascending` for the sort order.
The segments are ordered by Priority, starting with 1 - Critical, 2 - High, and so on.



7. Under Data update, configure how the audience interacts with the visualization.

a. Select **Follow filters**.
This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

8. Choose how to show what the sections of the donut describe.

- **Show Legend** gives examples of the color coding for each value in the visualization. You can choose whether to show the legend, where to place it and how much to show. Ideal placement depends on the size of its container on a dashboard. If you have more horizontal

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space, place the legend to the left or right. If you have more vertical space, place it above or below.

- **Show data labels** adds the label and value information next to the segments of the visualization.

a. Select **Show legend** to enable legend options.

b. Select **Show legend value**.
This option adds the number associated with the metric. In this case, 4 is added to the high priority incidents because that is how many high priority incidents there are.

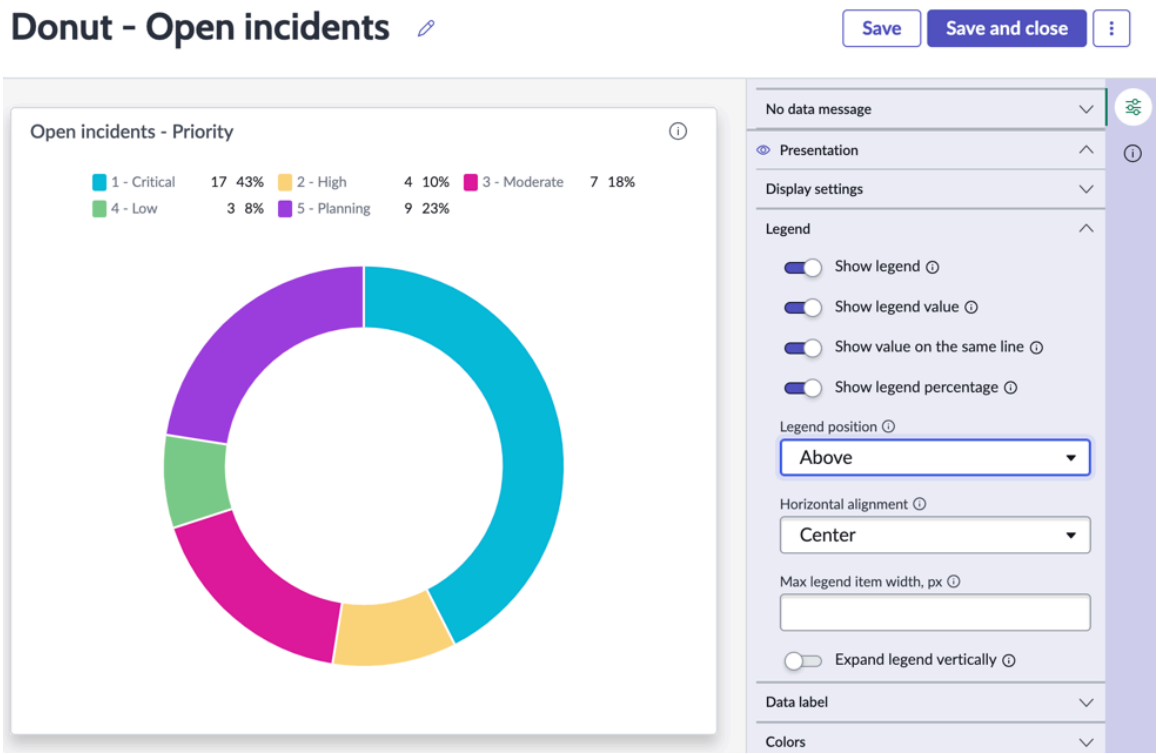
c. Select **Show value on the same line** to keep the value with the assignment group name.

d. Select **Show legend percentage** to provide more information about the value.

e. Play with where to place the legend above of the visualization.
You can choose to place the legend above, below, or to the right or left of the visualization.

f. Select the Center **Horizontal alignment**.
Horizontal alignment is not available if you place the legend to the right or left of the visualization. Start and End move the legend to the left or right of the visualization. (Start and End are right and left for languages that read from right to left.)

g. Change the Max legend item width to give those values more or less room.



9. Clear **Show legend** and select **Show data labels**.

a. Choose the **Data label type**.
You can choose Value to show the number next to the label, Percent to show the percentage the value represents, or Value and percent to show both.

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b. Change the Max label size to `50`.
The labels wrap to additional lines. The Truncation type doesn't make a difference, because the labels are wrapped.

c. Clear the **Wrap labels** option.
When you change the Truncation type, you can see that End replaces the ends of the longer labels with three dots. Select Start and the three dots replace the first part of the longer labels. And the same happens when you select middle.

10. Choose the **Default** color type for the visualization.

- **Default** applies the colors associated with your UX theme.
- **Color palette** uses hues of the same color, for example Blue Light to Dark.
- **Fixed element** specifies the same color for each element, such as hardware incidents. All data visualizations that use fixed element colors show the same element in the same color.

Result
You've created a donut visualization grouped on one value. You've also configured the visualization's labeling, legend, and colors.

What to do next
Create a semi-donut visualization.

- Select the More actions button ( ) and choose **Duplicate**.
- Name the new visualization `Semi-donut - Open incidents` and select **Duplicate**.
- Change the Visualization type to Semi-donut and select **Save**.

The semi-donut has all the same settings as the donut, but is a half circle instead of a full circle.

Create a Pareto bar data visualization

Use a Pareto bar visualization to Identify the most important dimension in a large set of dimensions. Pareto bar visualization columns show data in descending order. A line shows the cumulative percentage.

Before you begin
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task
For information about the use of a Pareto bar visualization in a dashboard, see the Developer Site. This site gives information about Pareto bar data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure
1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.

2. Select **New**.

3. Select the Pareto bar visualization ( ) visualization type.

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4. Configure the **Header and border**. Header and border options are the same for all data sources.

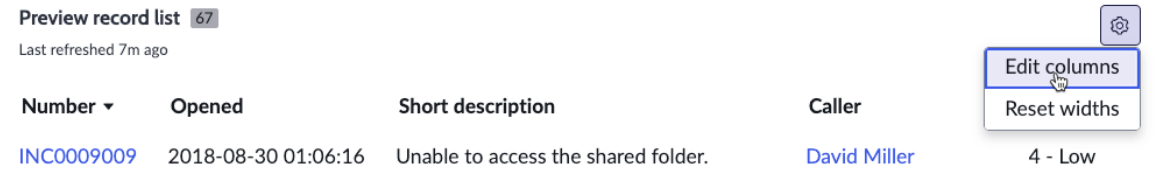
Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

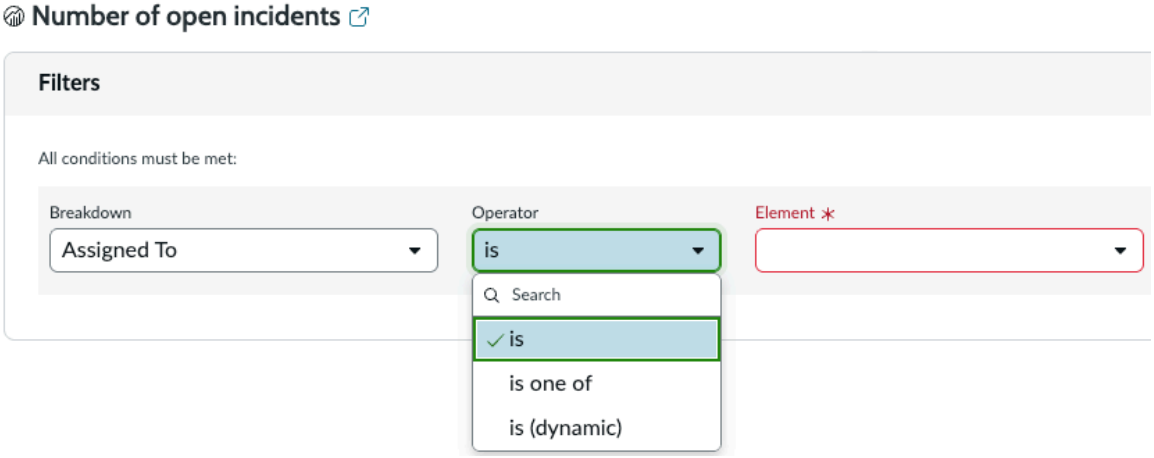
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.



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- Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

  Note:
  Benchmark indicators are not supported.



  Note:

  You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

  Note:
  You can choose multiple data sources for this visualization. However, all data sources must be of the same type: table, indicator, or User Experience Analytics. For more information, see Multiple data sources.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for pareto bar visualizations.
   - If your visualization represents indicator data, go to Indicator data options for pareto bar visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics for pareto bar visualizations.
7. Under **Presentation**, provide display and color information.

   Under **Display settings**, you can show the data table. This table shows graph and chart data for easier screen reader access. You can also select whether hovering on a data value opens a tooltip with all the data values or only the details of the selected data value.

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X-axis options

Field [Property]	Description
Hide axis	Hides both the bar metric Y-axis and the pareto Y-axis.
Axis style	Style of the X axis. ○ Clean `clean`: Adds a straight line to the X axis. ○ No tick lines `noTicks`: Option to remove all marks from the X axis. ○ Standard `default`: Adds a line and tick marks to the X axis. **Note:** Only available when **Show grid** is true for vertical bar visualizations.
Axis title (for X axis)	Title to display on the horizontal axis of the visualization.
Wrap labels	Wraps long labels in the horizontal axis.
Max label size, px	Maximum label size for the horizontal axis, in pixels.

Y-axis options

Field [Property]	Description
Hide axis	Hides both the bar metric Y-axis and the pareto Y-axis.
Axis title (for Y axis)	Only affects the bar axis and not the Pareto axis.
Show grid	Adds grid lines to the visualization. This option applies only to the Y axis.
Axis style	Style of the Y axis. ○ Clean `clean`: Adds a straight line to the Y axis. ○ No tick lines `noTicks`: Option to remove all marks from the Y axis. ○ Standard `default`: Adds a line and tick marks to the Y axis. **Note:** Only available when **Show grid** is true for vertical bar visualizations.

Legend options

Field	Description
Show legend	Option to display the legend.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left

Data label options

Field	Description
Show data labels	Option to display the score for each data point.

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Field	Description
Data label position	Location of data labels: at the top, middle, or bottom of the bars. **Note:** Only available when **Show data labels** is true.

Color options

Field	Description
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Color palette: List of color palettes to select from predefined system palettes in the Chart Color Scheme [pa_chart_color_schemes] table. For grouped or stacked data, the colors apply in order from highest value to lowest. For multiple data sources, palette colors apply in the order of data sources. For example, the first color of a palette applies to the first data source, and the second palette color applies to the second source. All visualizations that use the same color palette show the same colors, regardless of what data they display. ○ Fixed element color: Use a specific color from the Chart Colors table [sys_report_chart_color] for each element. All data visualizations that use fixed element colors show the same element, such as critical incidents in the Global scope, in the same color. This option is available only for Table data sources and only if no more than one data source or metric is added, and a Group by is defined.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You

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Field	Description
	have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for pareto bar visualizations

When you select a table data source for a Pareto bar visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a horizontal or vertical bar data visualization. **Note:** For pareto charts, only one data source can be defined at any given time.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source. **Note:** Only one metric can be defined for a Pareto bar visualization at any given time.

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Field	Description
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP`

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Field	Description
	• Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields. Only one **Group by** can be defined in the Pareto chart. The **Alternative Group By** can be defined for a Pareto visualization. For vertical bar, horizontal bar, and pivot reports with multiple data sources: If you group the first source by a choice field, you can group the second source by any applicable choice field. • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer,

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Field	Description
	the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Max number of groups	Select the maximum number of groups to display. Groups in excess of this number, determined by sorting, are aggregated into the Others group. You can show that aggregate with the **Show others** option. By default, you cannot show more than 50 groups. If you have the admin role, you can change this limit in the *par_viz.table_data.max_groups* system property. Data for the Max number of groups is evaluated across all periods in the time series to ensure consistent group membership across all dates in the visualization.
Show others	If **Max number of groups** is set and this option is turned on, an aggregate of the groups beyond the maximum number is displayed as the Others group.
Hide elements with values of 0	When toggled on, elements with a value of NULL or 0, such as rows or data points, are not displayed. This control is not available when the metric is COUNT.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer.

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Field	Description
	Important: • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

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Indicator data options for pareto bar visualizations

When you select an indicator data source for a Pareto bar visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator or User Experience Analytics data source in Create a horizontal or vertical bar data visualization. **Note:** Only one data source can be defined pareto at any given time.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source. **Note:** Only one metric can be defined for a Pareto bar visualization at any given time.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN`

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Field	Description
	Note: Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores. **Important:** • Scripted breakdowns are not supported in dashboard filters. • Only two levels of breakdown are supported in total, including data visualization and dashboard filters.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used.

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Field	Description
	For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Date range	
Apply date range	When turned on, this option allows date filters on the dashboard or UIB page to apply to this visualization. The date range can also be configured in the visualization, but date filters override visualization settings.
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Period	Time interval for each date period.

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Field	Description
	• Days D • Months M • Years Y This property applies only when **Set absolute period** is false.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics for pareto bar visualizations

When you select a User Experience Analytics data source for a Pareto bar visualization the following Data configuration options are available.

Important:
Pareto visualizations are only suitable for Events data, not Users or Sessions. Only Events have a value to group by.

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Field	Description
Data	
Data source	You have selected a User Experience Analytics data source in Create a horizontal or vertical bar data visualization. **Note:** Only one data source can be defined for pareto at any given time.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source. **Note:** Only one metric can be defined for a Pareto bar visualization at any given time.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands.

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Field	Description
	Note: Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Event property	Properties of the event in the User Experience Analytics data source. **Note:** Only applies to Events metrics, in which case it is required.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer.

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Field	Description
	Important: • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Date range	
Show data for selected period as	Available when **Apply date range** is selected. The indicator aggregation logic for how scores from the selected period are shown, such as Latest score, Sum, or Average.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter

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Field	Description
	is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Create a pivot table visualization in the Visualization Designer

Create a pivot table visualization to summarize large data sets by breaking them down by multiple dimensions in a single table. Cells show each row and column value combination and can also show subtotals.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Pivot visualization in a dashboard, see the Developer Site. This site gives information about Pivot data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Pivot Table () visualization type.

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4. Configure the **Header and border**. Header and border options are the same for all data sources.

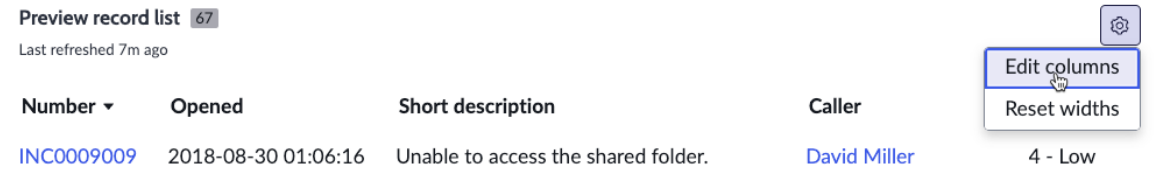
Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

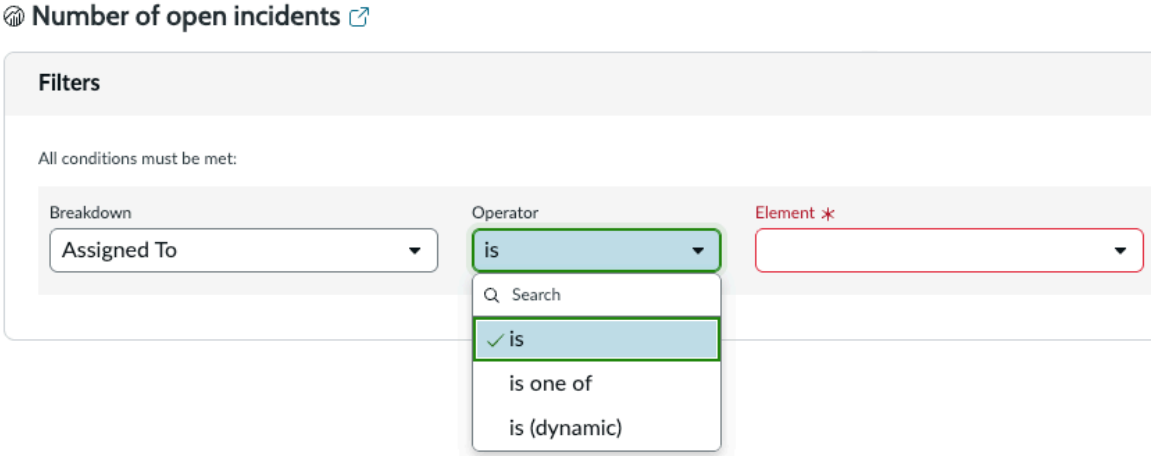
     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.



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- Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

  Note:
  Benchmark indicators are not supported.



  Note:

  You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

  Note:
  You can choose multiple data sources for this visualization. However, all data sources must be of the same type: table, indicator, or User Experience Analytics. For more information, see Multiple data sources.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for pivot table visualizations.
   - If your visualization represents indicator data, go to Indicator data options for pivot table visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for pivot table visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings	

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Field	Description
Freeze row header	Allows users to keep the header visible while scrolling to another area in the visualization.
Freeze row footer	Allows users to keep the footer visible while scrolling to another area in the visualization.
Freeze first column	Keeps the first column visible while scrolling.
Show alternative row colors	Toggles a background color for alternative rows to make reading the visualization easier.
Show alternative column colors	Toggles a background color for alternative columns to make reading the visualization easier.
Display row lines	Displays border lines to separate rows.
Display column lines	Displays border lines to separate columns.
Table size settings	
Truncate first column [truncateFirstColumn]	When true, limits the width of the first column. First column contents beyond this width are truncated. First column headers are not truncated. Specify this width limit in **First Column max width, in px**.
First Column max width, in px	The maximum width of the first column, beyond which its contents are truncated. This maximum width cannot be less than the width of the first column header, which is never truncated. Values lower than the header width are ignored. Only takes effect when **Truncate first column** is active. Default value is 200px.
Wrap column headers	Breaks header text into lines matching content width, with a minimum limit of 100px. Does not apply to first column. You cannot both wrap and truncate column headers.
Truncate column headers	Truncates header text into lines matching content width, with a minimum limit of 100px. Does not apply to first column. You cannot both wrap and truncate column headers.
Colors	
Set color type	○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience.

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Field	Description
	○ Single color/Colors per metric: Select a single color in the **Set value color** field. Interacting with that field opens a selector where you can choose the color from either a set of icons or from a list. You can also search for a color. Entering a search value has the selector show you a list of colors filtered by that search value. If the visualization has more than one metric, you see the Colors per metric option instead. This option lets you select a single color for each metric. Alternatively, you can add a rule to define a dynamic color. For more information, see Create coloring rules for data visualizations.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization.

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Field	Description
	Note: The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

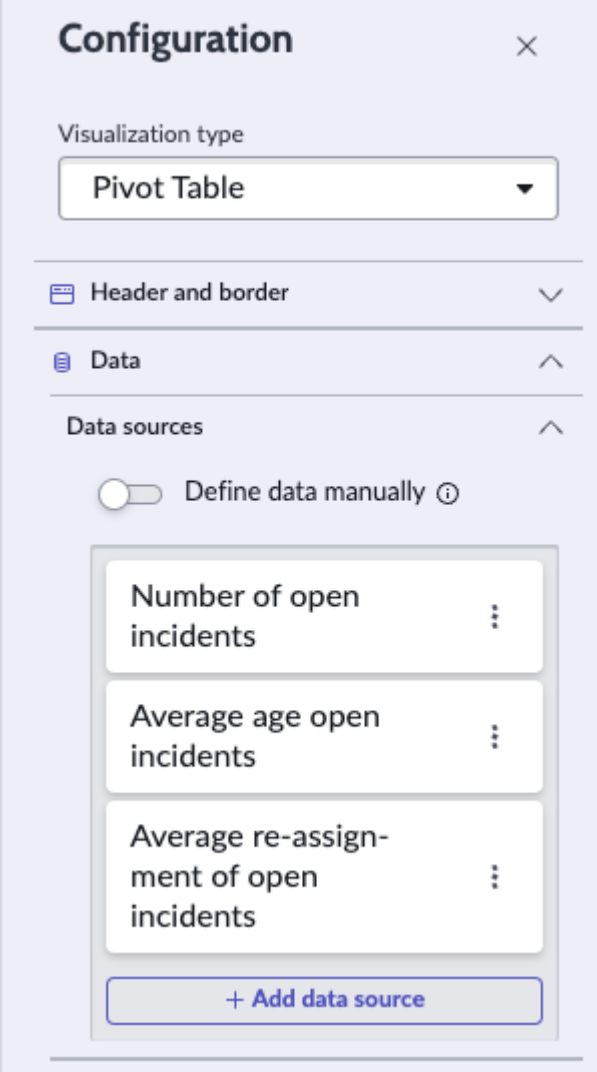
Example: Pivot table with multiple data sources

Consider a case where you want to present the following information, split up for each assignment group:

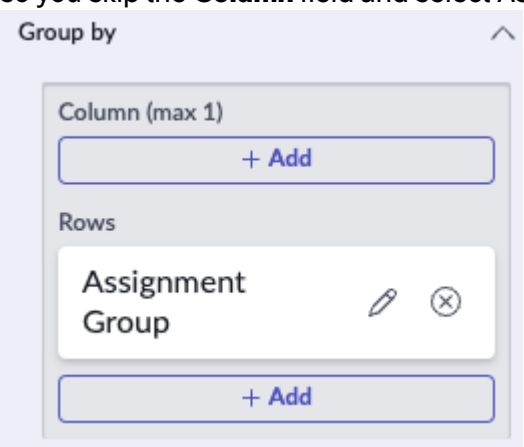
- Number of assigned open incidents
- The average age of the assigned open incidents
- The average number of times an incident was reassigned

You can present this information in a single pivot table. Each set of information is going to come from a different data source. You have to find either three tables or three Performance Analytics indicators with this information. You cannot mix and match different types of data sources! Fortunately, you find three appropriate indicators already defined in your instance. You select them as your data sources for a pivot table.

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You want to see these indicator scores broken down by assignment group. Therefore, you select Assignment Group under Group By. Your three data sources are going to show as three columns, so you skip the **Column** field and select Assignment Group as a row.



Now you are done. Save the data visualization and use it in a dashboard.

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Incidents analysis

Assignment Group ▲	Open incidents	Avg age of open incidents	Avg reassignment count
Financial Systems Support	29	91 days	1.34
HR Systems Support	18	91 days	1.28
Marketing Operations	2	90 days	0.50
Marketing Systems Support	4	91 days	1.00
Openspace	1	1539 days	
Total	**149**	**204 days**	**1.19**

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Table data options for pivot table visualizations

When you select a table data source for a pivot table visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected a Table data source in Create a pivot table visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may

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Field	Description
	further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Group by	
Select columns	The field whose values are each represented in a vertical column.
Max number of groups	Select the maximum number of groups to display. Groups in excess of this number, determined by sorting, are aggregated into the Others group. You can show that aggregate with the **Show others** option. By default, you cannot show more than 50 groups. If you have the admin role, you can change this limit in the *par_viz.table_data.max_groups* system property. Data for the Max number of groups is evaluated across all periods in the time series to ensure consistent group membership across all dates in the visualization.
Show others	If **Max number of groups** is set and this option is turned on, an aggregate of the groups beyond the maximum number is displayed as the Others group.
Rows	Hierarchy of table fields with values displayed horizontally.
Field for <table>	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields.

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Field	Description
	Note: • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Show row total	Option to show a final column with the total of each row
Show column total	Option to show a final row with the total of each column
Show parent row totals	When you have a hierarchy of more than one field in the rows, this option shows the sub total of fields higher up the hierarchy.
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it.

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Field	Description
	Note: • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	

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Field	Description
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for pivot table visualizations

When you select an indicator data source for a pivot table visualization, the following Data configuration options are available.

Field	Description
Data	
Data source	You have selected an Indicator data source in Create a pivot table visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR`

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Field	Description
	• Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores. **Important:** • Scripted breakdowns are not supported in dashboard filters. • Only two levels of breakdown are supported in total, including data visualization and dashboard filters.
Max number of groups	The maximum number of breakdown elements to display in columns. This property does not apply to rows.
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include:

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Field	Description
	• Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending.
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.

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Field	Description
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for pivot table visualizations

When you select a User Experience Analytics data source for a pivot table visualization, the following Data configuration options are available.

Important:
Pivot table visualizations are only suitable for Events data, not Users or Sessions. Only Events have a value to group by.

Field	Description
Data	
Data source	You have selected a User Experience Analytics data source, Events application, in Create a pivot table visualization in the Visualization Designer.
Metric	
Label	Label of the metric. By default it is the same as the name of the data source.

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Field	Description
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Group by	
Columns	Properties of the event in a User Experience Analytics data source. **Note:** Available only for Events metrics, in which case it is mandatory.
Rows	Hierarchy of table fields with values displayed horizontally.
Event property	Choice of properties of the event to select for a column or row.
Show row total	Show the total value of elements in each row.
Show column total	Show the total value of elements at the bottom of each column.
Show parent row totals	For a hierarchy of rows, show the total of all child rows per column, depending on metric aggregation.
Additional settings	
Show 0 when no data is available	When toggled on, shows empty (NULL) values as zero (0). Default is true.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline

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Field	Description
	dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Pivot visualization example

Pivot tables show multiple dimensions or variables of a data set. This visualization displays separate cells for each row and column value combination, as well as a column subtotal for each first-level row. Aggregate information is presented in the top left of the chart.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

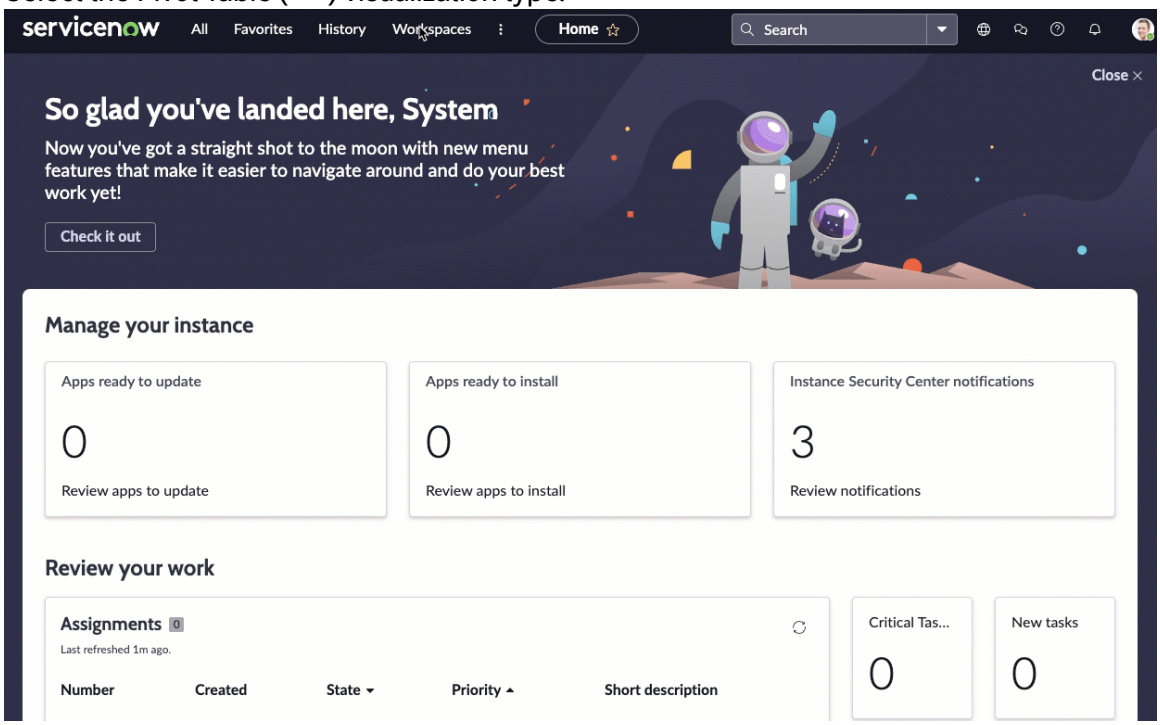
Use this visualization type to show multiple variables in a single chart. It can be useful for showing the relationship between different variables. In this example, you look at closed incidents grouped by assignment group, priority, and location.

Procedure

1. Follow the first steps of Create a pivot table visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.

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c. Select the Pivot Table ( ) visualization type.



2. For the moment, skip the header and border section and move to the data source.

a. Select **Add data source**.

b. Choose the Incident [incident] table.

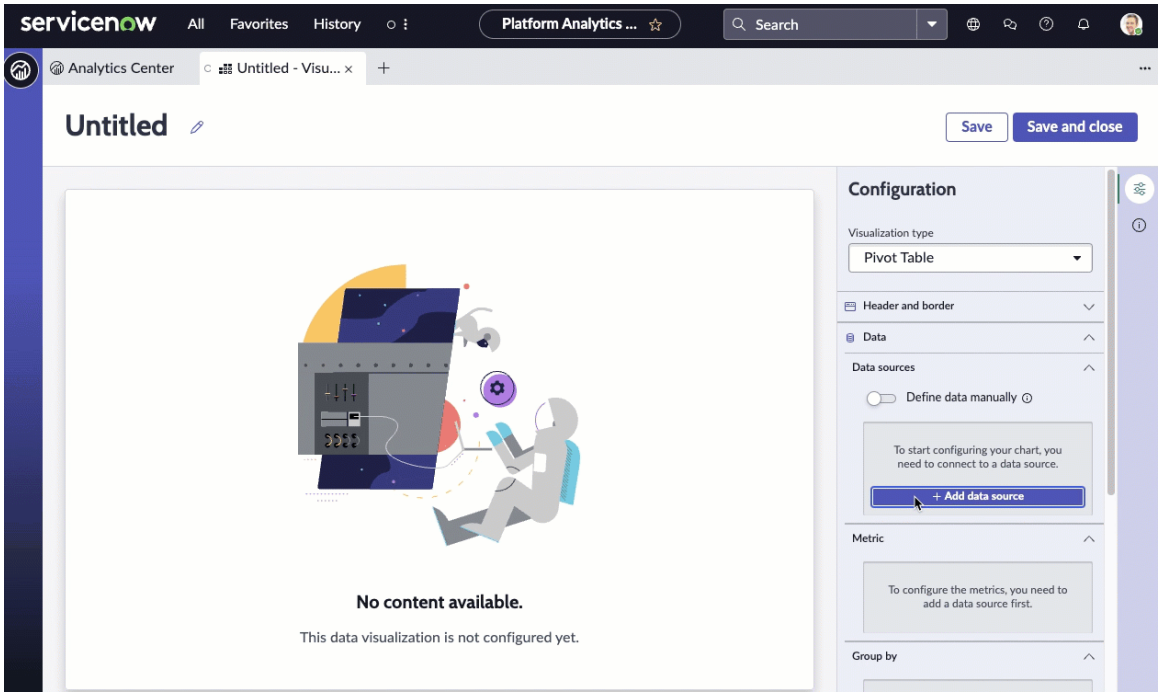
c. Because this visualization shows completed incidents, let's add the Incidents.Closed condition in the Filters section.
With this filter selected, the visualization only shows the non-active incidents.

d. Optional: Select **Run** to preview the records that the visualization will be based on.

e. Select **Add this source**.

A pivot data visualization with the current value of the selected data appears in the Visualization Designer. Because the only information you've given is that the visualization represents closed incidents, you see only a single row. You add columns and rows in the next step.

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3. Now that you can see the visualization, let's add some context for the user.

   a. Expand the Header and border section.

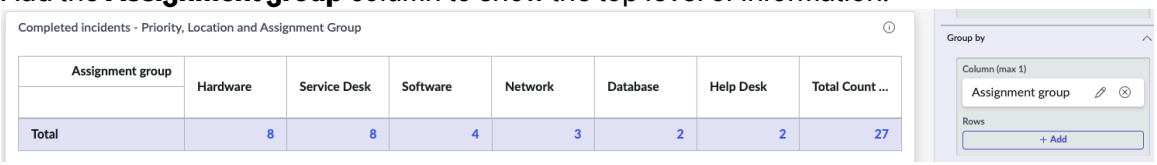
   b. Select **Show header** and provide the chart title `Completed incidents - Priority, Location and Assignment Group`.
   When **Show header** is selected, you can add a title and a description. The chart title isn't necessarily the same as the visualization name. The visualization name identifies it in the Visualization Designer and in a list. The chart title appears within the visualization.

   c. Enter a description of the visualization: `Closed incidents of all assignment groups grouped by priority and location`.
   While the description and title fields aren't required, this information makes the visualization easier to understand on a dashboard and easier to identify in a list.

   d. Select **Save** and give the report the title `Pivot - Closed incidents`.

4. Skip the Metric section.
5. Under Group by, add one column and multiple rows to show the data from multiple perspectives.

   a. Add the **Assignment group** column to show the top level of information.

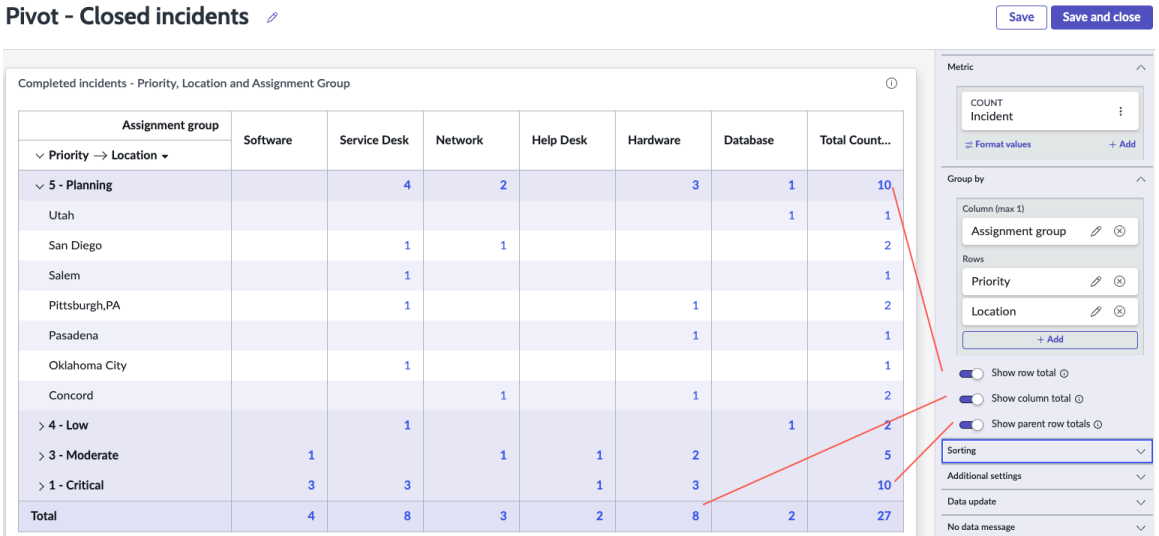


   b. Add two rows: **Priority** and **Location**.

   c. Show all totals.

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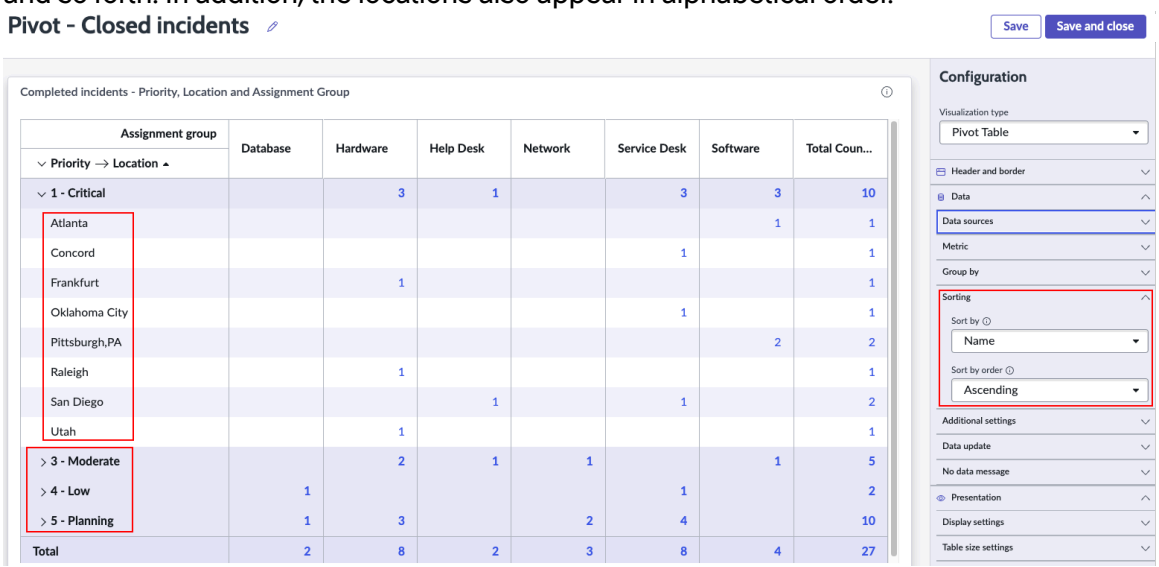
- **Show row total** provides the total count for each row in a new column.
- **Show column total** provides the total for each column in a new row.
- **Show parent row totals** shows the totals in each top level row of the elements below it. For example, there are three Critical Hardware incidents, one each in three different locations.



6. Under Sorting, choose the field to sort by and the order of the sorting.

   a. Choose to sort by `Name`.
   The priority names each start with a number so they appear in the order 1 - Critical, 2 - High, 3 - Moderate, and so forth.

   b. Choose `Ascending` for the sort order.
   The bars are ordered with 1 - Critical at the top followed by 2 - High, 3 - Moderate, and so forth. In addition, the locations also appear in alphabetical order.



7. Under Data update, configure how the audience interacts with the visualization.

   a. Select **Follow filters**.
   This option enables the visualization to follow interactive filters on the dashboards it's placed on that are based on the same table.

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b. Select **Show filter icon** to show the number of filters applied to the visualization.
For example, if dashboard filters limit the value of the visualization, the icon indicates that you're seeing the number of open incidents that match the filters. You can then check to see which filters are in effect.

c. Select **Enable drilldown** to let viewers navigate to relevant information by selecting a data point in the chart.
Some visualizations only drill down to the list of associated data. Table data is generally restricted by access control lists (ACLs) and viewers may not see all of the associated records.

This control mirrors **Allow chart interaction**. Under Chart Interaction, you can also select the destination of drilling down.

8. Play with the display settings.
The settings in this section enable you to make the table easier to read with frozen rows and columns, lines and shading for rows and columns, and expanding or contracting the table when it's first viewed.
9. Play with the color settings.
From Set color type, choose **Single color** to enable setting background colors and configuring color rules.
10. Configure a color rule for the visualization.
This example deals with closed incidents, but in the case of open incidents, you want to define a dynamic color rule that changes the score's color based on its value.

a. Under Color Rules, select **+ Add rule**.

b. For the first color rule, choose the **Operator** `lower than`, enter the **Value** `6`, and choose the color `Green`, and select **Apply**.

The value is up to the specified number but not including it.

Retain the order 100.

c. To indicate a value that requires more attention, create a second rule with the **Operator** `between`, the values `5` and `25`, the color and icon color `Warning Orange`, and the order `50`.

d. To show values that require the highest attention, create a third rule with the **Operator** `greater than`, the value `25`, the color and icon color `Red`, and the order `25`.

You've created three rules to show whether the value is in line with what you want to see.

Note:
Color rules only apply to the individual values, not to the total columns and rows which retain the specified color and background color.

Create time series visualizations

Show changes in data over time. Use different time series charts to emphasize different aspects of the data, such as trends or individual values.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create

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a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

A time series is an ordered sequence of metrics taken continuously over time. The following business cases are some of the uses of a time series:

- Identifying trends, patterns, and outliers in data.
- Identifying turning points, such as whether a change in policy led to a change in indicator scores.
- Evaluating the relationships between data sources.

When you are selecting a visualization for a time series, consider whether you want to emphasize the trend in the data or specific changes in the data. Also consider whether you want to show one data source or compare several related data sources.

For information about the use of a Time series visualization in a dashboard, see the Developer Site. This site gives information about Time series data visualization components in the UI Builder, and some configuration options may differ from the Visualization Designer.

For an example of creating a time series visualization, see Time series visualization example.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select one of the chart types in the Time Series section.
4. Configure the **Header and border**. Header and border options are the same for all data sources.

Header and border fields	Description
Show header	The visualization header, including title and icons.
Show header separator	Option to display a line separating the header from the rest of the component.
Chart title	Title of the visualization.
Description	A short overview about the visualization that the end user sees.
Wrap title	Option to wrap long titles onto a second line. If false, displays an ellipsis to truncate long titles.
Wrap labels	Select to wrap long elements labels on the axis.
Max label size, px	Specify the maximum label size for element names on the axis. Default=100 px.
Truncation type	Specify where to truncate long labels with an ellipsis. Options are Beginning, Middle, and End.

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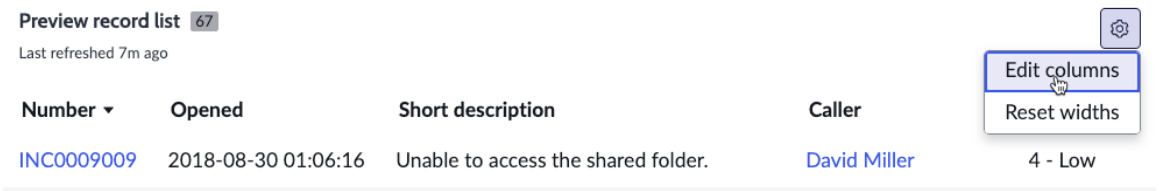
Header and border fields	Description
Show border	Option to display a line around the component.
Bare	Option to remove padding around data visualization to provide more compact positioning on the page. Only available when **Show border** is turned off.

5. Choose a data source.
   For general descriptions of the data sources, see Data sources for data visualizations.

   - Table (available in the base system). When you select a table, you can filter it by custom or preconfigured conditions. Custom conditions can include questions or Service Catalog variables.

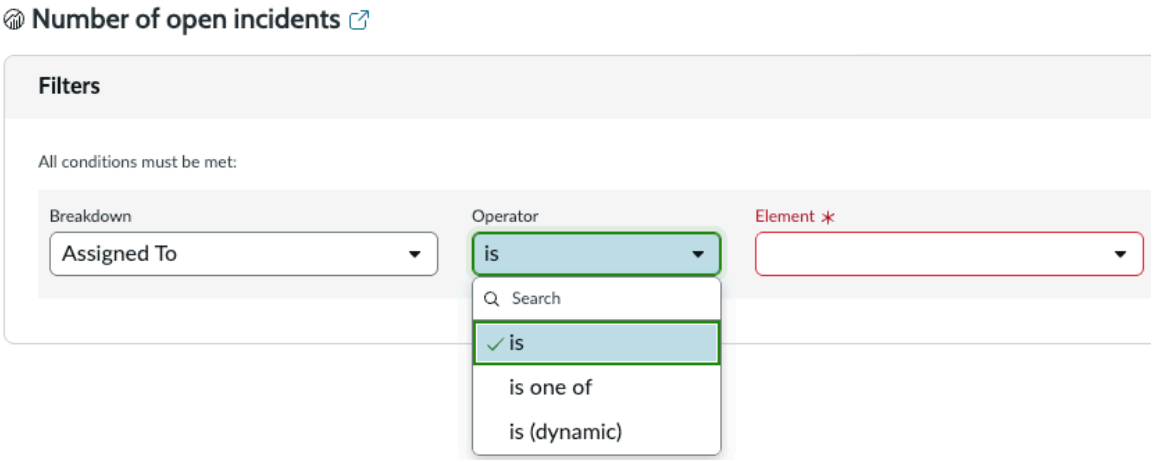
     Configured report sources appear in the **Predefined conditions** list. For more information, see Report sources.

     To help you create a custom filter, there is a preview list of records that would be included in the visualization. You can change which fields are shown as columns and the width of columns in the list actions.

   - Indicator (available in the base system). You can filter the indicator scores by breakdowns and elements.

     Note:
     Benchmark indicators are not supported.

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Note:

You might have a multiple select (is one of) or dynamic (is (dynamic)) operator on the breakdown element filter. These operators require the indicator and breakdown to support them. For more information about the configurations that support these operators, see "Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations.

- MetricBase (available if MetricBase is enabled). When you select a MetricBase data source, you have the option of constructing a custom filter for it using conditions and related list conditions, as with Table data sources.
- User Experience Analytics (available with the User Experience PAR Integration application, to users with a required role). Choose one of up to three KPIs included with this application, depending on the visualization type. For more information, see User Experience Analytics data sources for data visualizations.

Note:
You can select multiple data sources for this visualization, but they must be of the same type: table, indicator, User Experience Analytics, or MetricBase. For more information, see Multiple data sources.

6. Select the options for your data source.
   - If your visualization represents table data, go to Table data options for time series data visualizations.
   - If your visualization represents indicator data, go to Indicator data options for time series visualizations.
   - If your visualization represents User Experience Analytics data, go to User Experience Analytics data options for time series visualizations.
   - If your visualization represents MetricBase data, go to MetricBase data options for time series visualizations.
7. Under **Presentation**, provide display and color information.

Field	Description
Display settings: Each chart type, such as Area and Column, has a different set of display settings. See Display settings for different time series charts.	
Y axis	
Hide axis	Option to hide the primary axis.
Primary axis title	Title to display on the vertical axis of the visualization. This property applies only when **Hide primary axis** is false. If there is more than one Y-axis, you have additional axis titles, representing the properties yAxis1Title, yAxis2Title, etc.

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Field	Description
	Add a Y-axis scale for a metric in the **More options** menu for the metric.
Axis range - from	Starting point for the values on the primary axis.
Axis range - to	End point for the values on the primary axis.
Show grid	Shows a grid of fine lines perpendicular to the primary axis, to help align values against that axis.
Axis style	Style of the primary axis. ○ Clean `clean`: Adds a straight line to the primary axis. ○ No tick lines `noTicks`: Option to remove all marks from the primary axis. ○ Standard `default`: Adds a line and tick marks to the primary axis.
X axis	
X axis title	Title to display on the horizontal axis of the visualization.
Show grid	When turned on, grid lines appear on the chart.
Legend	
Show legend	Option to display the legend. Activated automatically at 400% zoom.
Show legend value	Option to display the value corresponding to the area of the chart you hover on. The value displays as a tooltip and in the chart legend.
Legend position	Legend location relative to the chart: Above, Below, Right, or Left
Horizontal alignment	Horizontal alignment of elements in the legend: Start, Center, or End
Max legend item width, px	Number of pixels after which the item in the legend is truncated.
Expand legend vertically	When turned on, the legend contents take as much space as needed to fit the legend without scrolling, instead of the maximum 2 lines.

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Field	Description
Data label	
Show data labels	Option to display the score for each data point.
Colors	
Set color type	Type of color scheme to apply to the component. Options include: ○ Default: A color or set of colors that come from the UX Theme that is applied to the instance. For more information, see Working with themes in Next Experience. ○ Color palette: List of color palettes to select from predefined system palettes in the Chart Color Scheme [pa_chart_color_schemes] table. For grouped or stacked data, the colors apply in order from highest value to lowest. For multiple data sources, palette colors apply in the order of data sources. For example, the first color of a palette applies to the first data source, and the second palette color applies to the second source. All visualizations that use the same color palette show the same colors, regardless of what data they display. ○ Fixed element color: Use a specific color from the Chart Colors table [sys_report_chart_color] for each element. All data visualizations that use fixed element colors show the same element, such as critical incidents in the Global scope, in the same color. This option is available only for Table data sources and only if no more than one data source or metric is added, and a Group by is defined. **Note:** Single color is only available when no **Group by** is selected.

8. Under **Chart interaction**, set what if anything happens when a viewer clicks a chart or a chart segment on the visualization.

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Field	Description
Allow chart interaction	Enable an event to occur when a user clicks in a chart or one of its segments.
Action	Choose the event that occurs when a user clicks in a chart or one of its segments. Choices depend on the visualization type and data source. Applies only when **Allow chart interaction** is on. For more information, see Chart interactions in a data visualization. ○ **Go to data view** opens the records view in a Core UI list or KPI Details relevant to the associated segment or visualization. Records do not open in Workspace embedded lists. Not supported for User Experience Analytics data sources. ○ **Go to URL** opens the specified URL, which can be on the instance or external. You have the option of specifying a page name to appear in the tooltip, for those visualizations with tooltips. ○ **Drill down to chart** (Visualization Designer only) Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. **Note:** The last level of drill down in the Platform Analytics experience is always a Core UI list. Records do not open in Workspace embedded lists. **Drill down to chart** supports only table data sources.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Time series visualization type use cases

Time series visualizations can emphasize the trend in the data or specific changes in the data. They can show one data source or compare several related data sources.

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Time series visualization types

Visualization	Description and use case
Visualizing trends in the scores of an indicator	
Line 	Shows how one or more values change over time by connecting a series of data points with straight lines. Use a line visualization to emphasize the trend in the data. Consider line visualizations to be the default choice for displaying a time series. If you are unsure of which visualization to use, use a line.
Spline 	Shows how one or more values change over time by connecting a series of data points with a fitted curve that emphasizes the trend over individual data points. Spline charts let you take a limited set of known data points and approximate intervening values.
Scatter 	Shows unconnected points for values in the Y-axis against time in the X-axis. Usually the trend line is also shown. Use with a spread of data that cannot be usefully connected with a line.
Comparing scores in a data source	
Column 	Shows changes in data over time by displaying values as proportional vertical columns. Use either to visualize changes in one data source or to compare data sources. To compare data sources with a column visualization, either add data sources to the visualization, or place several column visualizations next to each other in a dashboard.
Step 	Emphasizes changes in a data source between discreet points in time. Use to show small incremental changes, especially when a line visualization smudges the data.
Comparing scores or trends between data sources	
Area 	Resembles a line visualization, but the area between the axis and line is emphasized with colors. Use with multiple data sources to highlight the relative contribution that each data source makes to the whole.

Table data options for time series data visualizations

The following Data configuration options are available for all time series type visualizations of table data.

Field	Description
Data	

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Field	Description
Data source	You have selected a Table data source in Create time series visualizations.
Metric If there is more than one metric, you can change the time series chart type for that metric by clicking the Change chart type icon. Also, if there is more than one metric, you can use the More options list to select a main metric and to add a Y-axis for each metric. Lastly, you can set dashboard filters to apply only to specific metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Select an aggregation	Computational method for aggregating data. The default is **Count**, which displays the number of records selected. **Note:** If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.
Field	Field to apply the metric to, for **Average**, **Sum**, or **Count Distinct** aggregations. You may further be able to aggregate on fields from extended tables. The data is shown in a format that matches the field type. For example, if you select an integer field, such as the **Priority** field, the data is expressed as a number. If you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If function fields were created in Report Designer for the table, they are available in the dropdown list. For more information, see Report on function fields.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.

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Field	Description
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Field for [table]	The field to group by. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. If the table contains variables or question fields, you have the option to group by one of them at the end of the list of fields.

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Field	Description
	Note: • It is not possible to group or stack data by the **Tags** field, or by certain field types, such as MEDIUMTEXT. • If you want to group by a field with continuous values, such as date or integer, the values are automatically grouped according to any report ranges that are defined for the data. For more information, see Report ranges.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count.

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Field	Description
	• Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group. • Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. The sort by order for all elements in a time series visualization based on table data is based on the entire data set. For example, a column visualization that shows incidents per month grouped by priority, the order of priority for all months is computed across all data points. If there are multiple group bys added and if all group by fields support the selected sorting option, the selected sorting option applies to all. If some group by fields don't support the selected sorting, they default to Name.

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Field	Description
	If a date filter is applied, the data is sorted by the most recent period, even if that period is hidden.
Trend by	
Aggregation period	The period by which to aggregate values to calculate the trend. Options come from the standard calendar and any business calendars that are defined on the instance, such as the Gregorian.
Interval in minutes [trendByMinuteInterval]	Number of minutes in each aggregation period. This property applies only when **Aggregation period** is **Minute**.
Date field for [table]	The date field on the table to aggregate by. You can only select fields of the following data types: • Date • Date/Time • Due Date • Precise Time
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline

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Field	Description
	dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Indicator data options for time series visualizations

The following Data configuration options are available for all time series type visualizations of indicator scores.

Field	Description
Data source	You have selected an Indicator data source in Create time series visualizations.
Metric If there is more than one metric, you can change the time series chart type for that metric by clicking the Change chart type icon. Also, if there is more than one metric, you can use the More options list to select a main metric and to add a Y-axis for each metric. Lastly, you can set dashboard filters to apply only to specific metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Time aggregation	Time aggregation to apply to the metric, such as 7-day running SUM or By-month AVG. Default is the same as the indicator period. For more information, see Applying time series aggregations.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.

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Field	Description
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Breakdown	List of breakdowns to choose from for grouping indicator scores. **Important:** • Scripted breakdowns are not supported in dashboard filters. • Only two levels of breakdown are supported in total, including data visualization and dashboard filters.

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Field	Description
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Sorting	
Sort by	Sorting options of the main and alternative groups set in **Group by**. Options include: • Name: Sorts the values alphabetically by field or element name. • Value: Sorts the values numerically or by count. • Element order: If you are grouping by records on the Choice [sys_choice] table, either directly or through a breakdown, this option sorts the groups according to the value of the Sequence field. • Group bucket: Sorts the elements by bucket group, when applicable. Only available for indicator data sources and when the breakdown used for the **Group by** is based on a bucket group.

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Field	Description
	• Report range: Sorts the table field values by range. Only available for table data sources and when the table field used for the **Group by** has a report range associated with it. **Note:** • The choices of what to sort by are based on the main, default **Group by**, if one is defined. This sorting applies to any alternative group-bys if possible. If the sorting criterion selected for the main group-by cannot apply to an alternative group-by (such as sorting by Element order when the alternative group-by is not on the Choice table), sorting for that group-by defaults to Value. • If no main **Group by** has been set, but alternative group-bys are defined, you can sort only by Name or Value. • Sorting is not available for Pareto bar visualizations. Pareto charts are always sorted by value in descending order.
Sort by order	Ascending or descending. The sort by order for all elements in a time series visualization is based on the most recent element. For example, a column visualization that shows incidents per month grouped by priority, the order of priority for all months reflects that of the most recent month. If some group by fields don't support the selected sorting, they default to sorting by group bucket for date/time fields such as Age. For all other fields, they default to element order. If a date filter is applied, the data is sorted by the most recent completed period.
Date range	
Show maximum range	Option to show the maximum range of available dates.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period.

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Field	Description
	This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Allow change date range	When turned on, the viewer has a date range selector control with a set of predefined options.
Additional settings	
Show target	If it is defined for the indicator, displays the global target value.
Show forecast	Option to display forecast data in the chart based on current trend data. **Note:** If there is not enough historical data to generate a forecast, no forecast or error is displayed.
Configure forecast	Opens a dialog for configuring forecasting on this data visualization. A forecast configuration on the data visualization overrides any configuration set on the data source, such as an indicator. This override applies only to the specific data visualization. This option is available only when Show forecast is turned on. For more information,

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Field	Description
	see Configure a forecast in a time series visualization.
Show forecast range	Option to display the 95% confidence interval of the forecast. Available only when Show forecast is turned on.
Show trend	Option to display the direction that the indicator is moving, or how values have changed over time.
Show confidence band	Option to display the bandwidth between which indicator scores are moving.
Show threshold	Option to display an active threshold set for the selected indicator, such as an all-time high or low. Thresholds appear only if they have been defined for the selected indicator.
Show comment	Option to display comments added to data points.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Show filter as separate series	When toggled on, if there is a filter applying multiple elements, these elements are shown as separate lines in the chart. The filter can be a component added to a dashboard or UIB page, or it can be an "is one of" filter condition on the data visualization itself. This feature supports only one breakdown at a time. Other breakdown filters have no effect on the chart. Filter precedence works as follows: • The first "is one of" filter condition on the data visualization overrides all other filter conditions and all single/multiple select filter components. • If there are no "is one of" filter conditions, the first multiple select filter that has a

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Field	Description
	selection made overrides all other single/ multiple select filters and all filter conditions. • A different multiple select filter can take effect if the first one is cleared. Default: off. A single aggregate line is shown for all elements. Requires the latest Data Visualization application from the ServiceNow Store. **Note:** Available only when no **Group by** is defined.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

User Experience Analytics data options for time series visualizations

The following Data configuration options are available for all time series type visualizations of User Experience Analytics data.

Field	Description
Data source	You have selected a User Experience Analytics data source in Create time series visualizations.

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Field	Description
Metric If there is more than one metric, you can change the time series chart type for that metric by clicking the Change chart type icon. Also, if there is more than one metric, you can use the More options list to select a main metric and to add a Y-axis for each metric. Lastly, you can set dashboard filters to apply only to specific metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Use custom formatting	Option to use custom formatting on the component.
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.

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Field	Description
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
Group by	
Event property [eventPropertyValue]	List of properties to choose from for User Experience Analytics Event sources that have properties. **Note:** Only applies to Events metrics.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Trend by	
Aggregation period [trendByFrequency]	The period by which to aggregate values to calculate the trend. Options come from the standard calendar and any business calendars that are defined on the instance, such as the Gregorian.

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Field	Description
Date range	
Show maximum range	Option to show the maximum range of available dates.
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Period start	Start date for the absolute period. This property applies only when **Set absolute period** is true.
Period end	End date for the absolute period. This property applies only when **Set absolute period** is true. Select **Use current date for period end** to automatically update the end date to the current date. (Not available if the start date is in the future.)
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Allow change date range	When turned on, the viewer has a date range selector control with a set of predefined options.
Show range picker by default	When turned on, the date range selector is shown to the viewer without the viewer needing to open it. When off, the viewer has to open the date range selector in the More options menu. Default: off (false)
Additional settings	

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Field	Description
Show forecast	Option to display forecast data in the chart based on current trend data. Requires licensed Performance Analytics. **Note:** If there is not enough historical data to generate a forecast, no forecast or error is displayed.
Configure forecast	Opens a dialog for configuring forecasting on this data visualization. A forecast configuration on the data visualization overrides any configuration set on the data source, such as an indicator. This override applies only to the specific data visualization. This option is available only when Show forecast is turned on. For more information, see Configure a forecast in a time series visualization.
Show forecast range	Option to display the 95% confidence interval of the forecast. Available only when Show forecast is turned on.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the

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Field	Description
	entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

MetricBase data options for time series visualizations

The following data options are available for all time series type visualizations of MetricBase data.

Field	Description
Data source	You have selected a MetricBase data source in Create time series visualizations.
Metric If there is more than one metric, you can change the time series chart type for that metric by clicking the Change chart type icon. Also, if there is more than one metric, you can use the More options list to select a main metric and to add a Y-axis for each metric. Lastly, you can set dashboard filters to apply only to specific metrics. For more information, see Options for time series data visualizations with multiple metrics.	
Label	Label of the metric. By default it is the same as the name of the data source.
Metric	Metrics determined in your MetricBase database.
Transform	Option to apply a transform to the data. For example, you can select **Envelope** to show the minimum and maximum (envelope) value within the dataset. For more information, see MetricBase transforms.
Dynamic period based on time range	When enabled, the aggregation period is set according to the time range. Time range < 4 hours: minute aggregation. Time range 4 hours - 3 days: hourly aggregation. Time range > 3 days: daily aggregation. Applies only when the Transform is Resample.

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Field	Description
Label	Label to apply to the transform. This property only applies when when **Transform** is Label.
Model	Prediction model to use to transform the data. If a model does not already exist, you can create one. To learn more, see Detect anomalies in MetricBase data using predictive models. This property applies only when **Transform** is Predict.
Count	Specified number of values to show in the metric dataset. This property applies only when **Transform** is Top or Bottom.
Summand	Specified value to add to the data points in the dataset. This property applies only when **Transform** is Add.
Subtrahend	Specified value to subtract from the data points in the dataset. This property applies only when **Transform** is Subtract.
Factor	Value to multiply the data points in the dataset by. This property applies only when **Transform** is Multiply.
Divisor	Value to divide the data points in the dataset by. This property applies only when **Transform** is Divide.
Duration	Specified duration of new data points used to calculate an outcome. This property applies only when **Transform** is Interpolate.
Fractions	Percentiles of the underlying data to create a new dataset. This property applies only when **Transform** is Fractiles.

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Field	Description
Function	Aggregation function used to calculate a new dataset. This property applies only when **Transform** is Resample, Filter, or Partition.
Period	New time period to apply to the dataset. This property applies only when **Transform** is Resample.
Window	Sliding time window of the given duration to create the new dataset. This property applies only when **Transform** is Filter or Partition.
Base	A timestamp to align the partition window. This property applies only when **Transform** is Partition.
Format values	Select to open the **Formatting values** dialog. For more information, see Value formatting in reports.
Formatting values	
Formatting	Select default, number, or duration format
--Number format	
Decimal precision	Number of decimals to show in the metric. This field is available only when the **Use custom formatting** option is activated.
Rounding	Type of rounding to use to reach the number of decimals in the **Decimal precision** field. Options include: • Up `UP` • Down `DOWN` • Ceiling `CEILING` • Floor `FLOOR` • Half up `HALF_UP` • Half down `HALF_DOWN` • Half even `HALF_EVEN` **Note:** Only available when **Use custom formatting** is true.

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Field	Description
Use the thousands group separator	Option to use a comma to separate groups of thousands. **Note:** Only available when **Use custom formatting** is true.
Enable abbreviation	Option to use an alphabetical abbreviation. For example, M to represent million. **Note:** Only available when **Use custom formatting** is true.
Example	Example of the final value to show in the component. **Note:** Only available when **Use custom formatting** is true
--Duration format	
Unit format	Option to abbreviate the time unit or use full words
Maximum duration unit	Largest time unit in display
Minimum duration unit	Smallest time unit in display
Hide seconds when duration is greater than one minute	When Seconds are the minimum duration unit, toggling this on hides the second after the duration exceeds one minute.
Show original value in tooltip	Pointing to a displayed metric value shows the default formatted value in a tooltip.
Example	An example metric value as formatted
Group by	
Group by	The field on the MetricBase data source to group by. For example, for a visualization of the Monitorable Item data source, you can group by Created by, Name, Primary, Tags, Type, or Updated by.
Add alternative group by	This selection opens a dialog in which you select additional items that the data in the

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Field	Description
	visualization may be grouped by. The viewer of the visualization can then select which of these items to group the data by. The viewer toggles the visibility of the selector in the visualization's More actions menu. In the additional items dialog, you can set whether this selector is visible by default by toggling **Selector visible by default**. If you select a value in **Group by**, that is the default group-by value. You do not have to select a **Group by** value to specify alternative group-by values. In this case, no default group-by value is used. For more information about setting alternative group-bys for multiple metrics, see Options for time series data visualizations with multiple metrics. For more information about the viewer experience selecting from alternative group-by values, see Select a group-by value in a data visualization as a viewer. **Important:** • Only up to three metrics on one visualization support alternative group-by. • Alternative group-by does not support data binding on the data source
Date range	
Set absolute period	Option to set absolute start and end date. Available when **Apply date range** is selected.
Number of periods	Number of date periods to display. This property applies only when **Set absolute period** is true.
Period	Time interval for each date period. • Days `D` • Months `M` • Years `Y` This property applies only when **Set absolute period** is false.
Date format	Defines the date format for the X axis.

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Field	Description
	• Default `default` • Date `date` • Month `month`
Allow change date range	When turned on, the viewer has a date range selector control with a set of predefined options.
Show range picker by default	When turned on, the date range selector is shown to the viewer without the viewer needing to open it. When off, the viewer has to open the date range selector in the More options menu. Default: off (false)
Additional settings	
Show forecast	Option to display forecast data in the chart based on current trend data. Requires licensed Performance Analytics. **Note:** If there is not enough historical data to generate a forecast, no forecast or error is displayed.
Configure forecast	Opens a dialog for configuring forecasting on this data visualization. A forecast configuration on the data visualization overrides any configuration set on the data source, such as an indicator. This override applies only to the specific data visualization. This option is available only when Show forecast is turned on. For more information, see Configure a forecast in a time series visualization.
Show forecast range	Option to display the 95% confidence interval of the forecast. Available only when Show forecast is turned on.
Data update	
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Follow filter per metric	If the visualization shows multiple metrics, toggle filter following on and off for each

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Field	Description
	metric. Default: All metrics follow filters if Follow filters is on. For more information, see Following filters per metric.
Show filter icon	Option to show the filter icon and the number of filters impacting the visualization. If a filter is not selected to apply to a visualization, the icon does not show. Toggle off to hide the filter icon and number of filters applied.
Refresh after being away for X min.	Triggered when you navigate away from the dashboard that contains the data visualization to another page in the same workspace, includingPlatform Analytics experience. Sets how many minutes you will be on another page before the visualization automatically refreshes when you navigate back. Do not confuse this property with the **Scheduled repetition** setting on inline dashboards. This latter property refreshes the entire dashboard, and applies only while that dashboard is open.
No data message	
Set custom message when no data	Option to configure a custom message that displays when no data is returned.
Illustration	An illustration to include in the message.
Heading	Header text of the message that describes why no data was returned.
Content	Secondary text of the message that provides additional detail.
Alignment	The alignment of the illustration and text in the message.

Display settings for different time series charts

Each time series visualization type has a different set of display settings.

Area chart display settings

Field	Description
Line stroke width	Sets the line stroke width for the items on the chart in pixels.
Disable tooltip	Option to remove tooltips on hover. Default: false
Show only one data point in tooltip	When turned on, the tooltip shows only the data point being hovered over. When turned off, the tooltip shows all data points.

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Field	Description
	Default: Off, except when zoom is 400%, which automatically turns it on.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Show markers	Display a symbol at each data point on the chart to simplify identifying specific values. Available for line, spline, area, and step charts.
Show 0 when no data available	Choose whether to show 0 when there is no value in the selected dataset or for the configuration.
Show continuous line	Available when **Show 0 when no data available** is not selected. When selected and there is no data for a specific time, there is no gap in the chart and it shows continuous line.

Scatter chart display settings

Field	Description
Disable tooltip	Option to remove tooltips on hover. Default: false
Show only one data point in tooltip	When turned on, the tooltip shows only the data point being hovered over. When turned off, the tooltip shows all data points. Default: Off, except when zoom is 400%, which automatically turns it on.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Show 0 when no data available	Choose whether to show 0 when there is no value in the selected dataset or for the configuration.

Column chart display settings

Field	Description
Chart variation	Select whether to display the group-by values in stacked columns or side-by-side.
Disable tooltip	Option to remove tooltips on hover.

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Field	Description
	Default: false
Show only one data point in tooltip	When turned on, the tooltip shows only the data point being hovered over. When turned off, the tooltip shows all data points. Default: Off, except when zoom is 400%, which automatically turns it on.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.

Spline, line, and step chart display settings

Field	Description
Line stroke width	Sets the line stroke width for the items on the chart in pixels.
Disable tooltip	Option to remove tooltips on hover. Default: false
Show only one data point in tooltip	When turned on, the tooltip shows only the data point being hovered over. When turned off, the tooltip shows all data points. Default: Off, except when zoom is 400%, which automatically turns it on.
Show data table	Shows a table with chart and graph data for easier screen reader access. Data includes the percentage of the total for each value, when appropriate.
Show markers	Display a symbol at each data point on the chart to simplify identifying specific values. Available for line, spline, area, and step charts.
Show continuous line	When selected and there is no data for a specific time, there is no gap in the chart and it shows continuous line.

Configure a forecast in a time series visualization

If a time series visualization is configured to show forecasts, you can configure the forecasts for that visualization.

Before you begin

This procedure assumes you have created a time series visualization for a non-table data source and you want to configure forecasting for that visualization.

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Note:
Support is not provided for the Hour of day or Day of week aggregations on table data.

Role required: Any role that can create a time series visualization. For non-indicator data sources, a subscription to Performance Analytics is also required.

About this task

When you configure forecasting on a data visualization, you override any forecast configuration set on the data source, such as an indicator. The override applies only to the specific data visualization.

Procedure

1. Open the configuration panel of the time series visualization.
2. In **Additional settings**, activate **Show forecast**.
   Table data sources do not support forecasting.
3. Select **Configure forecast**.
   The **Configure forecast** pane opens.
4. Complete the following fields:

Field	Description
Forecast method	The statistical method the system uses to forecast values for this indicator. The default value is Auto, meaning that the system chooses a method that best fits the data. For more information, see Forecast methods and Automatic selection of forecast methods.
Period length	The number of data points needed to establish a pattern in the time series. If you select **Use default**, the period length depends on the frequency of the data source. For example, the period length for a time series with a daily frequency is 7 data points by default. For more information, see Default forecast period lengths.
Number of periods to look ahead	Number of data periods in the future to forecast scores for.
Forecast range lower limit	The lowest meaningful value of a forecast score. If a score lower than this value is forecast, this value is displayed instead.
Forecast range upper limit	The highest meaningful value of a forecast score. If a score higher than this value is forecast, this value is displayed instead.

5. Select which data to base the forecast on.

Option	Description
Visualization date range	All data within the date range of the visualiza tion

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Option	Description
Previous periods	The number of data periods before the present to base forecasts on. These data pe riods are the same length as the ones in **Peri od length**. If you select Previous periods, also specify the number of periods in the **Number of peri ods to consider** field.
Specific starting date	All scores collected after a start date. If you select Specific starting date, also specify the **Start date**.

Warning:
If there are insufficient data points to generate a forecast, nothing is shown, neither the forecast nor a message.

Related topics

Performance Analytics scores forecasts

Forecast methods

Forecasting uses standard statistical methods. You can select a method or let the system choose one automatically.

Method	Description
Linear	Generates a linear regression forecast based on the historical scores, using constant and trend as explanatory variables.
Seasonal	Generates a linear regression forecast based on the historical scores, using seasonal dummies as explanatory variables. A 'season' for this analysis is one period.
Seasonal Trend	As Seasonal, but includes a trend as an explanatory variable.
Seasonal Trend Loess (STL)	Generates a seasonal forecast based on a best-fit function. This method fits a trend, a season, and a random noise process to the data using an exponentially weighted moving average approach. The forecast is based on the full data set, with more weight given to more recent observations A 'season' for this analysis is one period.
Random Forest (RF)	Creates a combination of decision trees where the predictions produced by these trees are averaged to get a single prediction. The randomness comes from each tree being built from a random subset of the available data and inputs. For more information about the random forest method, see this Medium article.
Autoregressive (AR)	The autoregressive (AR) model forecasts future values of an indicator by using a linear combination of a trend, seasonal dummies, and past values. Like the Random Forest (RF) model, the AR model checks for the best number of lags. However, the AR model relates current to past values linearly, whereas the RF model is non-linear.

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Automatic selection of forecast methods

If you are a statistics expert, you can select a forecast method manually. By default, the instance chooses the best method for you automatically, based on the fit of the method.

To determine the best fitting forecast method, the instance generates forecasts using each forecast method with your historical data. The instance then compares those forecasts with the latest data based on how far ahead you want to forecast. The instance performs this evaluation each time it displays the forecast. Therefore, collecting additional scores or changing the forecast period can alter which forecast method is used.

Consider a time series visualization of a Performance Analytics indicator with a daily frequency. You configure forecasting on the visualization to use a period length of 7 days and to base forecasts on the previous two periods. The instance applies each forecasting method to your historical data that is older than two weeks. Then the instance compares those forecasts against the latest two weeks of data. The forecast that most closely fits the latest two weeks of data is then recalculated using the entire data set. The visualization shows the results of this final calculation.

Default forecast period lengths

Forecast periods have a default length that depends on the frequency of the data sources. Not all data sources have the same frequencies.

Default period lengths common to all data sources

Score frequency	Number of data points per period	Total period length
Daily	7	1 Week
Weekly	13	1 Quarter
Bi-weekly	6	1 Quarter
Four Weekly	13	1 Year
Monthly	12	1 Year
Bi-monthly	6	1 Year
Quarterly	4	1 Year
Fiscal Quarterly	4	1 Year
Half Yearly	2	1 Year
Yearly	4	4 Years
Fiscal Yearly	4	4 Years

Default period lengths unique to MetricBase

Score frequency	Number of data points per period	Total period length
Minutely	100	Dynamic, controlled by data source depending on query

Options for time series data visualizations with multiple metrics

If you are showing multiple metrics in a time series data visualization, you can set the group by, visualization type, and Y-axis scale for each metric. You can also have filters on a dashboard apply only to specific metrics.

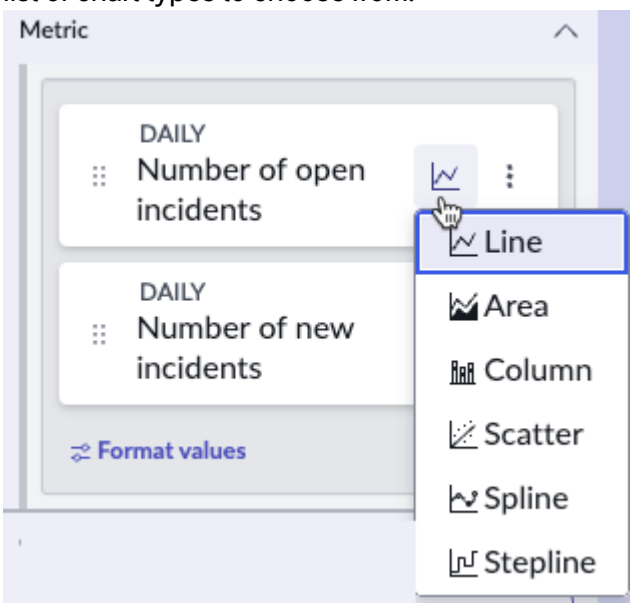
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Note:
Additional data sources must use the same unit as the first metric. Otherwise, only the first metric is used in the visualization.

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Separate chart for each metric

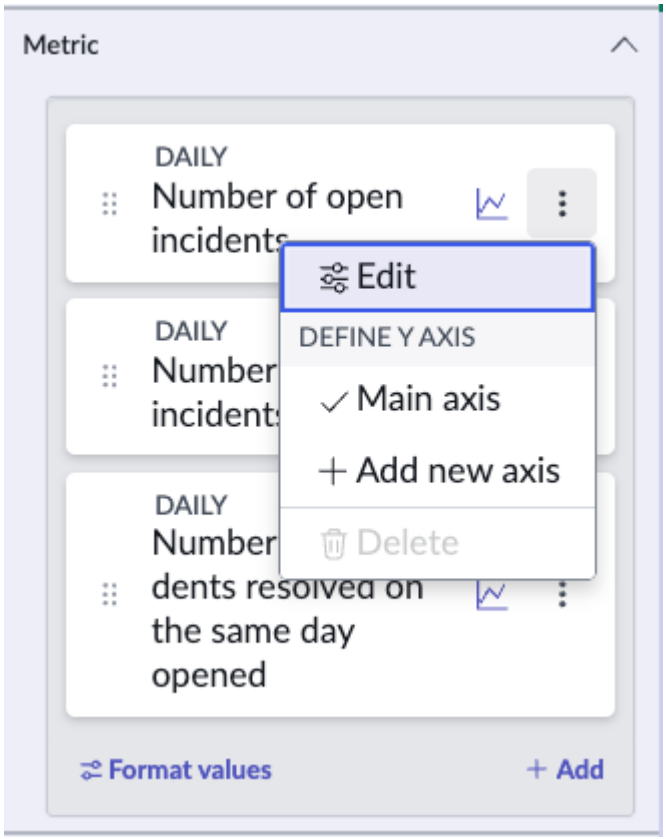
When you have a data visualization with more than one data source, you have a separate metric for each data source. In time series data visualizations, you can select a separate chart type for each metric, to make the chart easier to read. In each Metric tile, selecting the chart icon opens a list of chart types to choose from.



Multiple Y-axes

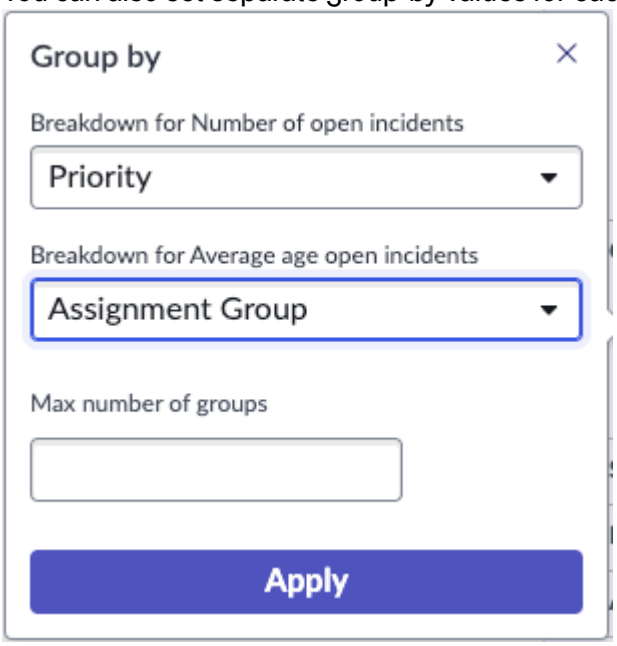
In some time series, the difference between the range of values of metrics makes it difficult to read the metrics when they share the same Y-axis scale. In this case, you can have separate Y-axis scales for the metric. Add a Y-axis for a metric by selecting the More options icon in the metric tile. Be sparing with this function, however, because having too many Y-axis scales also makes the chart difficult to read. Also, be sure to give a short but clear label for each Y-axis if you have more than one.

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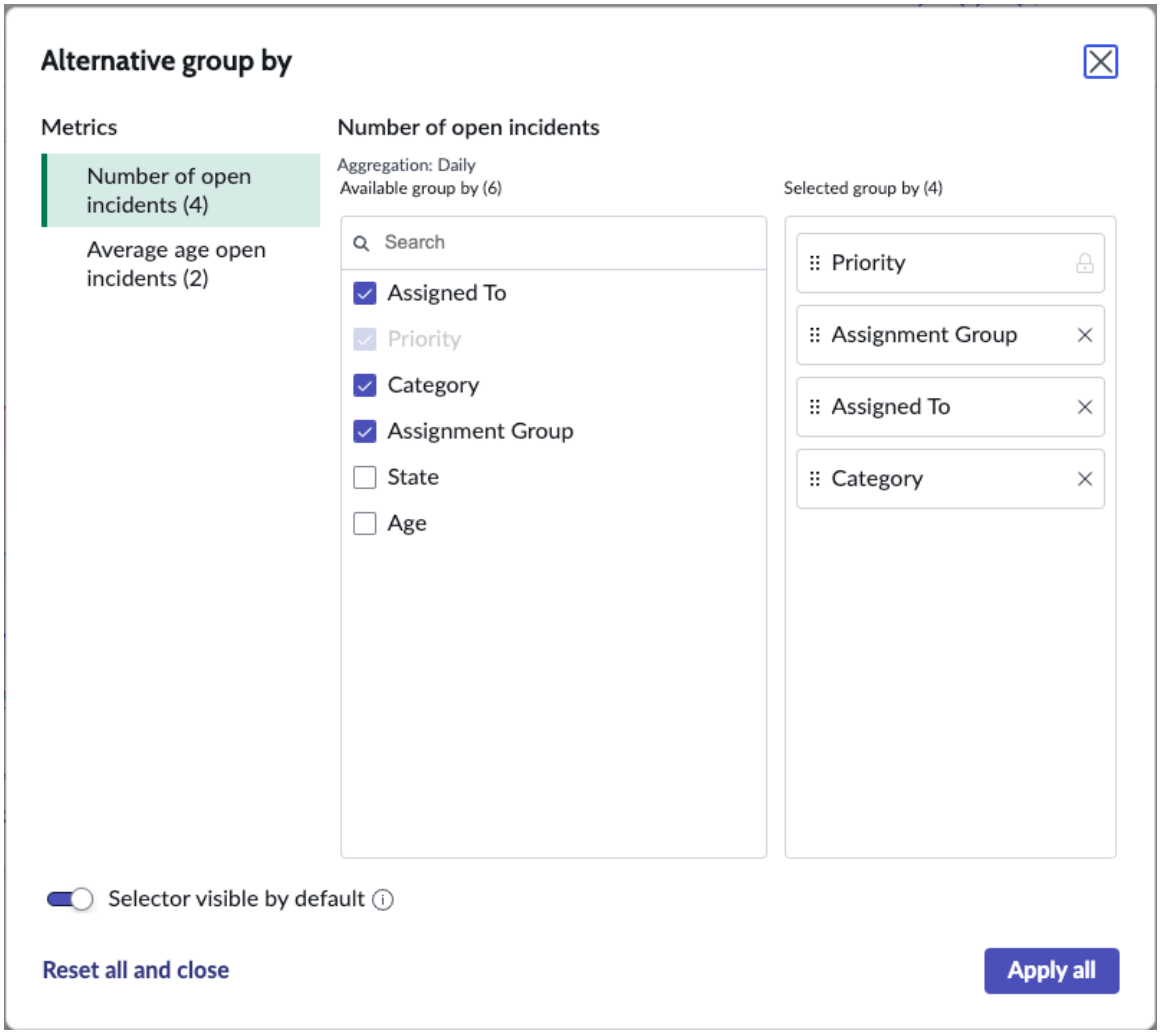
Group by per metric

You can also set separate group-by values for each metric.



If you have no more than three metrics, you can also set alternative group-bys. You can select any field or breakdown that can apply to any of your metrics. The dialog where you select the alternative group-bys says how many of your selections apply to each metric. In runtime, the viewer can select a group-by for each metric, but only from the choices that can apply to that metric.

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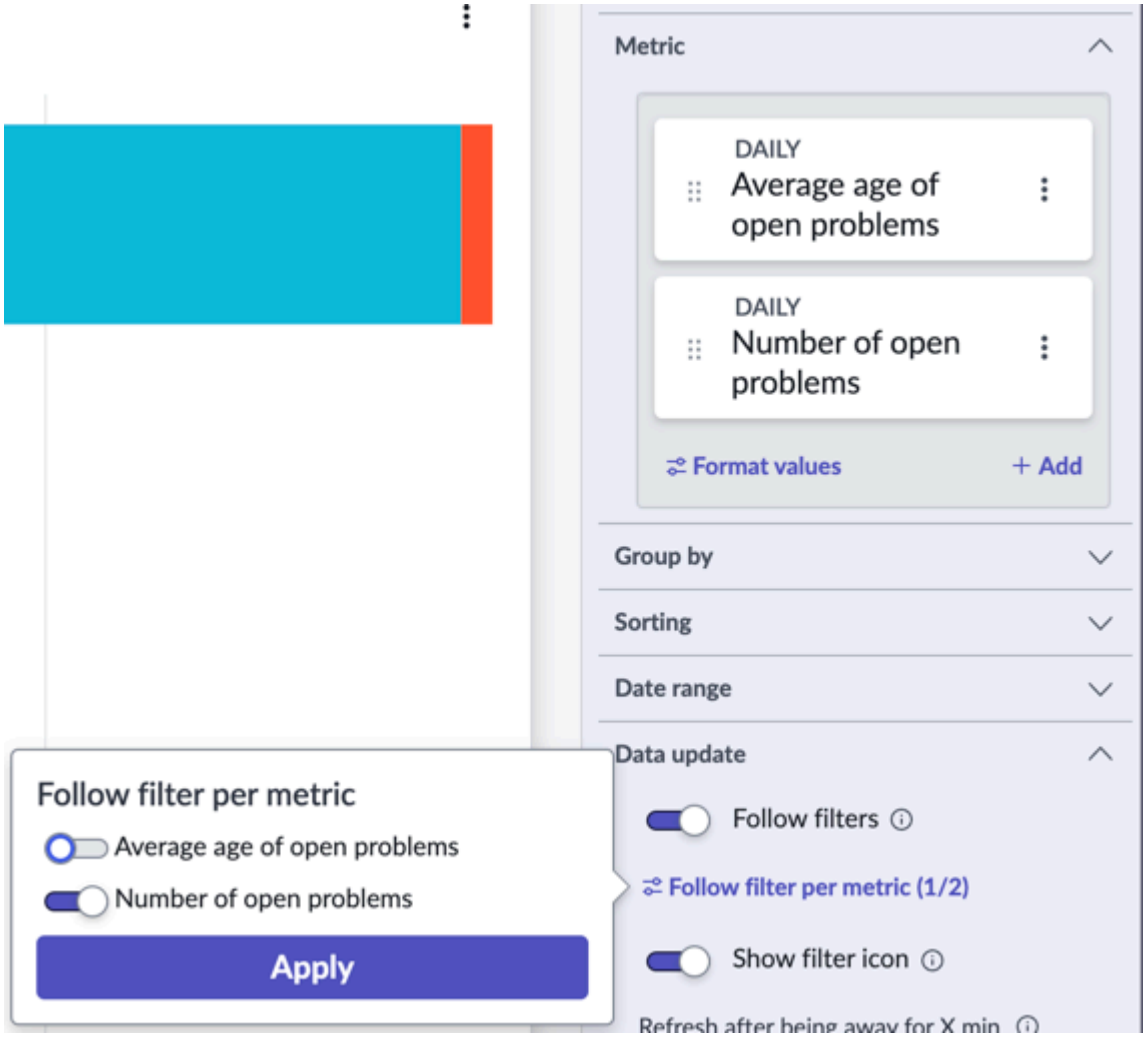


Follow filters per metric

If **Follow filters** is activated on a time series or bar visualization that shows multiple metrics, the configuration panel shows an expandable item called **Follow filters per metric**. Expand this item to toggle filter following on or off for each metric.

For example, consider a bar visualization that shows the Number of open problems and the Average age of open problems. You can configure this visualization so that the Number of open problems follows any applicable filters on a dashboard, but the Average age of problems does not.

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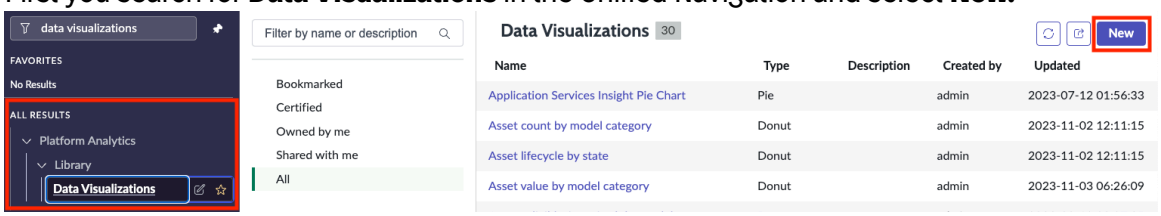


Time series visualization example

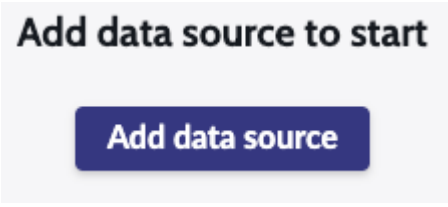
Time series visualizations show the changes in data over time. This example starts with a single indicator data source and adds more complexity.

In this example you start wanting to show the change in the number of open incidents over time. Then you want to show the trend, and then the number of open incidents broken down by priority. Finally you want to compare the number of open incidents against the number of new incidents.

1. First you search for **Data Visualizations** in the Unified Navigation and select **New.**

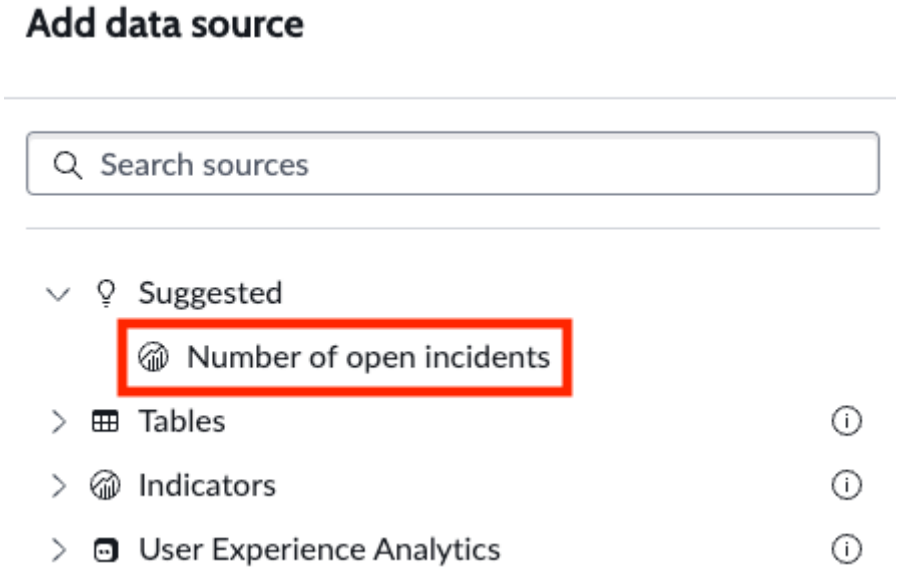


2. In the empty new data visualization, you select **Add data source**.

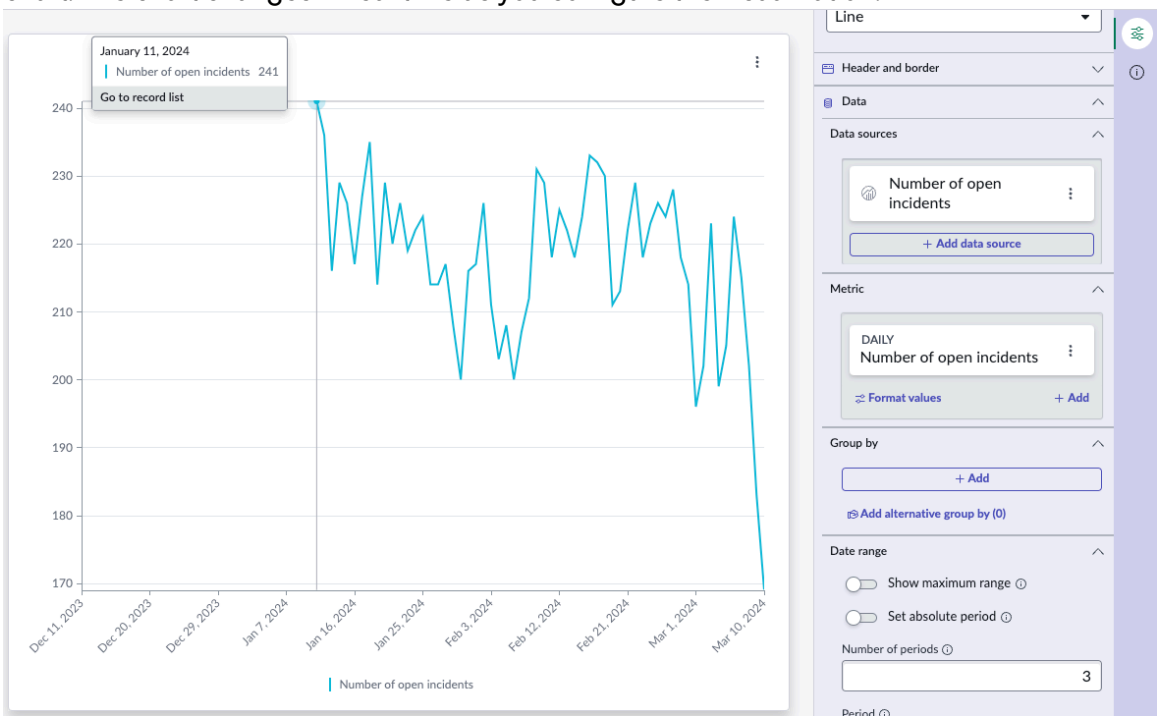


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3. You want to use the indicator Number of open incidents. Fortunately, this indicator has been used before and is listed under the Suggested data sources, saving you the trouble of searching for it. You can tell that Number of open incidents is an indicator data source because of the little column-and-trend icon next to it.

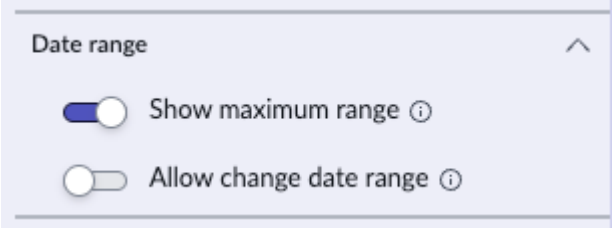


4. You return to the visualization and see that the Line type has been selected by default. Line is the most common type of time series, and a time series is the usual visualization for an indicator. You also have an open Configuration panel for this data visualization, next to the line chart. The chart changes in real time as you configure the visualization.

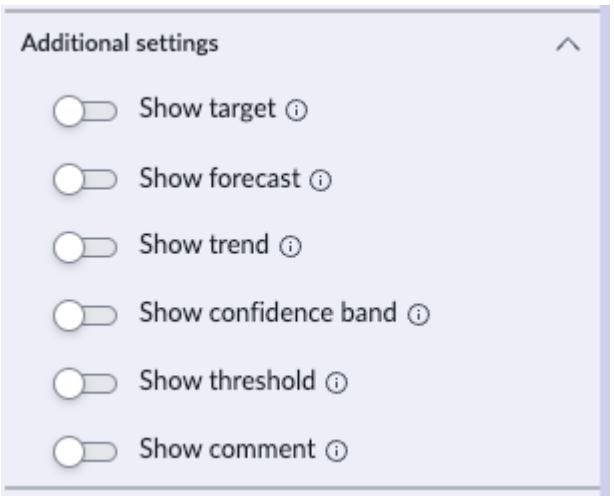


5. The data presentation doesn't look so great, because you only created the indicator on January 11. Fortunately, the Configuration panel has a Date range section where you can trim the dates that are shown. In this case, you select **Show maximum range**, and it shows all the dates for which there are data, but only those dates.

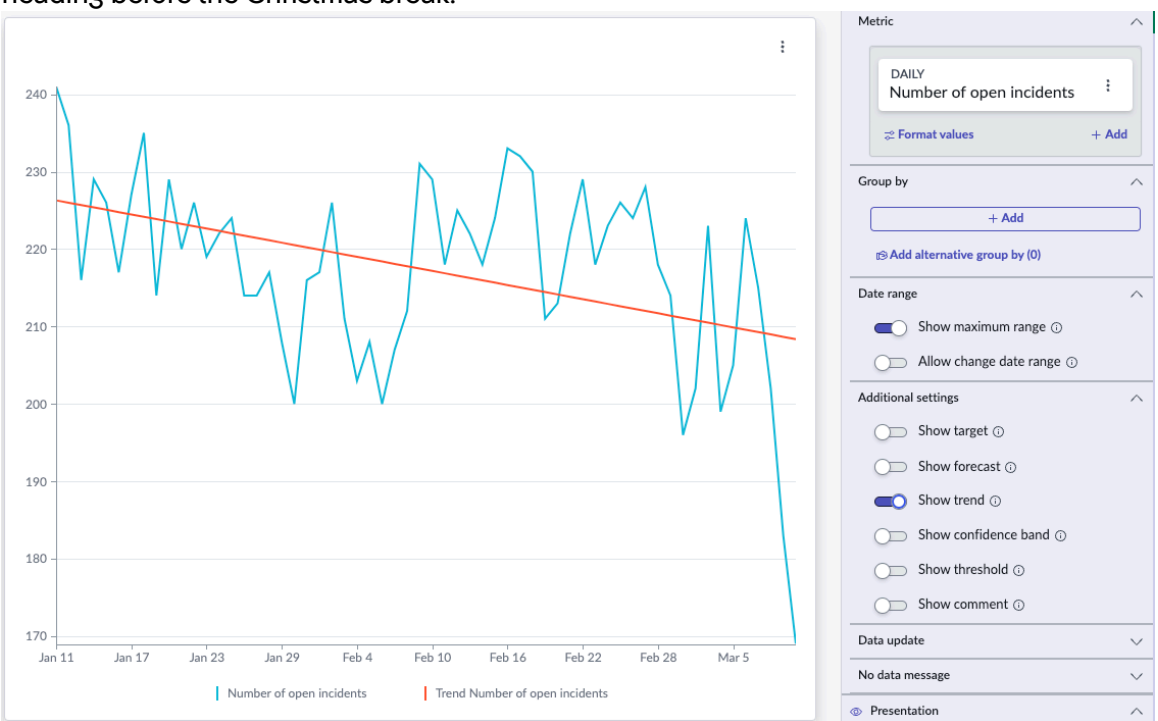
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6. You would also like to see what more information you can give about this data, so you expand the **Additional settings** section. For indicators, these settings are the same as the KPI Details chart options. For more information, seeChart options in KPI Details under the KPI Details documentation. If you have the necessary roles, you can set targets and thresholds for an indicator in KPI Details.



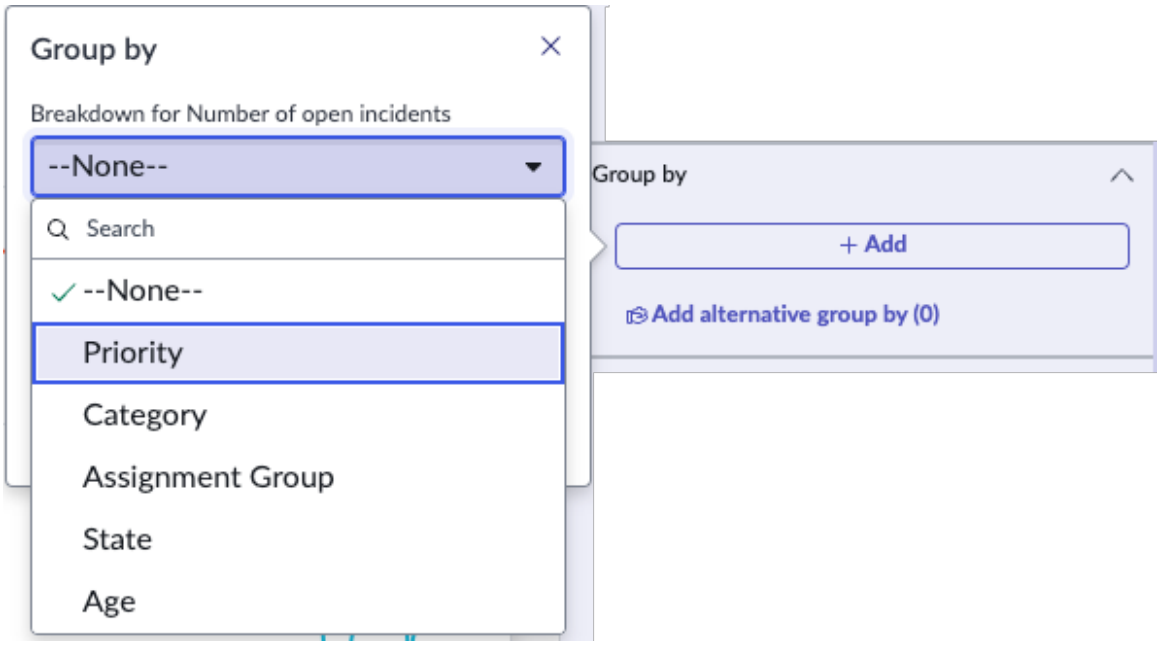
7. You decide to show the data trend, to give the viewer an idea of where the indicators were heading before the Christmas break.



8. Now you have a new task, which is to duplicate this data visualization but split up the number of incidents into groups according to their priority. You group data on a time series visualization

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in the **Group by** section of the Configuration panel. So you expand that section and discover that there is already a Priority breakdown for the Number of open incidents indicator. You select that breakdown.

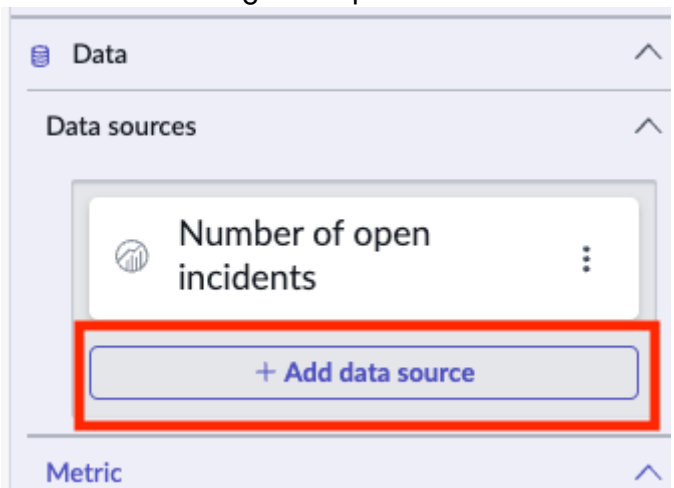


9. You get a separate line for every **Group by** value. Here you see that you can no longer show the trend. If you expand the **Additional settings** section in the Configuration panel again, you see that no extra information besides the forecast can be shown now that you have set a **Group by** value.

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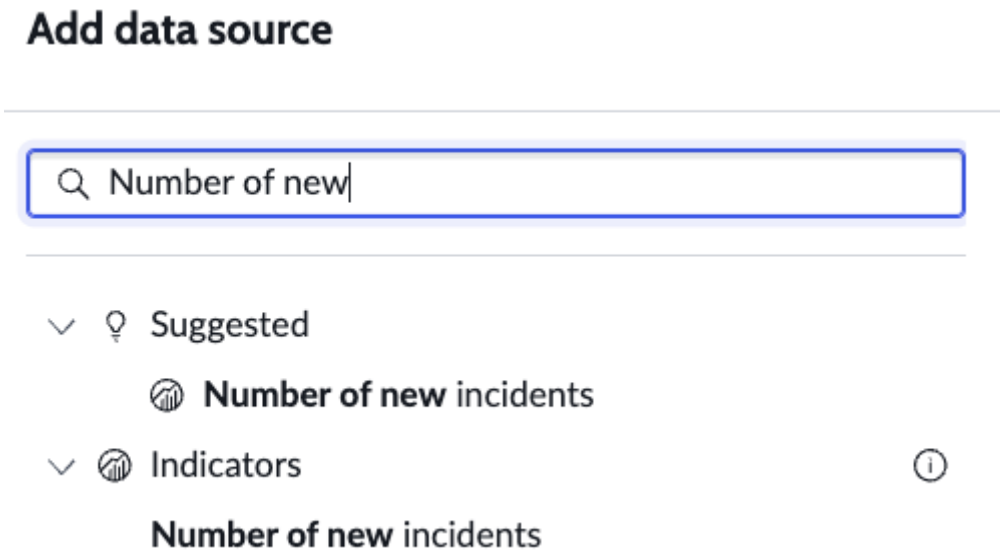


10. Now you have an additional requirement, which is to display the Number of new incidents indicator in the same visualization, for comparison. To show this indicator, you expand the **Data** section in the Configuration panel and select **+ Add data source** under Data sources.

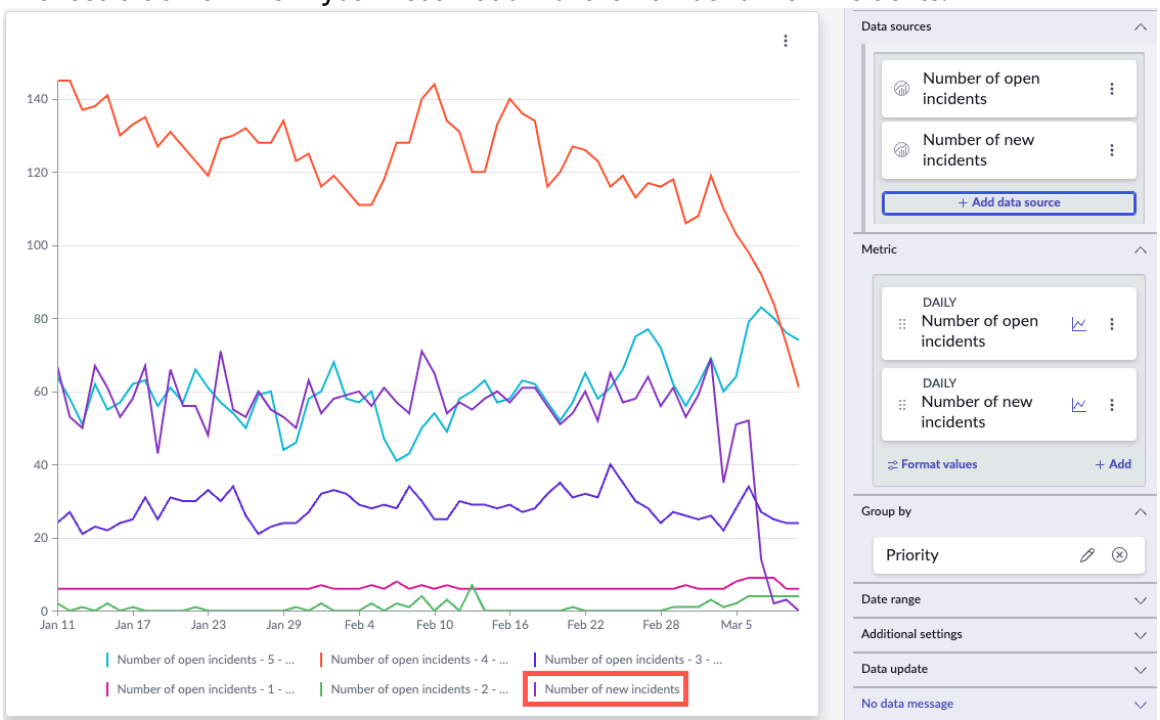


11. Then you search for the Number of new incidents indicator and add it.

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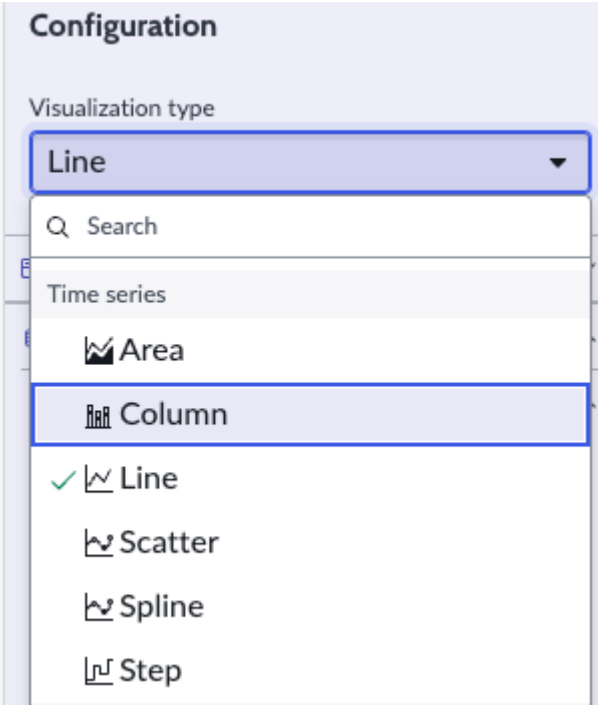


The result is a new line in your visualization for the Number of new incidents.

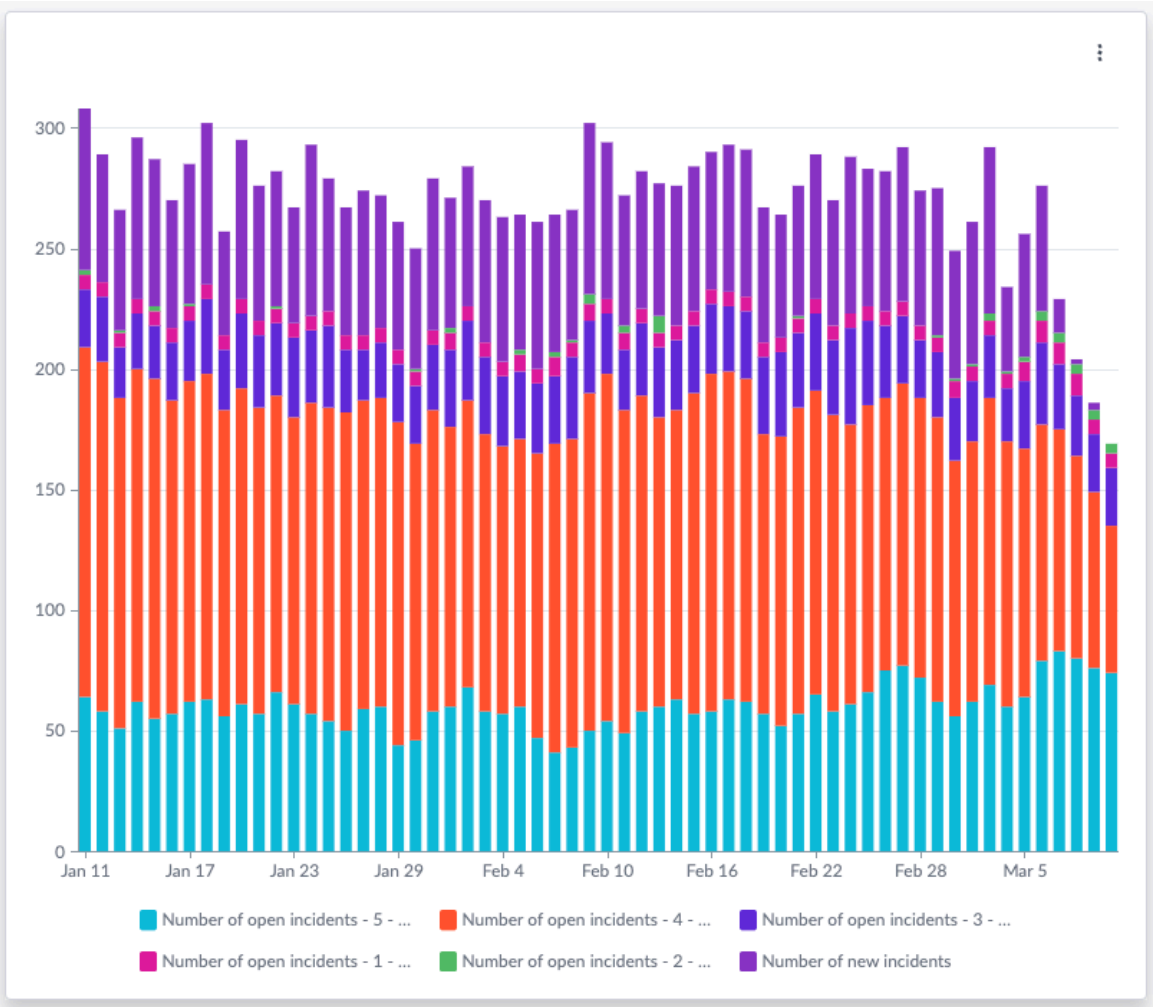


12. You find this difficult to read and aren't sure that this is the best visualization to use. After reading Time series visualization type use cases, you decide to change the visualization to a column display.

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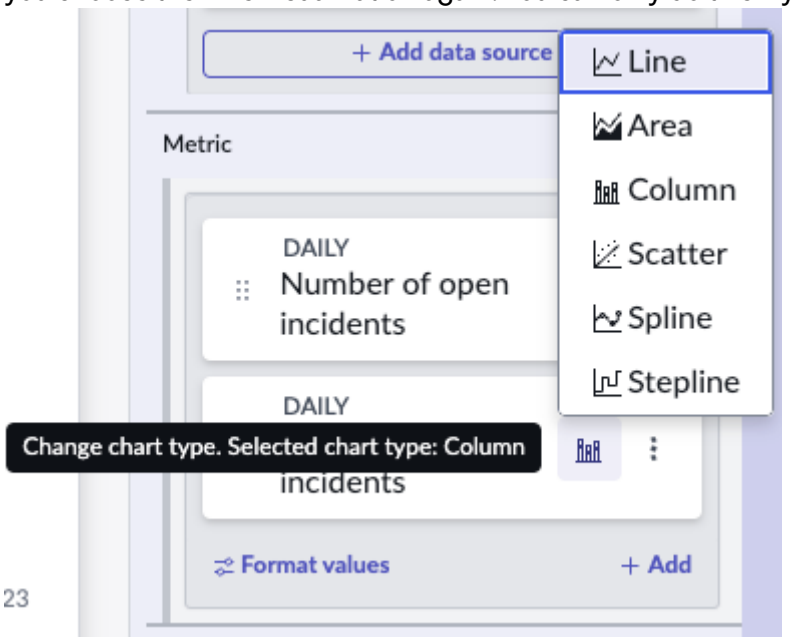


13. This is certainly an improvement, but you think you could do better still.

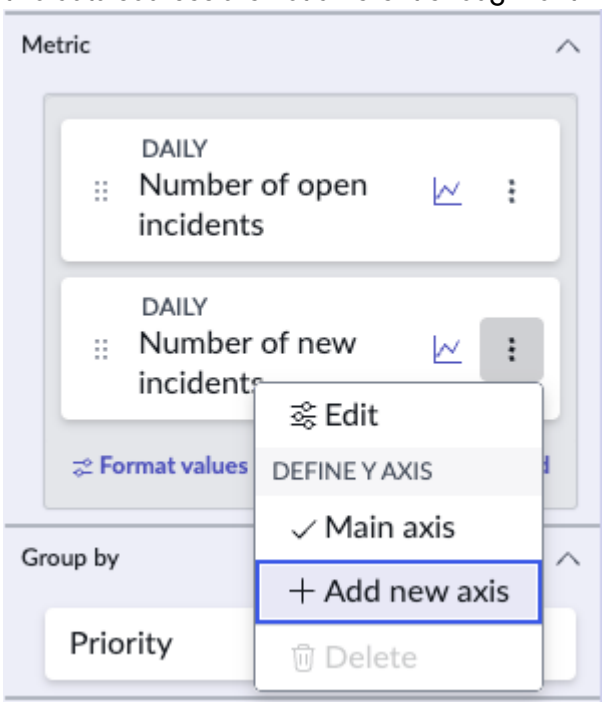


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14. Fortunately, you can set different visualization types for different metrics. You go to the Metrics tiles and expand the menu under the visualization type icon for Number of new incidents. Here you choose the Line visualization again. You can only do this if you have more than one metric.

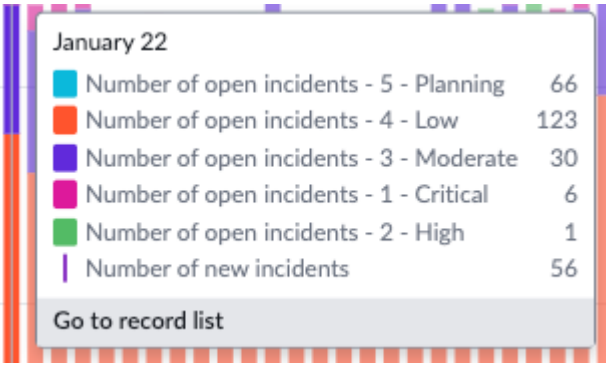


15. You also have the option to set different Y-axes for Number of open incidents and Number of new incidents, through the More options menu on each Metric tile. However, the scales for the two data sources are not different enough for this to help.



16. The visualization is still a little busy, but a viewer can point their cursor to a column and see the breakdown of scores for that date.

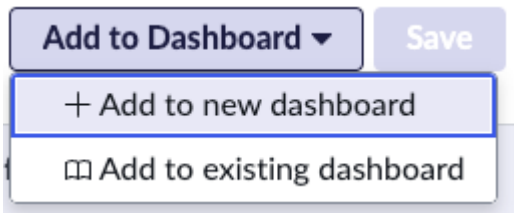
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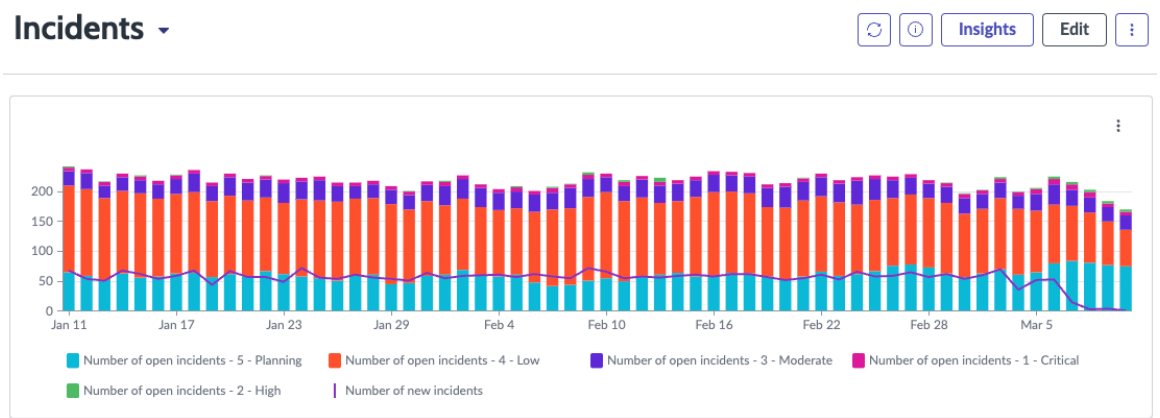


17. The last thing you do is to make the legends more readable. Right now the entries are truncated before a viewer could see what each priority actually is. So you try expanding the legend item width to 300px.



18. That's it! You save the visualization, which is ready for you to add to dashboards. If you have the right roles, you can save the visualization in the Data Visualizations library for other dashboard designers to use.





Create a calendar report visualization in the Visualization Designer

Create calendar report visualizations to show and highlight date-driven events.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create

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a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

For information about the use of the Calendar report visualizations on dashboards, see the Developer Site. This site gives information about Calendar report components in the UI Builder, and some configuration options may differ from the Visualization Designer.

About this task

The calendar visualization is used to show activity over the course of a longer span of time than most data visualizations. Use them when you want to condense date-specific information into a small space.

Note:
Calendar visualizations that are migrated from Core UI require a start time in the **Start date** field and an end time in the **End date** field. These fields are not required in Core UI, but are required in Platform Analytics experience.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Calendar Report ( ) visualization type.
4. In the configuration panel, configure the **Component header**.

Field	Description
Component title	A title for the calendar report visualization that reflects the information being shared.
Use large font size	Defines the styles used to render the calendar title. When true, the non-bold Title-tertiary font is used. Otherwise, the bold Header-secondary font is used. Default: false
Component description	Description you enter for the component. This field has a limit of 250 characters.
Show description	Adds an information icon ( ) to the visualization. This icon opens the component description in a popup.

5. In the **Data** section, specify the source table, predefined condition, date range, and filter options.

Data fields	Description
Table	Select the table or database view to report calendar events from. Default value: task

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Data fields	Description
Predefined conditions	Predefined conditions from the Report Source [sys_report_source] table for filtering event records.
Edit filter table	Conditions for filtering event records. This filter is applied when the end user views the calendar. Users can filter further if a filter component is added to the page. **Note:** This property adds a filter condition in addition to the table and predefined conditions, if any are applied.
Start date field	Field from the record to display as the starting event. You must select a date field. Default value: Opened
End date field	Field to report on as the ending event. You must select a date field. Default value: Closed [closed_at]
Event display fields	One or more fields you select to appear on all calendar events. Default value: number,short_description

6. In the **Additional Settings** section you have some miscellaneous options.

Data fields	Description
Follow filters	When enabled, the visualization follows all filters in the same dashboard tab or on the whole dashboard.
Show filter overview	Shows a filter icon that opens a filter panel. This panel shows the configuration filters, such as "Active is true" and any filters followed on the dashboard. Does not show predefined conditions.
Default view	The calendar view format to apply as the default. Choose from: ○ Day ○ Week ○ Work Week ○ Month Default value: Month

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7. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Create a simple list visualization in the Visualization Designer

List reports display data in the form of an expandable list. For example, an incident report grouped by priority displays only the priority names and a number of records that display if the user selects the priority. You can configure whether lists display expanded or collapsed.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of a Simple List in a dashboard, see the Developer Site. This site gives information for the Simple List component in UI Builder, and some configuration options may differ from the Visualization Designer.

The simple list differs from other visualizations in several ways:

- No unified header configuration
- No unified data source selection configuration
- No unified group by
- No option to export the List from dashboards
- No option to paginate the records instead of using the **View all** link

Note:
You can include Spotlight information in a simple list. Configure the list to display information from the Spotlight [spotlight] table. For more information, see Spotlights on Platform Analytics dashboards. For general information about the Spotlight feature, see Ranking records with Spotlight.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the List-Simple ( ) visualization type.
4. Configure the title, filters, visible columns, and highlighted values.

Field	Description
Table	Select the source table of your simple list report.

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Field	Description
Edit fixed filter	Apply query conditions to the table. The conditions you specify here can't be changed at runtime.
Follow filters	Follow filters set for a page. When enabled, the visualization displays on a workspace with the filters set by the page. Toggle off to disable a visualization from accepting any filter input.
Columns	Choose the columns that will be visible.
Number of displayed columns	If the view that you selected has too many columns, you can set the maximum number of columns to be displayed.
Edit filter	Provide additional filter conditions on the visualization. These conditions can be changed by the viewer in runtime.
Group by	Choose a field to group the list by. At runtime, this field is collapsed and users can expand it. For example, if you group by priority, users see only the priority names, and can select the name to see all the records of that priority.
Maximum rows	Specify the maximum number of visible rows. This value input overrides user preferences. For example, if the value input is set to 10, the list always displays 10 records regardless of user preference. To honor user preferences, leave the field blank.
Hide "View all" footer	By default, the Simple list has a **View all** link that opens the standard list of table records in the Core UI for the subject table. None of the filters in this Simple list component apply in that view. To prevent viewers from navigating to that link, turn this option on.
Hide highlighted values	Prevents value highlighting from the Highlighted Values [sys_ux_highlighted_value_config] table from being applied.
Highlighted values	Select highlighting rules from the Highlighted Values [sys_ux_highlighted_value_config] table to apply. Available only when **Hide highlighted values** is false.
Hide highlighted content	Disables the user's ability to highlight text. Use this property in conjunction with search results.
Highlighted content	JSON properties defining which content to highlight and what colors to use. Available only when **Hide highlighted content** is false.
Hide links	Removes all the links in the list. Reference fields and links will render as plain text.

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Field	Description
Enable word wrap	When turned on, the text wraps in all columns of the list.
Override word wrap user preference	Overrides word wrap configured in user preferences with the value of **Enable word wrap**.
Maximum characters	Integer that determines the maximum characters allowed in a grid row cell. Text exceeding this limit truncates. Default: 4000
Hide empty state image	When turned on, the empty state image for the list component is not displayed.

5. Configure **End user capabilities**.
   Move the toggle switch to hide these capabilities.

Field	Description
Hide option to personalize columns	Disable the ability to add, remove, and change the order of columns
Disable dotwalk	Disable dotwalk capability in list personalization. (Only effective when **Hide option to personalize columns** is off.)
Hide option to drag and drop columns	When off, users can reorder the list's columns at runtime.
Hide option to group records	When off, users can group the list by the values of any of the available columns.
Hide column resizing	When off, users can drag columns to resize their widths.
Hide column filtering	When off, users can filter the content of a list from the column headers.
Hide column sorting	When off, users can sort the list content from the column headers.

6. Set border and spacing.

Field	Description
Show border	Displays a border around the list.
Bare	When turned on, removes padding around list to provide more compact positioning on the page.

7. Configure the header.
   Move the toggle switch to hide these capabilities.

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Field	Description
Hide header	Removes all header content, including the visualization title, number of records, last fresh time, and refresh option.
Hide title	Removes the title of the visualization
Title	Provide a name for your list visualization.
Hide total number of records	Removes the number of records, usually found next to the title.
Hide last refresh information	Hides the indication of when the visualization was last refreshed.
Hide option to refresh	Removes the refresh icon () from the visualization.

8. Set advanced options.
   These options require expertise and usually do not need to be set.

Label [property]	Description
Hide inline editing	When turned on, prevents viewers from editing the list. **Note:** Users cannot edit fields of the journal_input type. These fields include the following: ○ Work Notes ○ Additional Comments ○ Approval Comments ○ Change request notes ○ Problem Notes
Include in landmark keyboard shortcut	When turned on, the component is included in the landmark keyboard shortcut cycling behavior, allowing users to quickly jump focus back-and-forth between the main elements on the page.
Refresh requested	Object containing a timestamp that can be passed down to trigger a refresh.
Column preference key	The key to use for sourcing and saving a user preference which specifies the columns to show and in what order. This is meant to be used as a fallback in situations where the component can not correctly determine the default key to be used to save a user preference.

9. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

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What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Simple list visualization example

The simple list data visualization is used to show selected raw data from a source table.

Before you begin

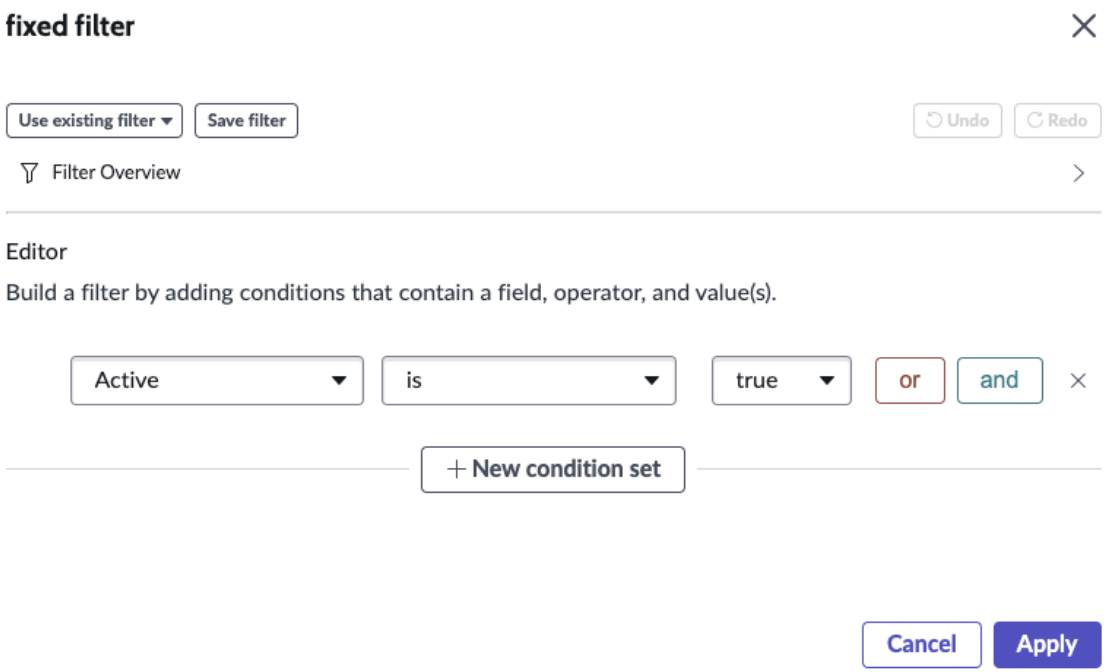
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

The list visualization not only shows selected data directly from the source table, but it enables you to let the work with the information, including personalizing, reordering, filtering, and sorting the columns. You can also choose to hide one or more of these capabilities.

Procedure

1. Follow the first steps to Create a simple list visualization in the Visualization Designer:
   a. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
   b. Select **New**.
   c. Select the List Simple ( ) visualization type.
2. In the **Data** section Choose the Task [task] table.
3. Select **Edit fixed filter** to choose which data to show in the list.
   Because we're interested in active tasks, set the condition to `Active is true` and select **Apply**.



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4. Under Default display, edit the columns you want to show.
   Add the `Due date` column. The default number of displayed columns is 5. To see all of the chosen fields, increase the **Number of displayed columns** to 7.
5. Add a group by.
   When your list is very long, you can group by one of the fields. Grouped lists are collapsed to just one line for each entry in the field which the user can expand. Group this list by state.
6. **Maximum rows** and **Hide the View all footer**.
   Maximum rows determines the number of rows from the list to show at runtime. The View all link at the bottom of the list enables the user to show all of the records in the list or in the selected group by. Hide that link to show only the maximum number of rows.
7. Configure end-user capabilities.
   Because you want to make sure the user sees all the information you select, hide the option to personalize, column filtering, and column sorting.

   Hide option to personalize columns

   Disables the ability to add and remove columns, and to change the sort order.

   Disable dot-walk

   When column personalization is enabled, you can still disable the ability to navigate to related tables (dot-walking).

   Hide option to drag and drop columns

   Disables reordering the columns by dragging them.

   Hide option to group records

   Disables grouping the records by a selected field.

   Hide column resizing

   Disables resizing column widths.

   Hide column filtering

   Disables filtering from the column heading.

   Hide column sorting

   Disables sorting the list from the column heading.

8. In the Header section, leave the header and title visible and title the visualization `All Active Tasks`.
   Leave the total number of records, last refresh information, and the option to refresh visible.
9. In the Advanced section, leave **Hide inline editing** unselected.
   When selected, users can't edit any of the cells in the list. The ability to edit enables the user to change who a task is assigned to or its due date, for example.

Result

You've created a list visualization grouped by state that the user can edit and show all records on.

Create an Indicator Scorecard

The Indicator Scorecard component enables users to visualize and compare data between multiple Performance Analytics indicators. It highlights the information regarding the last score collected, the change from the previous data point, the trend over time, and the value of the target to achieve.

Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization

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Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

For information about the use of an Indicator Scorecard in a dashboard, see the Developer Site. This site gives information about Indicator scorecard components in the UI Builder, and some configuration options may differ from the Visualization Designer.

Note:
You aren't able to sort by previous scores in UI Builder.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Select the Indicator Scorecard ( ) visualization type.
4. Configure the filtering and sorting capabilities of the Indicator Scorecard.

Field	Description
Scorecard Type	List to select from scorecard types. Options include: ○ **List**: Shows the list of indicators and metrics as columns. ○ **Pivot**: Shows indicators as rows and breakdown as columns or vice versa.
Show Header	Toggle to show or hide header.
Title	Component title.
Description	Component description displayed in the info icon during runtime.
Source definition	Select how to set which indicators to show. Options include: ○ **Condition based**: Allows you to set a condition to determine which indicators to display. ○ **Manually selected**: Allows you to manually add indicators through the **Add data source** pane. You can select a breakdown and element to filter the indicator for each indicator you manually select. If you select only one indicator, you can set **Show only breakdowns** to show the elements of that indicator without the indicator score. ○ **Indicator group**: Sets an indicator group as the source.
Filter	Encoded query string for filtering which indicators to show. To create a filter statically, use the condition builder that is provided. **Note:** Only available if **Source definition** is Condition based.
Indicator group	Filter the table based on an indicator group from the list.

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Field	Description
	Note: Only available if **Source definition** is Indicator group.
Breakdown	Select the breakdowns that you want to display. You can drag breakdown tiles to reorder them.
Max number of groups	The maximum number of elements to show for a breakdown. If you do not select the elements to show in **Filter elements**, the elements that are shown depend on the breakdown source and the value of **Sort direction**. For example, consider the Assignment Group breakdown, which uses the Name field from the Group [sys_group] table. If the **Max number of groups** is the default 5, you show either the first 5 group names or the last 5 group names alphabetically, depending on whether the sort direction is ascending or descending. In such cases, consider selecting the elements in the **Filter elements** field. Default: 5
Filter elements	Select the elements to show for the relevant breakdown. If you don't select any elements, all elements up to the max number of groups are shown.
Show breakdowns as columns	When true, breakdown elements are shown as columns on the pivot table. When false, breakdown elements are shown as rows. Supports only one breakdown and applies only to Pivot scorecards. Default: false
Show only breakdowns	If set to true, hides indicator total and shows only breakdown elements and the metrics selected. Available only on List scorecards when Source Definition is **Manually Selected** and only one indicator is selected. Default: false
Allow change breakdown	When true, the viewer can change the breakdown that is displayed. Available only when **Show only breakdowns** is true. Default: false
Breakdown visibility selector	When true, the breakdown selector is visible to viewers of the scorecard. When false, the breakdown selector has to be opened from the More options menu. Only available when **Allow change breakdown** is true. Default: false
Metrics	Select analytics to show in the indicator list. You can drag and drop metrics tiles to reorder them. Default: lastScore, changeAndChangePercent, target, trend
Time series aggregation	Time series aggregation to apply to all Indicators selected. To learn more about time series aggregations, see Applying time series aggregations.

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Field	Description
Sort by	The column to sort the indicators by. Values: Name, Latest Score, Target, Change, changePercent, indicator_group **Note:** You cannot sort by previous scores. Default: Name
Sort Direction	The sorting direction for the indicators and/or breakdown elements. The effect on breakdown elements varies depending on the breakdown source. For example, breakdown elements from the Choice [sys_choice] table are sorted according to the value of the Sequence field, whereas breakdown elements from Group [sys_group] are sorted alphabetically according to the Name field. Values: Ascending (Asc) or Descending (Desc) Default: Asc
Additional settings	
Follow filters	Turn on to have filters set on the dashboard apply to the Indicator Scorecard. Default: true
Show filter icon	Show the filter icon and the number of dashboard filters impacting the visualization. If a filter isn't selected to apply to a visualization, the icon doesn't show. Toggle off to hide the filter icon and number of filters applied. Default: true
Enable drilldown	Redirects user to underlying data when they select a data point. Toggle off to prevent this interaction. Default: true
Show filter element	Option to show the applied filter elements next to the indicator name. If a filter cannot apply to a visualization, the element(s) do not show. Toggle off to hide the filter elements and show only the indicator name. Default: true
Show bookmark	Toggle to show or hide a column of bookmarks. When on, users can bookmark indicators and breakdowns for themselves. Default: true
Show indicator info	Toggle to show or hide the indicator information icon. When shown, indicator information includes information about the last collection date, frequency of collection, and direction.

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Field	Description
	Default: true
Show bookmarked items only	Toggle on to show only bookmarked indicators or breakdown elements. Default: false
Display settings	
Max elements per page	The page size as determined by the maximum number of indicators or breakdown elements that the page can show. The increments are 10, 20, 50, and 100 indicators/elements. Default: 10
Target color scheme	Select a target color scheme. By default, the value defined in the **Default indicator target color scheme** property on the Performance Analytics Properties page is applied.
Show alternate row colors	Alternates colors of rows.
Show row lines	Adds dividers between rows.
Show column lines	Adds dividers between columns.
Chart interaction	
Allow chart interaction	Enable navigation to the KPI Details page of an indicator when that indicator's name is selected.
Action	Only the **Go to data view** interaction is available. This action opens the indicator in KPI Details.

5. Select **Save**.
   Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** to return to the Data Visualization list.

What to do next

- Add a visualization to a dashboard from the Visualization Designer
- Share a data visualization in the Visualization Designer
- Bookmark a visualization in the Visualization Designer

Create a data visualization from a list

You can create a Platform Analytics vertical bar or pie data visualization from inside a Core UI list. If you have a data visualization role, you can save, share, export, or duplicate the visualization.

Before you begin

Role required: You need a role that gives access to the list. To save, share, export, or duplicate the visualization, you need itil, viz_creator, or a role that contains viz_creator, such as any of the reporting roles.

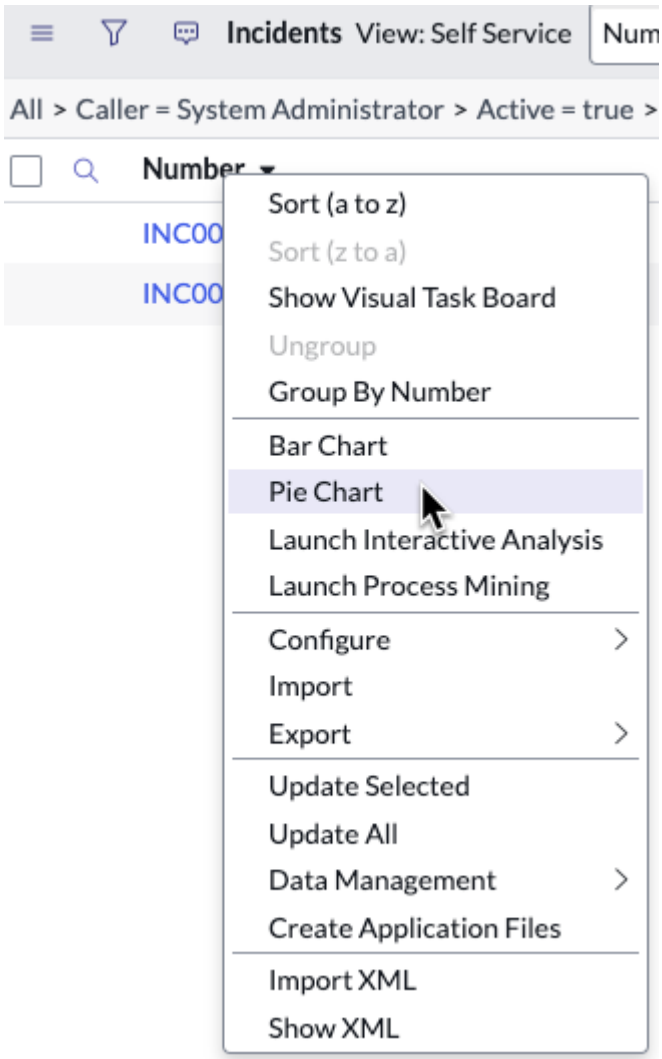
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About this task

If you are on a new instance or an instance that has fully migrated to Platform Analytics, follow this procedure. Otherwise, you create a Core UI pie or bar report, instead. In this case, see Run a report from a list.

Procedure

1. Navigate to the list.
2. Right-click the header of the column that contains the values you want to be displayed as the bars or slices in the chart.
3. Select **Pie Chart** or **Bar Chart**.



The data visualization is generated and opened in the Visualization Designer.

Common data visualization tasks

See how to edit, share, duplicate, and delete Platform Analytics data visualizations, along with other common tasks. Most tasks are launched from the same menu.

Edit a data visualization in an inline dashboard

You can create and edit a data visualization from within the inline dashboard editor. Not all the options are the same as in the Visualization Designer. You can move between the inline editor and the Visualization Designer.

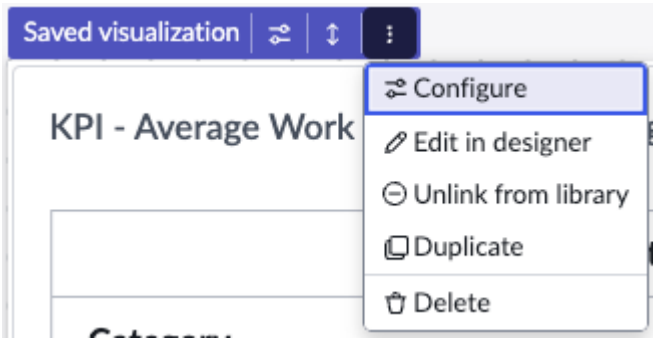
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You can add a data visualization to a dashboard through the **Add new element** menu, as described in Edit Platform Analytics dashboard elements. You can edit a visualization in the dashboard by putting the dashboard in edit mode and selecting the visualization. However, some of the behavior may differ:

- If the visualization is in the library and you own it, you need the itil, report_user, or viz_creator role to edit it. When you save your edit, you have the option to save the visualization in the library, which affects all dashboards that show the visualization, or to save a local copy only for the dashboard.
- If the visualization is in the library and you do not own it, you need the viz_admin or admin role to edit it. When you save your edit, you have the option to save the visualization in the library, which affects all dashboards that show the visualization, or to save a local copy.
- If the visualization is in the library and you don't have the necessary roles to edit it, you can "unlink" the visualization by creating a local copy, which you can edit. For more information, see Unlink a dashboard copy of a data visualization from the library.
- Some options may differ between the inline editor and the Visualization Designer. For example, in the chart interactions, you can set up a chart to drill down to another chart only in the Visualization Designer.

Important:
You cannot place Core UI reports or Performance Analytics widgets on a Platform Analytics dashboard. Add data visualizations instead.

The **Actions** menu on the visualization itself provides options for changing the editor. You can also select to **Configure** the visualization, **Duplicate** the visualization on the dashboard, or **Delete** the visualization from the dashboard.



Other topics

Add a dashboard data visualization to the library

To make a data visualization on a dashboard reusable, or to be able to edit it in the Visualization Designer, add it to the data visualization library.

Before you begin
Role required: itil, report_user, viz_creator, or higher, and the right to edit the dashboard

About this task
You may want to add a data visualization that exists only as a local copy on an in-line dashboard to the data visualization library. You may want to do this to make the data visualization available to add to other dashboards. You may also want to be able to edit the data visualization in the Visualization Designer, as described in Open a visualization in the Visualization Designer from a dashboard.

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Procedure

1. Open the relevant dashboard for editing.
2. Locate or create the relevant data visualization.
   See Creating data visualizations.
3. Expand the data visualization context menu.



4. Select **Add to library**.
5. Provide a name and description for the data visualization.
6. Select **Add to library**

What to do next

The data visualization now exists in the data visualization library. You can edit it as described in Open a visualization in the Visualization Designer from a dashboard.

Open a visualization in the Visualization Designer from a dashboard

From the dashboard editor, open a data visualization in the Visualization Designer. You have a different set of options.

Before you begin

The data visualization must exist in the data visualization library.

Role required: itil, report_user, viz_creator, or higher, if you own the data visualization. viz_admin or higher for any data visualization. You also need the right to edit the dashboard.

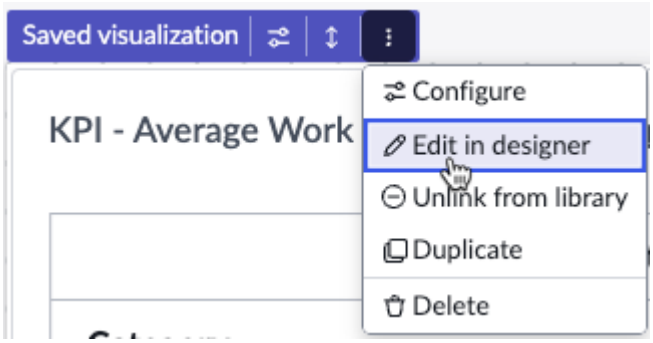
About this task

While working in the dashboard editor, you may find that you want to reconfigure a data visualization in a way that is only possible in the Visualization Designer, not in the dashboard editor. For example, you might want to configure the **Drill down to chart** interaction. The **Actions** menu on the data visualization lets you open the visualization in the Visualization Designer in one step, without lots of navigating.

Procedure

1. Navigate to **Platform Analytics** > **Dashboards** and open your dashboard.
2. Select **Edit** to put the dashboard in edit mode.
3. Add the data visualization if it is not already there.
   For more information, see Edit Platform Analytics dashboard elements.
4. On the data visualization, expand the **Actions** menu.

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5. Select **Edit in designer**.

What to do next
Proceed to edit the data visualization as described in Edit a data visualization in the Visualization Designer.

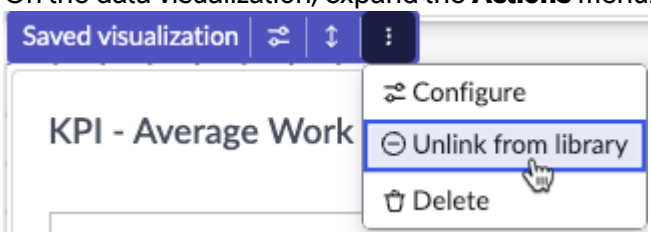
Unlink a dashboard copy of a data visualization from the library

To edit a saved data visualization from the library on a dashboard, so the changes apply only on the dashboard, unlink your local copy of the visualization from the library.

Before you begin
Role required: Any

About this task
You may find yourself needing to modify a data visualization on a dashboard to which you have editing rights. However, if it is a shared dashboard from the library, you would be editing the library copy that many other people use. You might not want to or be allowed to do this. However, as long as you can edit the dashboard, you can unlink a visualization on the dashboard from the library. Then you have a local version that you can edit freely.

Procedure
1. Navigate to **Platform Analytics** > **Dashboards** and open your dashboard.
2. Select **Edit** to put the dashboard in edit mode.
3. Add the saved data visualization from the library if it is not already there.
   For more information, see Edit Platform Analytics dashboard elements.
4. On the data visualization, expand the **Actions** menu.



5. Select **Unlink from library**.

> **Note:**
> You can unlink a visualization from the library even if you do not have the right to duplicate it.

Result
The data visualization now exists as a local copy on your dashboard, which you can edit as you please.

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Edit a data visualization in the Visualization Designer

After you create a data visualization, you can return to it and edit the data visualization's appearance and other aspects.

Before you begin

Role required: You can edit any data visualization you own unless it is a shared visualization, in the library. If the data visualization is in the library and you own it, you need the itil, report_user, or viz_creator role to edit it. You can edit any data visualization with the viz_admin role or higher.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select the visualization that you want to edit.
3. In the Visualization Designer, select the Configuration icon () to edit header, data, and presentation options.
4. Select the information icon () to edit name, description, certification, and requester information.

Data visualization details

The Details pane gives you an overview of key information about the data visualization that you are currently editing.

Select the **Details** icon  in the Visualization designer to see the details of the visualization you are editing. You can see the following information:

Field	Description
Name	The name should be meaningful. If you have editing rights, you can change the name here.
Description	The description should be information that helps other users understand the nature and purpose of the visualization. If you have editing rights, you can change the description here.
Mark as certified	If you have a role that lets you certify a data visualization for use in your organization, certify or decertify the visualization here. For more information, see Certify a data visualization in the Visualization Designer.
Requested by	If a user on the instance requested that you create or edit this visualization, you can name the person here. The user is considered a responsible user. The data visualization is shared with them, with editing rights.
Created by, Last updated by	The users who created and last updated this visualization
Usage	
n dashboards	If the visualization is used on any dashboards, the number of dashboards displays here.

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Field	Description
	The **View your dashboards** link opens a simple list of those dashboards that you created or were shared with you and that contain this data visualization. The number of dashboards listed can be smaller than the total number of dashboards that contain the visualization.
Shared with	Icons for every user who the visualization is shared with. Point to an icon to view the user's full name and the sharing details. For more information, see Share a data visualization in the Visualization Designer.

Certify a data visualization in the Visualization Designer

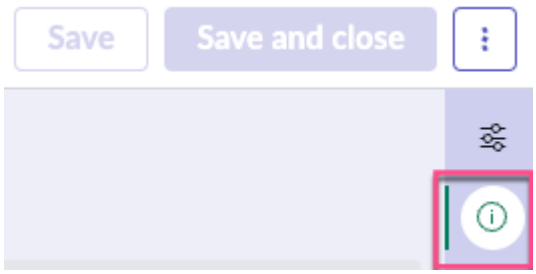
Certify a data visualization to indicate that it is company-approved for reuse.

Before you begin

Role required: admin, viz_admin

Procedure

1. Navigate to **Workspaces** > **Platform Analytics Workspace**, or the workspace that has the Analytics Center ( ) page and the dashboard you want to certify.
2. On the **Data visualizations** tab, select the dashboard you want to certify.
3. Select the information button ( ) to open the Details panel.



4. Select the toggle labeled **Mark as certified**.
5. Select **Save**.

Result

The Certified badge appears next to the visualization's name in the Visualization Designer.

On the Data Visualizations tab, the visualization is listed under Certified data visualizations. The visualization is also marked True in the Certified column. This column may not be visible. Select the Edit columns icon ( ) to add it.

Add a visualization to a dashboard from the Visualization Designer

Add a visualization from the Visualization Designer to a new dashboard or to an existing dashboard.

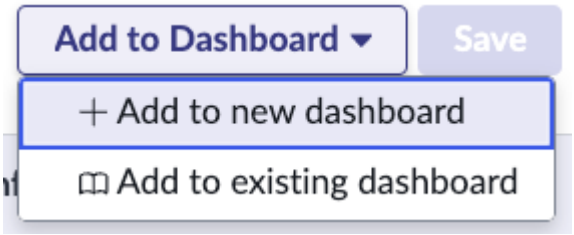
Before you begin

Role required: Your must have a role that allows access to the data in the visualization. You must own the visualization, or it must be shared with you. You must have the right to edit the dashboard in which you want to add the visualization.

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Procedure

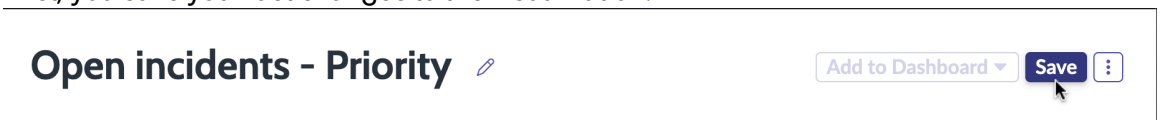
1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Create a data visualization, or open a data visualization that you want to add to a dashboard.
3. Expand **Add to Dashboard** and choose from the following options.



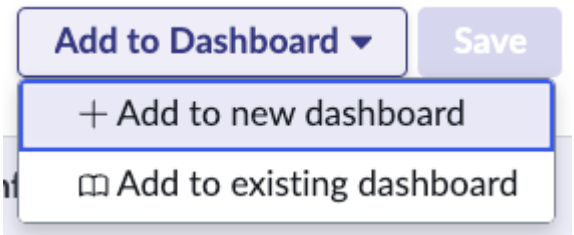
Example: Adding a visualization to an existing dashboard

You have just completed creating the data visualization Open incidents - Priority. You want to add it to the dashboard Incidents Overview, which you have the right to edit.

1. First, you save your last changes to the visualization.



2. After you save, the **Add to dashboard** options are available.



3. Because you already have a dashboard in mind, you select **Add to existing dashboard**. A dialog box opens.

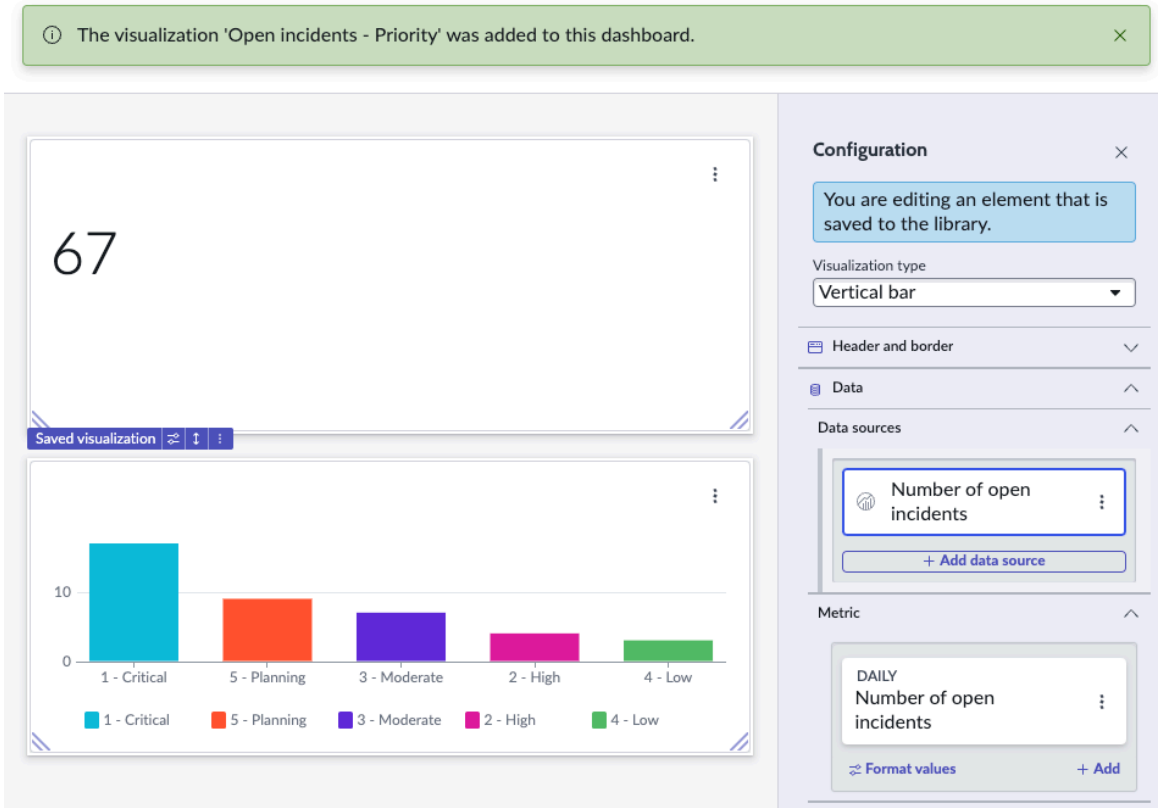


4. You type `Inc` into the **Select dashboard** field, and you see the Incidents Overview dashboard listed.

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5. You select the Incidents Overview dashboard and then select **Add to dashboard.**
6. The Incidents Overview dashboard opens in the inline editor. After you refresh the browser page, you see the Open Incidents - Priority data visualization added to the end.



Duplicate a visualization in the Visualization Designer

Duplicate a visualization so that you can use aspects of the source in a copy of the visualization.

Before you begin

Role required: viz_creator

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**
2. Select the visualization that you want to duplicate.
3. From the More actions menu ( ), select **Duplicate**.
4. Give the duplicate a unique name and select **Duplicate**.

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Result
The visualization is copied with the new name and the suffix **- Copy**. All other aspects of the visualization remain the same.

> **Important:**
> The new copy of the visualization is automatically saved.

Duplicate a visualization on an inline dashboard

Duplicate a visualization so that you can use aspects of the source in a copy of the visualization while on the dashboard it sits on.

Before you begin
Role required: viz_creator

Procedure
1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**
2. Select the dashboard with the visualization that you want to duplicate.
3. Select **Edit**.
4. From the Actions menu ( ) on the visualization, select **Duplicate**.
   A copy of the visualization is added to dashboard.
5. Select the copy of the visualization to open its Configuration panel.
6. Give the copy of the visualization a unique chart title to distinguish it from the original on the dashboard.
7. Select **Save** to save the changes to the dashboard.
8. **Optional:** From the Actions menu ( ) on the visualization, select **Add to Library** to make the copy available to other users.
   When you add the visualization to the library, you must give it a name and, optionally, a description. Other users see the name and description in the list of visualizations in the library.

Result
The visualization is copied with the new information.

> **Important:**
> The new copy of the visualization is automatically saved.

Share a data visualization in the Visualization Designer

Share a visualization to provide view or edit permissions to users, groups, or roles. A user can access a shared visualization in any workspace on the original instance.

Before you begin
> **Important:**
> The right to share a dashboard or data visualization includes the right to add, edit, and delete sharing rights for any user, group, or role on that dashboard or data visualization. A user cannot use this ability to give themselves or others edit rights if they were not originally given edit rights.

Role required: You can share any data visualization that you created. When you share a data visualization, you can pass along the rights to share that visualization further. You also decide whether to share with editing rights or only viewing rights. If a data visualization has been shared with you with sharing and editing rights, you can also pass along editing rights.

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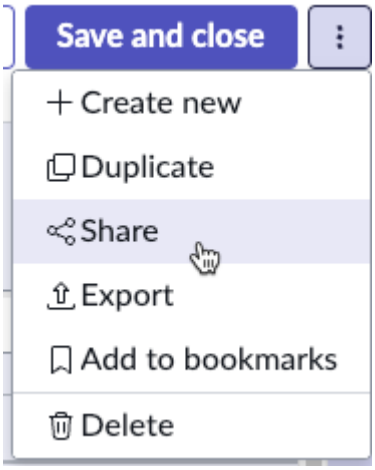
Users with the admin and viz_admin roles can share all data visualizations. Only users with the admin and viz_admin roles can share data visualizations with roles.

Sharing a visualization with a user, group, or role adds that visualization to the **Shared with me** tab in the Data Visualizations overview. Any user with a role can list and view any visualization at the table level. Report_view access control lists (ACLs) still apply no matter how the user gets to the visualization, however changes to ACLs can break data visualizations that are used in UI Builder.

Edit rights granted by sharing a data visualization do not apply to that visualization when placed on a dashboard, but only in the Visualization Designer.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**, or to a workspace with a visualization that you own.
2. Locate and open the visualization that you want to share.
3. Expand the More actions menu and select **Share**.



4. Enter the names of one or more users, groups, or roles you want to share the data visualization with.

Note:

- It is not possible to share data visualizations with inactive users.
- Only users with the admin or viz_admin role see the option to share visualizations with roles.

5. To allow the people that you share the data visualization with also to share that data visualization, select **Allow recipients to share**.
When you add a user, group, or role as a viewer, they can only share the visualization as a viewer. When you add a user, group, or role as an editor, they can share the dashboard as a viewer or as an editor.
6. Select one of the following options.

Option	Description
Add as viewer	Grant only viewing rights to the users, groups, or roles you share the visualization with. The recipients cannot edit it.

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Option	Description
Add as editor	Grant editing rights to the users, groups, or roles you share the visualization with.

7. Select **Confirm**.

Manage data visualization access

You can change the access rights of persons with whom the data visualization is shared.

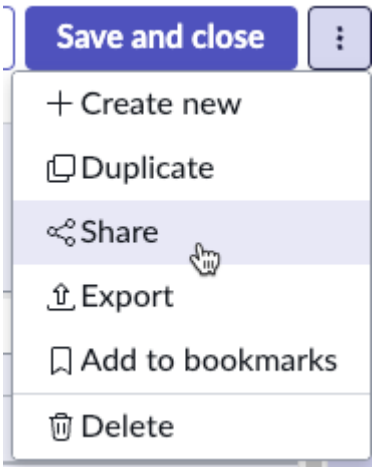
Before you begin

Important:
The right to share a dashboard or data visualization includes the right to add, edit, and delete sharing rights for any user, group, or role on that dashboard or data visualization. A user cannot use this ability to give themselves or others edit rights if they were not originally given edit rights.

Role required: You can change the access rights to any data visualization that you created, regardless of your role. Users with the admin and viz_admin roles can change the access rights to all data visualizations. Only users with the admin and viz_admin roles can change role-related access rights to data visualizations. Any user can view a data visualization by default.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**, or to a workspace that has a component based on the Analytics Center template ( ) and the data visualizations you want to share.
2. Open the **Data visualizations** tab and select the data visualization whose access you want to manage.
3. Expand the More actions menu and select **Share**.

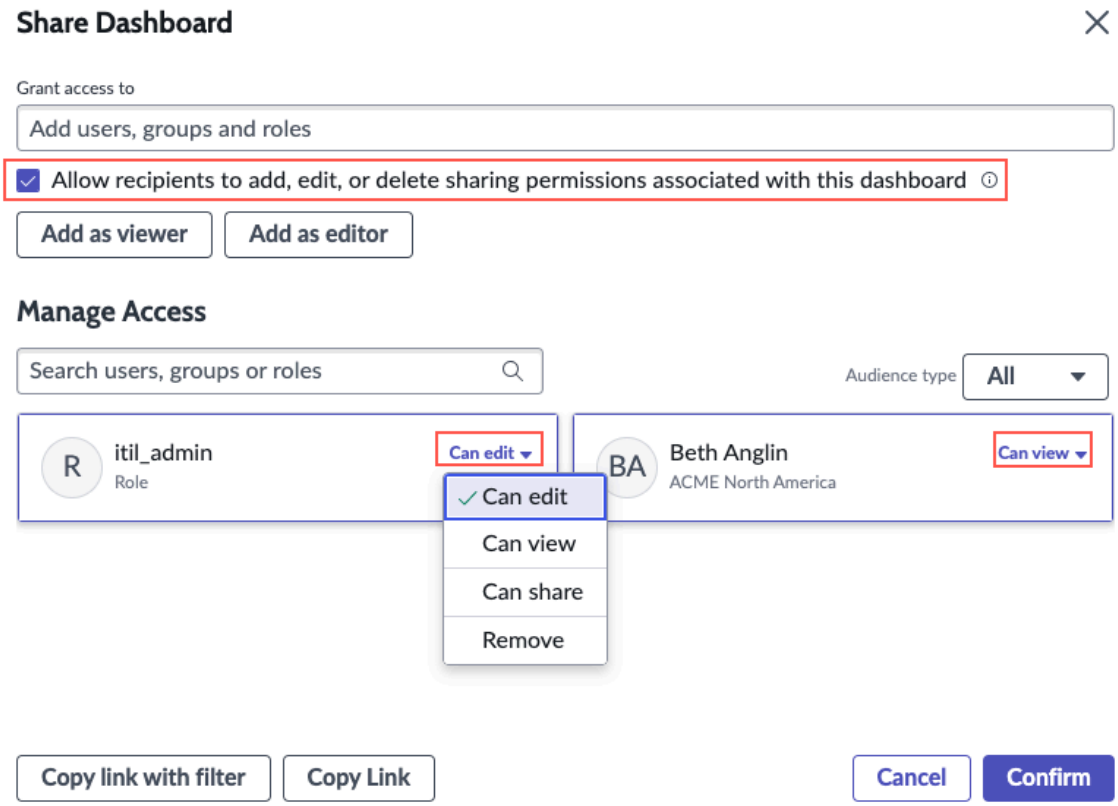


Under Manage Access, you see a tile for every user, group, or role that the data visualization is shared with.

4. **Optional:** Filter the user tiles.
   a. In **Audience type**, limit the tiles that appear to show only users, only groups, or only roles.
   b. Enter a partial name of a user, group, or role in the search field.
5. When you locate the desired tile, expand the list of rights and select the rights to grant.

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You can grant editing rights or only viewing rights. You can give or take away the right to share the data visualization. Lastly, you can remove the user, no longer sharing the data visualization with



them.

Export a visualization from the Visualization Designer

Export individual data visualizations to various formats and sizes. Download the exports or share them over email.

Before you begin

Role required: You can export any visualization that you created or that was shared with you. Users with the admin or viz_admin role can export any data visualizations.

About this task

Not all visualizations support all output types. Some export options shown in the UI for a visualization may not be valid. Please consult the following table.

Supported export formats for different data visualization

	Supported data visualization export formats
Calendar reports, Indicator scorecards, Pivot tables, Geomap	None
Lists	PDF, Microsoft Excel (.xls or .xlsx), Embedded LIST
Other data visualizations	PowerPoint, PDF, PNG, JPEG, Embedded PNG
Non-data visualization dashboard elements, like Headings	Not applicable

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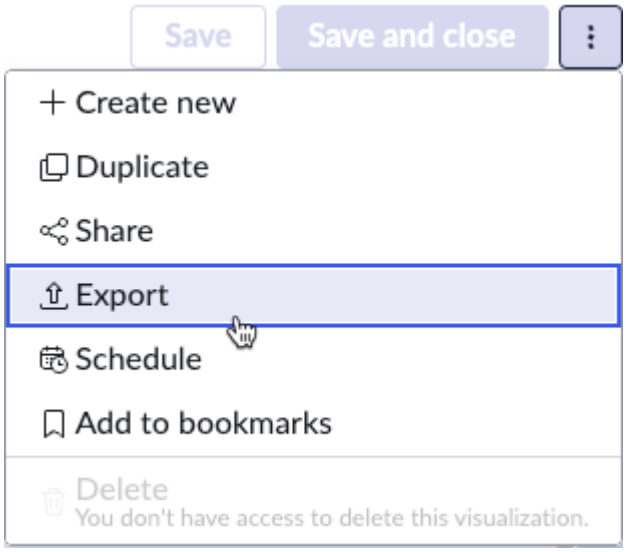
Data visualizations exported to PowerPoint include the title and the description if this information is provided in the source visualization.

Note:

If you have any Now Assist applications installed, you can probably export a dashboard conversationally through the Now Assist panel. See Export dashboards and data visualizations from the Now Assist panel.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select the visualization that you want to export.
3. From the More actions menu ( ), select **Export**.



4. In the File to export section, configure the following information.

Field	Description
File type	Export data visualizations in one of their supported formats. (See Supported export formats for different data visualization.) Select **Embedded PNG** or **Embedded LIST** to embed the exported file in the email body instead of sending it as an attached file or ZIP. You can edit the email around the image.
Page format	For PDF, PNG, Embedded PNG, and JPEG, select Letter, A4, or A3 to correspond to the paper dimensions of the printed visualization. You cannot set the page format when exporting a List.
Orientation	Choose Portrait or Landscape. Not available with PowerPoint exports or for List - Simple visualizations.

5. Under **Delivery**, select **Download file** or **Send file via email**.

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- When you choose to download the file, a **Download** button is available after the export is complete. The file, named `<visualization-name>.<filetype>`, is downloaded to your default local destination.
- When you send the file by email, you can select users and groups on your instance or any allowed email address. Security constraints may restrict who you can email. You also must specify a subject, and you can add a message. When you are done, select **Export**.

> **Note:**
> To send email to persons who are not on your instance, you need to have outbound email configured. See Outbound Email Configuration in the Developer Site.

Schedule the export of data visualizations or dashboards

Automate the export and mailing of data visualizations. Help colleagues build presentations, share information with external users, or track data over time.

Before you begin

Role required:

- par_scheduler, or any role that contains it, to create or edit the scheduled export of any dashboard or visualization that you can access.
- sn_par_sche_export.par_scheduler_admin to delete the scheduled export of a dashboard or data visualization.
- viz_admin to create, update, or delete the scheduled export of any data visualization on the instance
- dashboard_admin to create, update, or delete the scheduled export of any dashboard on the instance.

To view the list of scheduled exports, navigate to **All** > **Platform Analytics** > **Library** > **Scheduled Export**. This list contains all scheduled exports including Core UI dashboards and reports and Platform Analytics experience dashboards and data visualizations.

About this task

You can export multiple dashboards and data visualizations together in one scheduled email. Supported export formats depend on what you are exporting and whether you are exporting it as part of a dashboard or as a standalone data visualization.

Supported export formats

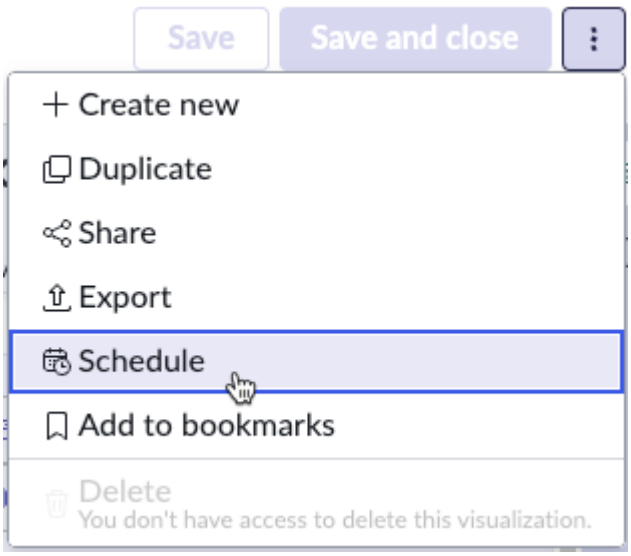
Data visualization or dashboard element	Supported dashboard export formats	Supported data visualization export formats
Calendar reports, Indicator scorecards, Pivot tables, Geomap	None	None
Lists	PDF	PDF, Microsoft Excel (.xls or .xlsx), Embedded LIST
Other data visualizations	PowerPoint, PDF	PowerPoint, PDF, PNG, JPEG, Embedded PNG
Non-data visualization dashboard elements, like Headings	None	Not applicable

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Note:
This topic is available in both the Dashboard and the Data Visualization documentation.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** and select **Data Visualizations** or **Dashboards**.
2. Select an item that you want to export on a regular schedule.
   Check the list of supported export formats under **About this task**.
3. From the More actions menu ( ), select **Schedule**.
   You cannot be in Edit mode.



   All the options appear for exporting the dashboard or data visualization. If you do not want to export this object, select **Change**.
4. Select the file type.
5. If you are exporting a dashboard or data visualization to PDF, or a data visualization to a graphic file, select the page format and orientation.
   Scheduled exports of List data visualizations to PDF do not have options for page format or orientation. If you need a PDF with a particular format or orientation, consider putting the List on a dashboard and scheduling the export of that dashboard, instead.
6. If you are exporting a dashboard to Power Point, do the following steps:

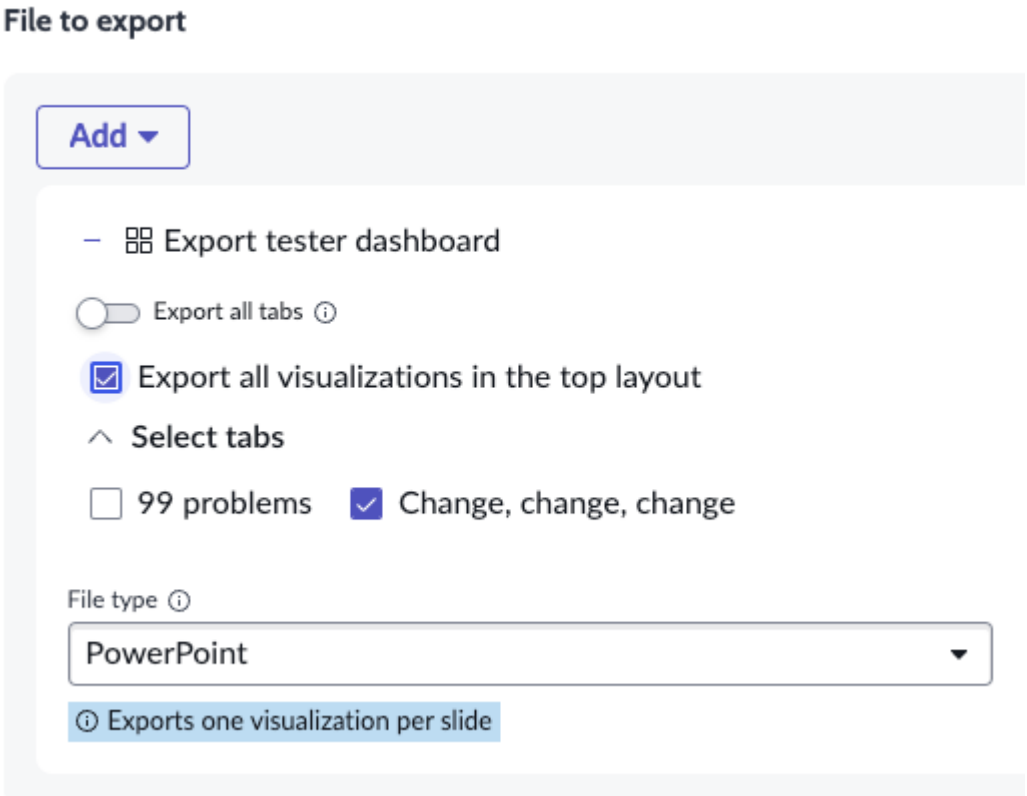
   a. Select whether to export all tabs or only specific tabs.

   b. If you select to export only specific tabs, select which tabs to export and whether to include the top layout contents.

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Example

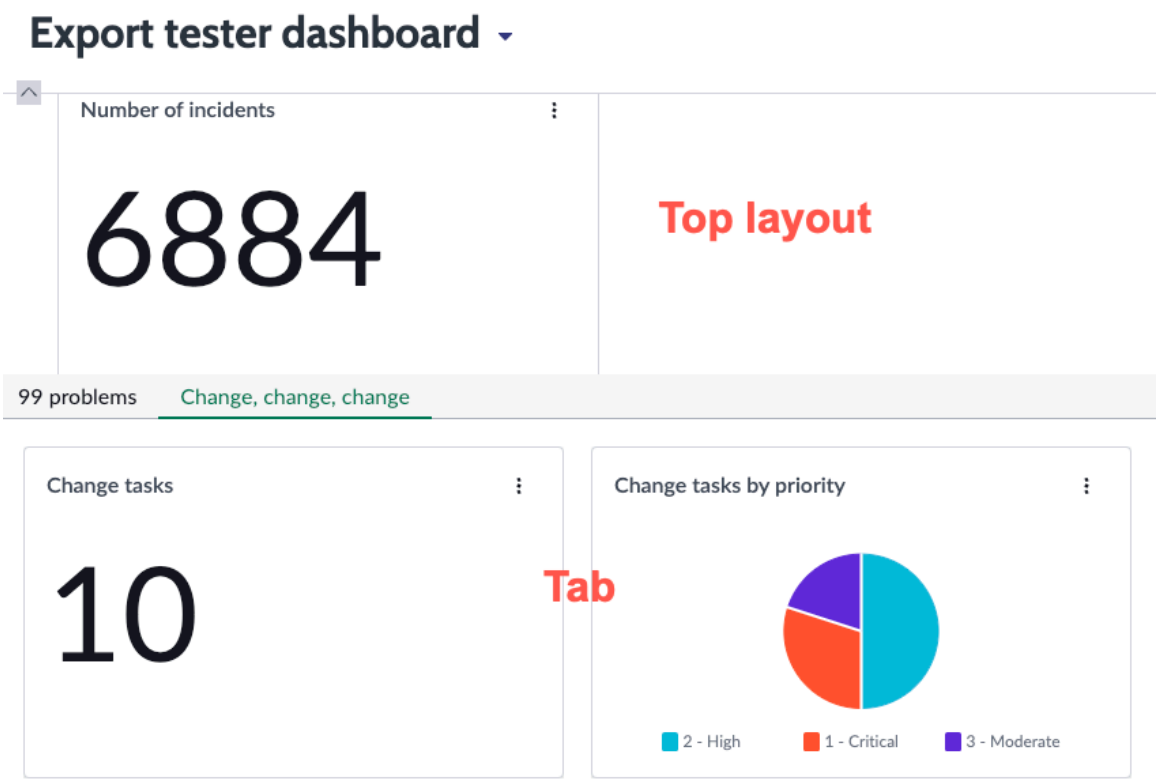
Configuring the export of dashboard tabs



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For example, if you do not turn on **Export all tabs**, you have to select the tabs to export. If you select a tab and turn on **Export all visualizations in the top layout**, you export that tab and any visualizations placed above the tabs.

The visualizations that are exported



7. To add more dashboards or data visualizations to the export, do the following steps:
   a. Expand the **Add** menu.
   b. Select **Dashboard** or **Data visualization**.
   c. Choose one or more dashboards or visualizations to export.
   d. Configure the export criteria for each added dashboard or visualization as in Steps 4-6. You can add both dashboards and data visualizations to a single export.
8. To send non-embedded exports as ZIP files, turn on **Send as ZIP files**.
9. In the Email schedule section, specify when and how often to send the email.

Field	Description
Active	Turn on to enable delivery of scheduled export emails.
Reoccurrence	Select how often to send the export email.
Day, Time, other calendar fields	Specify when to send the email. Your options depend on how often you chose to send the email in **Reoccurrence**. Time fields are in HH:MM:SS format.
Omit if no records	Turn on to prevent the distribution of empty emails.

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Field	Description
Use conditions	Turn on to specify a scripted condition for generating the report.
Condition	Conditional script that determines if a scheduled job should run. The last expression of the script should evaluate to a Boolean (true/false) value. This text box appears only if you select **Use conditions**. For more information about scripts on the ServiceNow AI Platform®, see Scripts. **Warning:** Conditional scripts for scheduled emails are executed in the sandbox. Therefore, function definitions are not allowed. Some API calls and keywords are also not allowed. For more information, see Script sandbox property.

10. In the Email details section, specify the recipients and the email subject.
    You can enter users and groups on your instance or any permitted internal or external email addresses. Security constraints may restrict who you can send the report to. You can also add a message. To send email to persons who are not on your instance, you need to have outbound email configured. See Outbound Email Configuration.
11. Select **Save** to save the schedule.

Bookmark a visualization in the Visualization Designer

Bookmark a visualization so that you can find it easily in the Data Visualizations library.

Before you begin

Role required: None. Anyone who can access a data visualization can bookmark it for themselves.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select the visualization that you want to bookmark.
3. From the More actions menu (⋮), select **Add to bookmarks**.

Result

On the **Data Visualizations** tab, the selected visualization appears in the Bookmarked list.

What to do next

To remove a bookmark, choose the bookmarked visualization and select **Remove bookmark** from the More actions menu (⋮).

Delete a visualization in the Visualization Designer

You can delete a data visualization that is no longer useful.

Before you begin

Inform any users who can view the visualization that you're deleting it. No validation is executed to check if the visualization is used in a dashboard.

Role required: You can delete any data visualization that you created. If you have the admin or viz_admin role, you can delete any data visualization.

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Procedure

1. Navigate to **Platform Analytics** > **Library** > **Data visualizations**.
2. Open the data visualization that you want to delete.
3. From the More actions menu ( ), select **Delete**.
4. Confirm the deletion.
   You cannot undo this action.

View data visualizations

A dashboard viewer has several ways to affect what a data visualization shows in runtime.

Select a group-by value in a data visualization as a viewer

A viewer of a data visualization can select the value for grouping the data in the visualization.

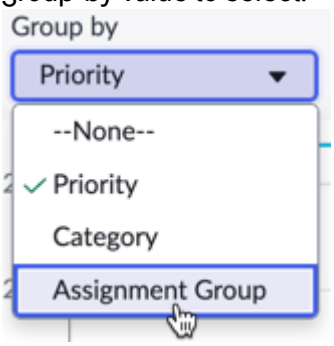
If a data visualization is configured with alternative group-by values, a viewer can pick which value to apply. No editing rights are required. On a visualization that shows Service Catalog data, the options can include Service Catalog variables, as described in Service catalog variables in data visualizations.

Note:
Instructions for configuring alternative group by are included in the data options topics for the relevant data visualizations.

Toggle the visibility of the selector for group-by values by selecting **Change group by** in the data visualization's More actions menu. An editor of the visualization can set whether the selector is visible or hidden by default.

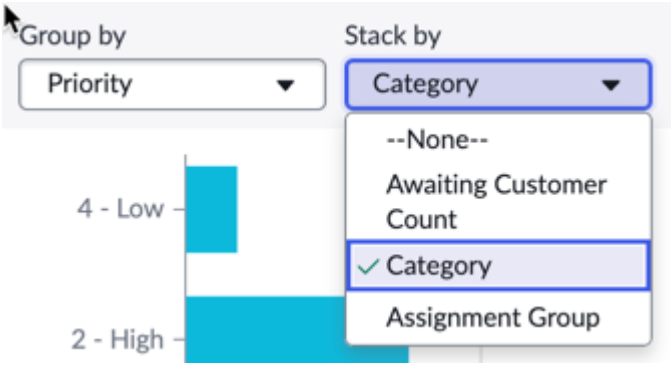


All data visualizations that support group by also let viewers select the group-by value, except for pivot tables. For all such data visualizations except bar visualizations, you have only a single group-by value to select.



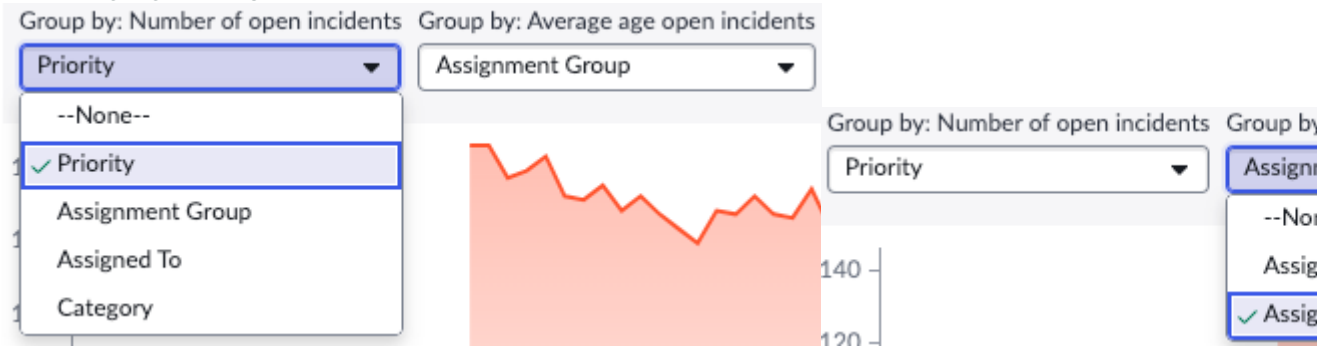
If you are viewing a bar visualization, you can choose a stack-by value as well as a group-by value.

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In a time series visualization that shows more than one metric, you might have the option of selecting a group-by for each metric. You are given only valid choices.

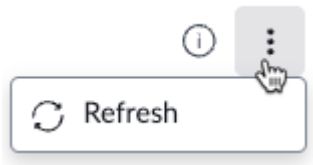
Selecting a group-by value for each metric in a time series



Refresh a data visualization as a viewer

A viewer of a data visualization can refresh that data visualization without refreshing the page or having editing rights.

Anyone viewing a data visualization can refresh that visualization through the visualization's More actions menu.



Editing columns on a Simple List

You can select which columns are shown when viewing a Simple List. You cannot select more columns than the maximum number that the list is configured to show.

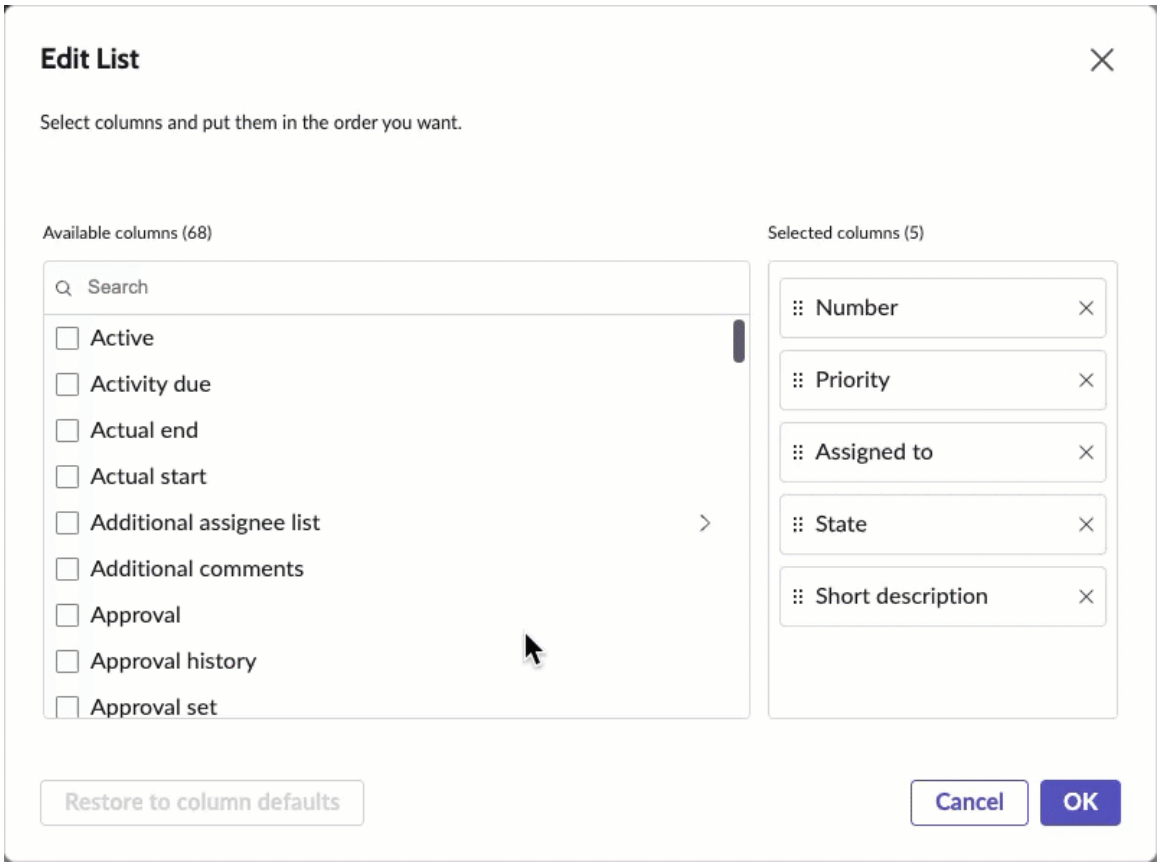
You can change which columns a List -Simple shows to you during your session. Your changes do not affect other users or persist after you close the list.

To change which columns a List - Simple shows, select the List actions cogwheel icon , then select **Edit columns**



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You can select columns to add or remove selected columns by selecting the X. You can also drag selected columns to change the order in which they appear. You can also restore the default column selection and order.



Important:
You cannot add more columns than the maximum, which is set in the Simple List configuration. If you try to add more columns than this limit, your changes are ignored. You must either remove other columns, change the configuration, or ask an authorized colleague to do so. Changing the configuration affects all users, not only you. For more information, see Create a simple list visualization in the Visualization Designer.

Configure data visualizations

Learn about advanced configuration options in depth. While most configuration options are discussed only in the context of creating a data visualization of a given type, these options are more complex and have characteristics shared across all visualization types.

Selecting data sources for data visualizations

The key purpose of a data visualization is to show data. Thus, one of the most important steps in creating a data visualization is to select the source of the data to show.

Note:
This documentation focuses on data visualizations in the Visualization Designer or the inline dashboard editor. The information also applies in the UI Builder, but in the latter environment you have more options, such as custom and JSON data sources.

The data source is one of the first two things you select for a data visualization, either just before or just after the visualization type.

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Warning:
If you select data sources and then change the visualization type to one that does not support those data sources, the unsupported sources are cleared. If you later switch back to a visualization type that supports the original selection, you do not restore your original selection. You then have to reselect sources manually.

Select a table data source for a data visualization

Select a table whose records you wish to display. Filter by predefined or custom conditions. Preview a list of records.

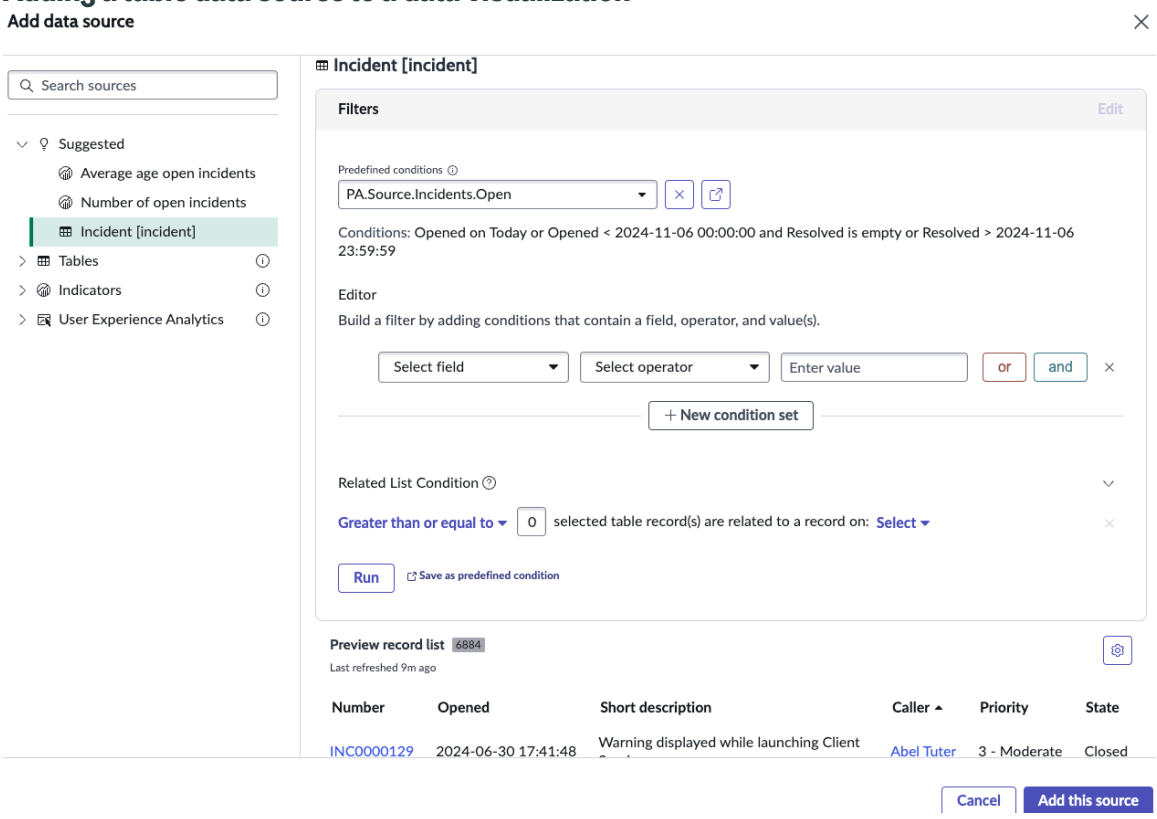
Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

This procedure assumes you are in the process of creating or editing a data visualization and need more information about selecting the data source. It also assumes you are working in either the Visualization Designer or the inline dashboard editor. More options are available in the UI Builder.

Adding a table data source to a data visualization



Procedure

1. Start to create a new data visualization, or open an existing visualization for editing. For more information, see Creating data visualizations.
2. Choose one of the following:

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- If you have not yet selected the chart type, select **Add data source** from the main panel.
- If you have selected the chart type, select **Add data source** from the Data sources section of the configuration panel.

3. To select a table data source, choose one of the following:
   - Enter the table name or the first few letters of the name in the **Search sources** field.
   - Locate the table in the **Suggested** list. Tables are indicated by a table icon.
   - Expand the **Tables** list and navigate down to the desired table.

   When you select a table, the filters and preview list become available.
4. **Optional:** Select a predefined filter.
   Predefined filters are defined on the Report Sources [sys_report_source] table. For more information, see Report sources.
5. **Optional:** Select **+Add custom conditions** and build a filter in the ServiceNow AI Platform Condition builder.
   For more information, see Condition builder.
6. With **+Add custom conditions** open, add a relationship with a field in another table by expanding **Related list condition**.
   For information about building a related list condition, see Add related list conditions.
7. Run your filter query or save it as a predefined condition on the Report Sources table.
8. Examine the filtered list of records in the Preview records list.
   You can reorder, sort, or resize the list in the column header row. You can choose which columns to show or restore the original widths in the list actions.
9. Select **Cancel** or **Add this source**.
   You return to the data visualization editor. In the configuration panel, you can add Group by fields and set other data properties, depending on the chart type.

Select an indicator data source for a data visualization

Select a Performance Analytics indicator (KPI) to display in your data visualization. You can filter the indicator scores by breakdowns.

Before you begin

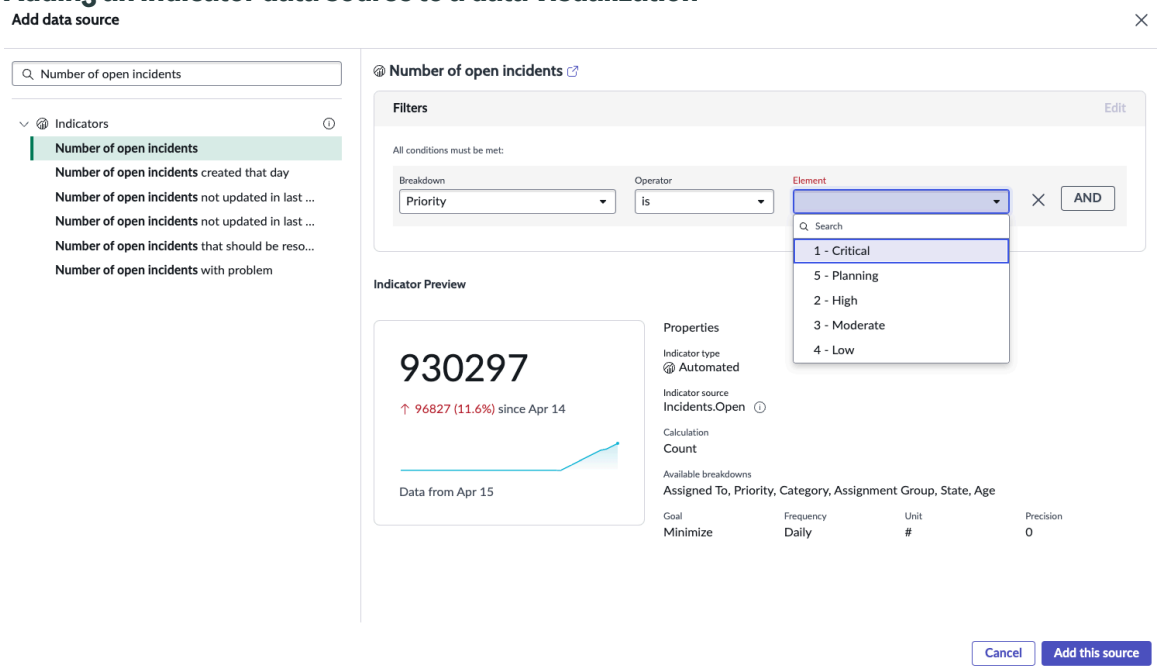
Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

About this task

This procedure assumes you are in the process of creating or editing a data visualization and need more information about selecting the data source. It also assumes you are working in either the Visualization Designer or the inline dashboard editor. More options are available in the UI Builder.

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Adding an indicator data source to a data visualization



Procedure

1. Start to create a new data visualization, or open an existing visualization for editing.
   For more information, see Creating data visualizations.
2. Choose one of the following:
   - If you have not yet selected the chart type, select **Add data source** from the main panel.
   - If you have selected the chart type, select **Add data source** from the Data sources section of the configuration panel.
3. To select an indicator data source, choose one of the following:
   - Enter the indicator name or the first few letters of the name in the **Search sources** field.
   - Locate the indicator in the **Suggested** list. Indicators are marked by an indicator icon.
   - Expand the **Indicators** list and navigate down to the desired indicator.

   When you select an indicator, the breakdown selector and the preview list become available.
4. **Optional:** Select one or more breakdowns, each with an operator and one or more elements.
   The number of breakdowns and elements may be limited. For more information, see Indicator breakdowns.
5. Review the indicator properties and the score.
6. Select **Cancel** or **Add this source**.
   You return to the data visualization editor. In the configuration panel, you can add Group by fields and set other data properties, depending on the chart type.

Related topics

Creating data visualizations

Indicator management and Performance Analytics

User Experience Analytics data sources for data visualizations

You can show metrics related to User Experience Analytics in a data visualization component. The available metrics depend on the visualization type.

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Note:
Users require the admin, analytics_admin, or analytics_viewer role to add User Experience Analytics data sources to a visualization.

The User Experience Analytics application, available in the ServiceNow® Store, provides several data sources.

Events

This data source tracks the events that are triggered on the application. When you select Events as the data source on a visualization, you also must select the application and the event. In a Bar or Pie/Donut visualization, use the **Group by** field to select an event property. You can then view the number of occurrences and the values distribution of that single event property.

Sessions

This data source tracks the number of sessions triggered on an application.

When you select this data source on a visualization, you also must select the application and the category. For Single Score visualizations only, you can select a condition as the category. You can add or edit conditions in the condition builder.

- All Sessions: Represents the number of all sessions created on the application.
- New Sessions: Represents the number of sessions that were created in the most recent time period.
- Returning Users: Users who have created more than one session.
- Loyal Users: Users who have created 5 or more sessions.
- Short sessions: Number of sessions shorter than 20 seconds.
- Long sessions: Number of sessions longer than 300 seconds.
- Custom: You define this category by creating at least one condition.

Users

The number of active unique users using the application. When you select this data source on a visualization, you must also select the application and the category of user. For Single Score visualizations only, you can select a condition as the category. You can add or edit conditions in the condition builder.

- Active Users: Represents the number of all users in the application.
- New Users: Represents the number of users who have performed their first session.
- Returning Users: Users who have created more than one session.
- Loyal Users: Users who have created five or more sessions.
- Never Returned Users: Users who have created only one session.
- Multi Device Users: Users who have created a session with more than one device.
- Custom: You define this category by creating at least one condition.

Important:
You must specify the date range for all User Experience Analytics data sources on all visualization types.

The following data visualizations do not support User Experience Analytics data sources:

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- Calendar
- Geomap
- Heatmap
- Pivot table
- Simple List
- Indicator Scorecard

The following data visualizations only support Events.

- Pie/Donut
- Bar

Time series and score data visualizations support all User Experience Analytics data sources.

User Experience Analytics data sources

Metric	Supported visualization type	Group by	Response
Events	• Scores (Single score, dial, gauge) • Time series • Bars, including Pareto • Pies and donuts • Pivot tables	Bars, Pivot tables, and Pies/donuts: Supported by the event's property Other visualization types: Not supported	Time series: Number of events in the date range Scores: Number of occurrences of the event Bars, Pie/Donut, Pivot: Breakdown of event in date range by property
Sessions	• Time series • Scores	Not supported	Time series: Number of sessions in the date range Scores: Number of created sessions. Responses can also be filtered by conditions.
Users	• Time series • Scores	Not supported	Time series: Number of active or new users in the date range Scores: Number of active or new users. Responses can also be filtered by conditions.

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Multiple data sources

Some visualization types support multiple data sources, while others do not. If your data visualization supports multiple data sources, the data sources must all be of the same type: all tables, all indicators, or all another type.

Multiple data source support by visualization type

Visualization type	Multiple data source support
All time series (line, column, spline, area, and others)	Supported
All scores (single score, dial, gauge)	Not supported
All bars (horizontal, vertical, Pareto)	Supported
Heatmap	Not supported
Pies and donuts	Not supported
Pivot table	Supported
Bubble	Supported
Boxplot	Not supported
Calendar report	Not supported
Geomap	Not supported
Indicator scorecard	Not supported
List - simple	Not supported

Warning:
If you select multiple data sources for a visualization and then change the visualization type to one that does not support multiple data sources, you keep only the first data source. Switching back to a visualization type that supports multiple data sources does not restore the previously selected data sources.

Example data visualization based on multiple data sources

Here's a simple example of a report based on the Indicator and Problem tables.

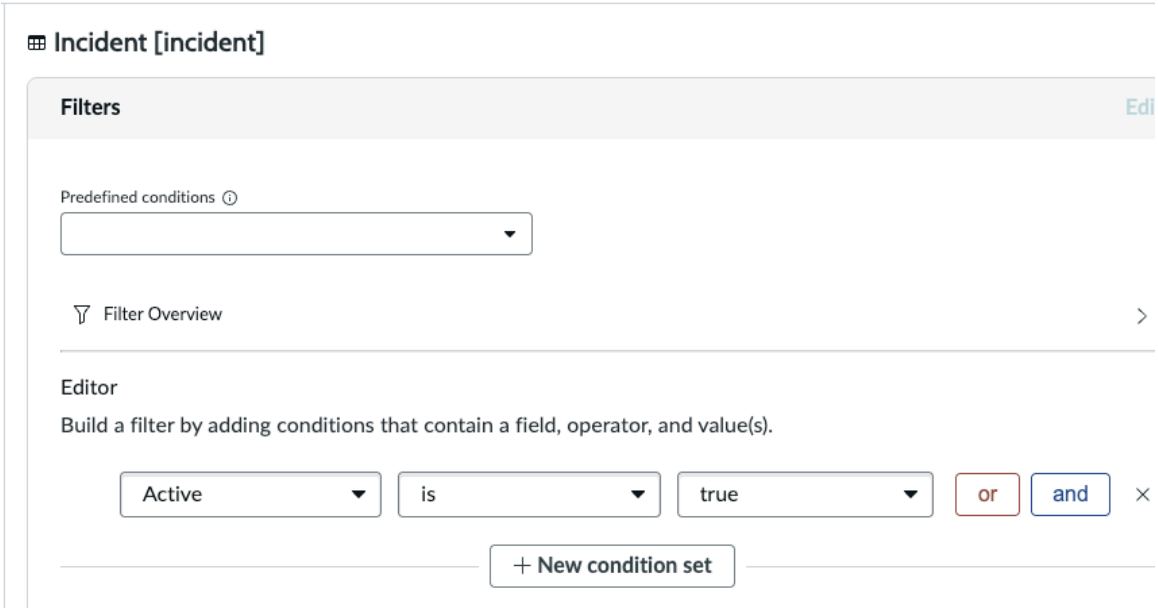
Before you begin

Role required: Anyone with access to data can create a visualization of that data on any dashboard that they can edit. Users with the itil, report_user, admin, or viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the Library. For more information on access, see Report_view access control and Platform Analytics roles.

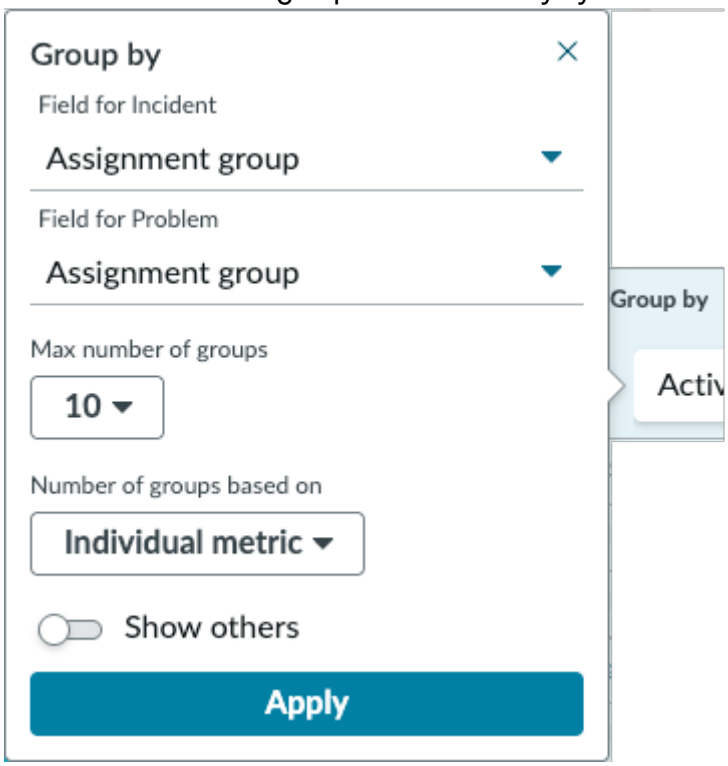
Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. For the purposes of this example, create a Vertical bar visualization.
   For more information, see Create a horizontal or vertical bar data visualization.
4. Under Data sources, select **+ Add data source**.
5. Add the Incident [incident] table as a data source, with the custom condition `Active is true`.

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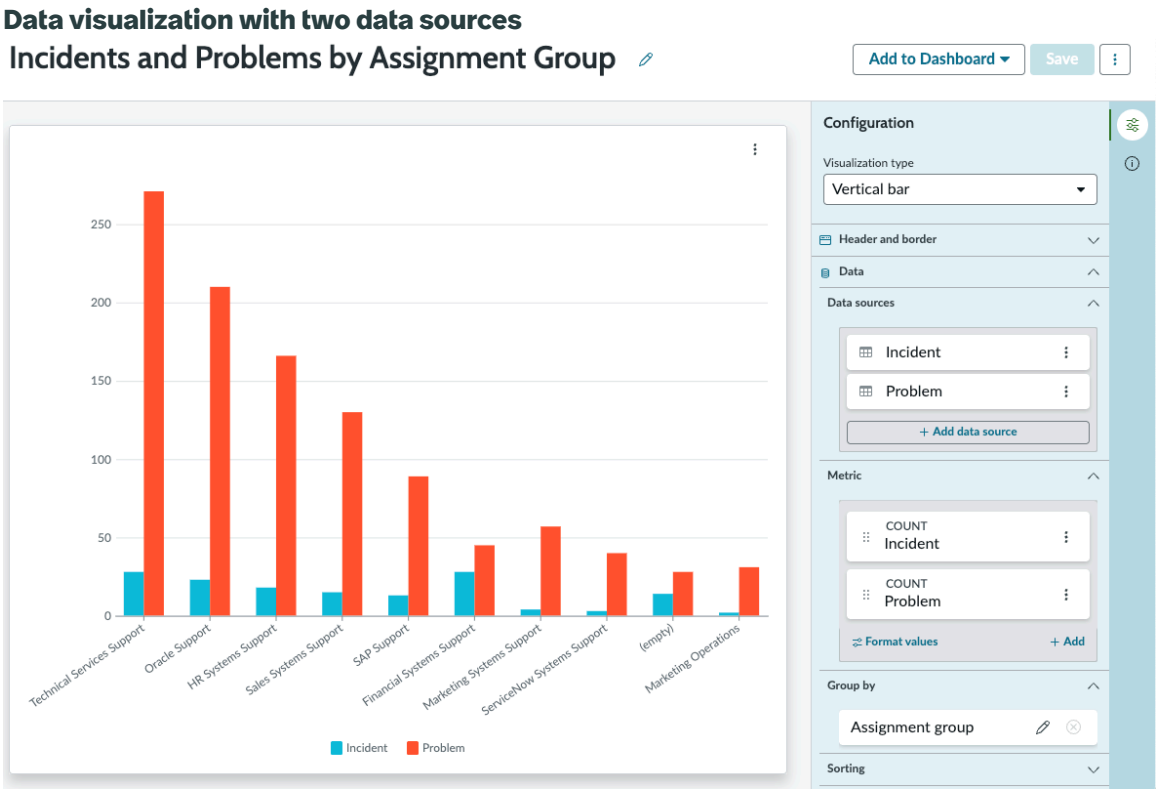
6. Select **+ Add data source** again and add the Problem [problem] table, also with the condition `Active is true`.
   Data sources for a visualization must all be of the same type. Here they are tables.
7. Group both data sources by Assignment Group.
   The second source is grouped automatically by the same field as the first source.



8. **Optional:** To make the visualization easier to read, under **Chart variation**, select `Side-by-side`.
9. Select Save and name the visualization `Incidents and Problems by Assignment Group`.

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Result



Control data source availability by role

Limit by role the data sources for which users can create data visualizations.

Before you begin

Role required: admin

About this task

By default, all roles can create data visualizations for all data sources. You can instead limit the available data sources by an allow list. When you create a Visualization Data Sources Visibility [sys_viz_data_source_role] record for a data source, only users with at least one of the roles that you specify can create a data visualization for that data source. Any visualizations that they created before you created the allow list still exist. However, the user who created the visualization will no longer be able to edit that visualization unless they have one of the roles from the allow list.

Important:
Create only one Visualization Data Sources Visibility record for a data source.

Procedure

1. Create a new record on the Visualization Data Sources Visibility [sys_viz_data_source_role] table.
   For example, you can navigate to the list view of the table and select **New**.
2. In the **Viz data source** field, select the data source whose use you want to limit.
   Your choices include any custom data sources that you have created in the Viz Framework Data Sources [sys_viz_data_source] table.
3. Select the **Edit user roles** icon ( ) next to Roles.
4. In the **Available** field, highlight those roles that should be able to create data visualizations for this data source.

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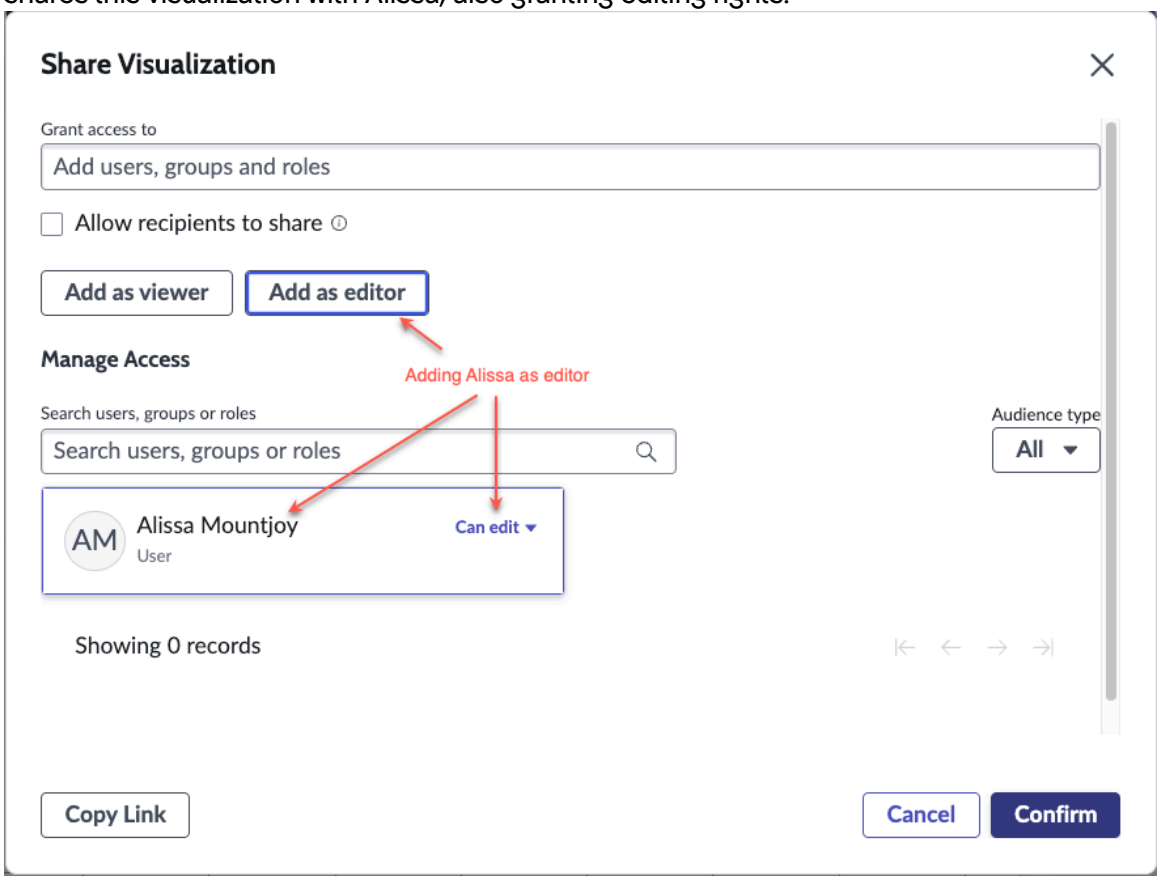
Only users with the roles you add will have access to the data source. You can reopen this record and add or delete roles later. Users with deleted roles will see a message that they don't have access to the data source when they try to edit a visualization based on it.

5. Select the right arrow > button to add the highlighted roles to the record.
6. Select **Done**.
7. Select **Submit**.

Example: Impact of limiting data source by role

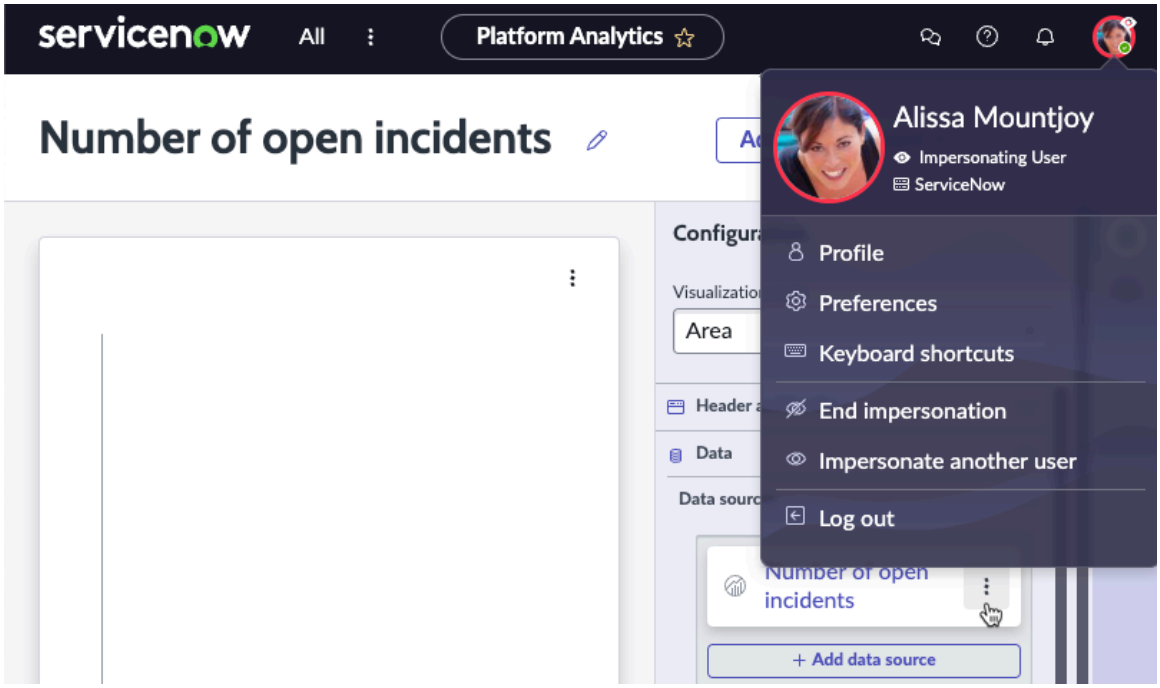
Abel Tuter is a top business analyst. Abel has the pa_power_user role and can create indicators. Alissa Mountjoy is a technical expert who schedules data collection jobs for indicators, but is not a business analyst and does not create indicators. Alissa has the pa_data_collector role. By default, both Abel and Alissa can create data visualizations based on an indicator.

Abel creates a time series data visualization on the Number of Open Incidents indicator. Abel shares this visualization with Alissa, also granting editing rights.

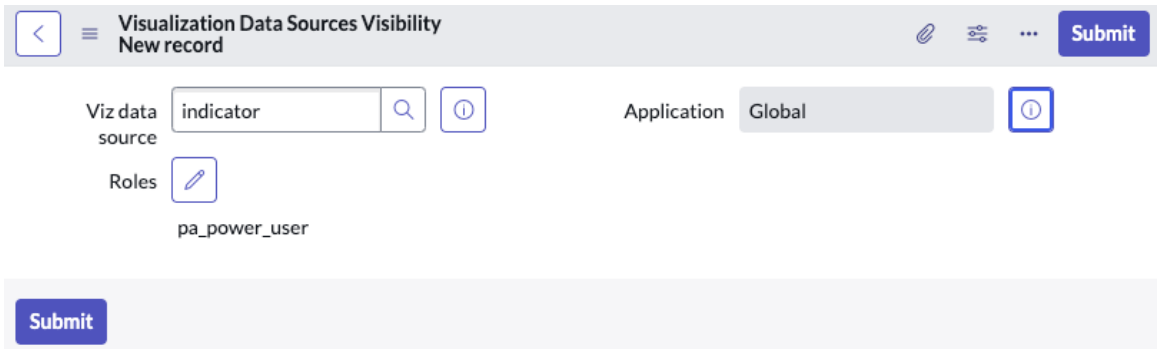


Alissa can open this visualization in edit mode, accessing the configuration panel. She can edit the data source. She can also create a visualization herself using an incident data source.

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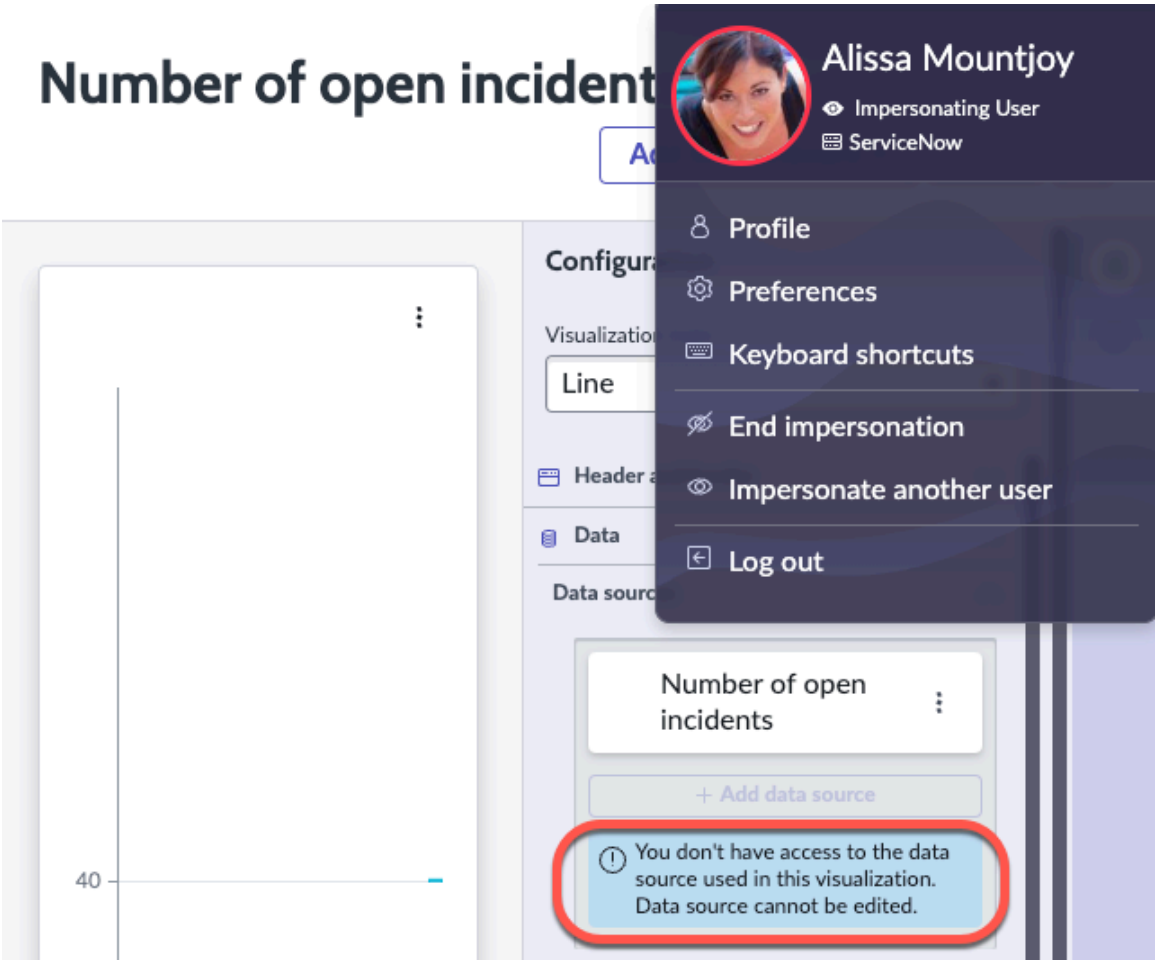


As a system administrator, you decide that only business experts with the pa_power_user role should be able to create data visualizations based on indicators.



Alissa still has editing rights to the data visualization, but can no longer edit the data source. Neither can Alissa create a data visualization with an incident data source.

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Related topics

Data sources for data visualizations

Dot-walking from reference fields in a data visualization

Dot-walking provides access to fields on extended, or related, tables, enabling you to create data visualizations on fields from those tables.

You can access references on extended tables from the Metric, Group by/Stack by, column/row, or Trend by fields in the Configuration panel, or when you add custom conditions when you choose the data source. The Sorting option also enables you to configure the sort order of applicable reference fields on extended tables. Tables that reference other tables are denoted with an arrow ( ) icon.

Dot-walking references a field by building a chain of field names separated by dots (periods). For instance, *incident.assigned_to.company* references the company of the user assigned to an incident. The recommended limit for chain length is three levels.

Note:
Dot-walking applies only to visualizations of table data sources.

Related topics

Dot-walking examples

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Dot walk fields in Visualization Designer

Learn how to dot walk table fields in a data visualization of table data. See how to start from a parent table, such as Task, and dot walk to include data from extended tables, such as Indicator and Problem.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin.

About this task

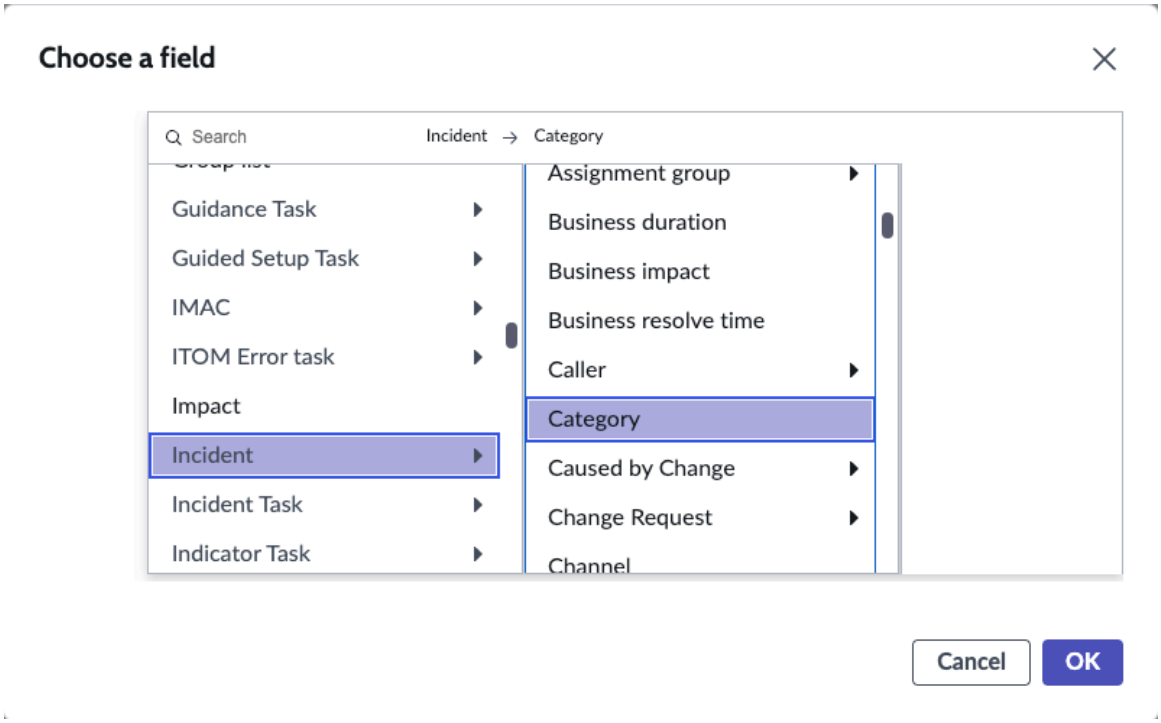
Note:
If you cannot dot-walk from any of your fields, check with a ServiceNow AI Platform administrator whether the system UI property *glide.ui.list.allow_extended_fields* is enabled on your instance.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select **New**.
3. Create any of the data visualizations listed under Creating data visualizations, selecting a table data source.
4. Open one of the following sections of the configuration tab, depending on the visualization type:
   - The condition builder that opens with **+ Add custom conditions** on the data source.
   - Metric
   - Group by
   - Trend by
   - Columns
5. Edit or add an item in the section
   For a metric, select an aggregation other than Count.
6. Under Field, navigate to the desired reference field.

   Reference fields have an Expand arrow ▶.
7. Select the Expand arrow to show a list of fields in the table that the reference field points to.

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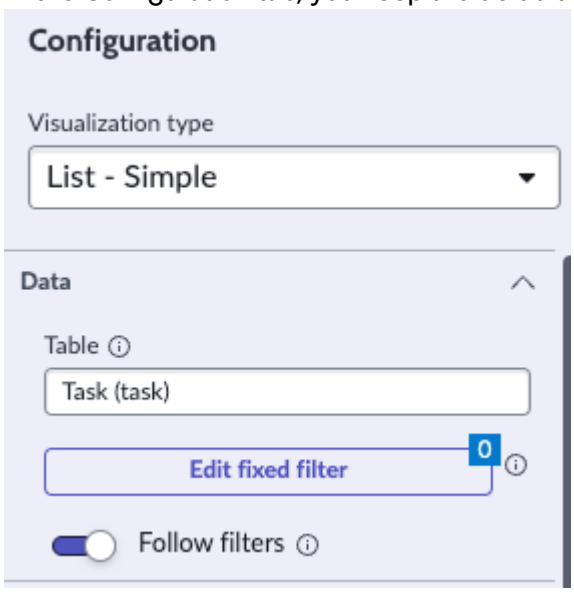


8. Select a field, or continue to dot walk across reference fields until you find the desired field.
9. Select **OK** or **Apply**.

Example: Dot-walking to two tables that extend Task [task]

In this example, you create a simple list of data from the Task table and include fields from the Indicator [indicator] and Problem [problem] tables, which extend Task.

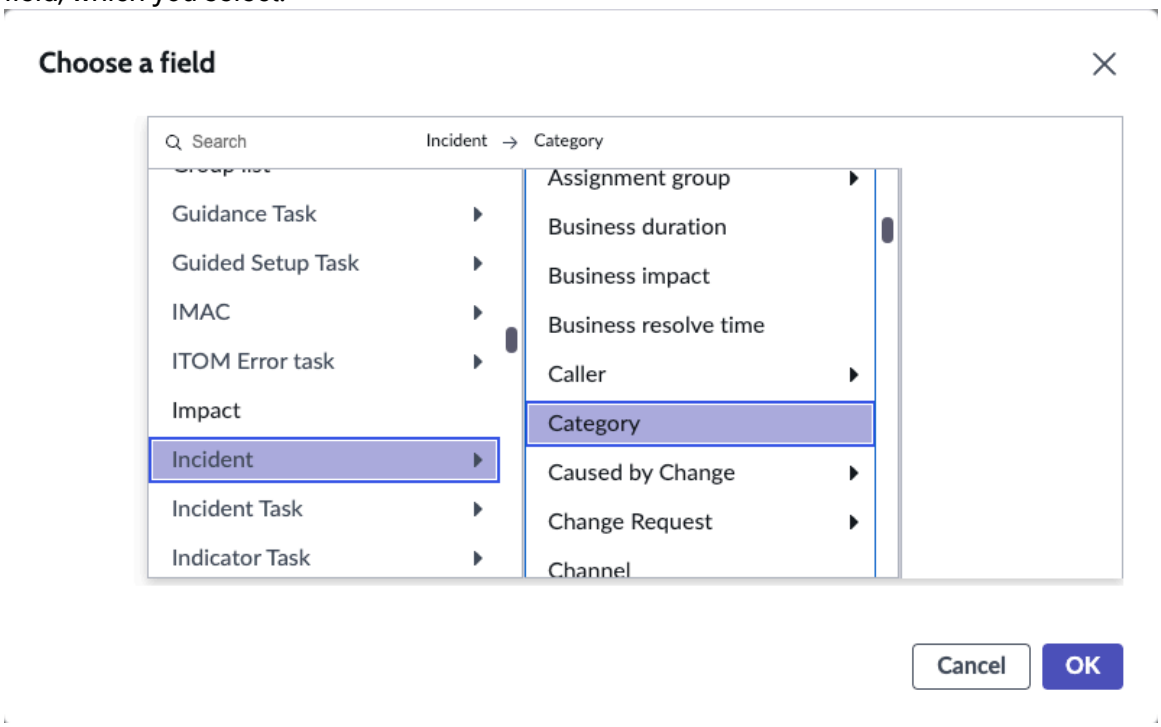
1. You navigate to the Data Visualizations list in the Platform Analytics library and select **New**.
2. In the **Visualization type** field, you select Simple list ( ).
3. In the Configuration tab, you keep the default Task [task] table.



4. In the Columns field, you select **+Add** and scroll down to Incident.

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5. Next to Incident, you see an Expand arrow ▶ that indicates you can dot-walk. So you click that arrow, and scroll down through the fields on the Incident table until you reach the Category field, which you select.

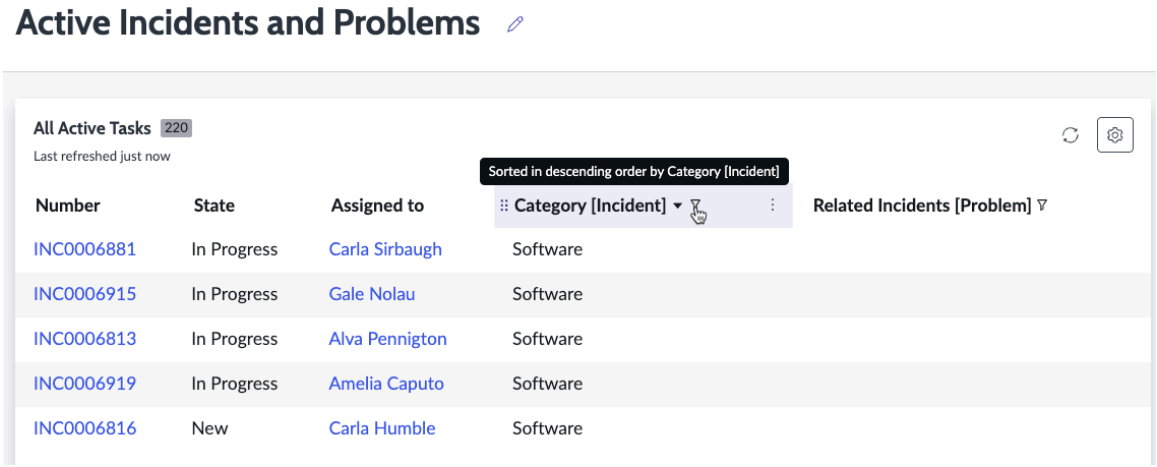


6. You repeat this process to add the Problem.Related incident field.
7. Add the Number, State, Assigned to, and Short Description fields, and move them into the order you want.
8. To see only relevant entries, you add the following filters:
   - Active is true AND
   - Category [Incident] is not Null OR
   - Related Incidents [Problem] is not empty
9. You save the visualization and title it `Active Incidents and Problems`.

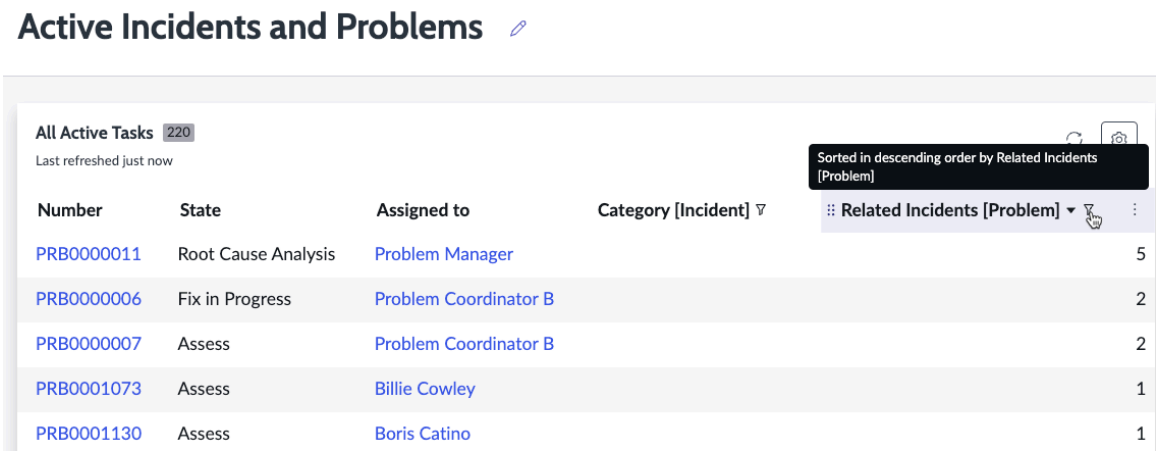
The final visualization shows either Incident.Category values, Problem.Related Incidents values, or both.

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Active Incidents and Problems data visualization showing Incident.Category content



Active Incidents and Problems data visualization showing Related incident.Problem content



Value formatting in data visualizations

In most data visualizations, you can configure how numerical values look when you publish the report.

Types of value formatting

Unit format

Show the format of time fields as d/h/m/s or day/hour/minute/second.

Maximum/Minimum duration unit

Select the largest or smallest unit to be shown: Day, Hour, Minute, or Second.

Hide seconds when unit is greater than one minute

Removes seconds display when a duration value is greater than one minute. Only available if you choose **Second** as the minimum duration unit.

Decimal precision

Number of decimal places to show, from zero to four decimal places.

> **Note:**
> Decimal precision is not supported on currency fields.

Rounding

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For values greater than one minute, simplifies a number by rounding, while keeping it close to its value. See the next section, Rounding options.

Use the thousands group separator

Separate a value of thousands or higher with a comma or period.

Enable abbreviation

Show a value of thousands or higher with a single character.

> **Note:**
> Abbreviation for Currency, Price, or FX Currency values is not supported.

Hide value in tooltip

Do not show the unrounded, unabbreviated value in the tooltip.

Rounding options

For values greater than one minute, rounding options simplify a number, but keep it close to its value. Select from these rounding options:

- Up - to the next larger whole number if positive and to the next smaller whole number if negative. Example: For original values of:
  - 1.1 returns a value of 2
  - 1.6 returns a value of 2
  - -1.6 returns a value of -2
- Down - to the next smaller whole number if positive and to the next larger whole number if negative. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 1
  - -1.6 returns a value of -1
- Ceiling - to the next larger whole number, toward the positive. Example: For original values of:
  - 1.1 returns a value of 2
  - 1.6 returns a value of 2
  - -1.6 returns a value of -1
- Floor - to the next smaller whole number, toward the negative. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 1
  - -1.6 returns a value of -2
- Half up - to the nearest neighboring whole number. If both neighbors are equidistant, rounds to the next larger whole number. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 2
  - 2.5 returns a value of 3
- Half down - to the nearest neighboring whole number. If both neighbors are equidistant, rounds to the next smaller whole number. Example: For original values of:

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- 1.1 returns a value of 1
- 1.6 returns a value of 2
- 2.5 returns a value of 2

- Half even - to the nearest whole number. If both neighbors are equidistant, rounds to the closest even number. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 2
  - -2.5 returns a value of -2

Summary of rounding options:

Result of rounding input to one digit with the given rounding mode

Input number	Up	Down	Ceiling	Floor	Half up	Half down	Half even
5.5	6	5	6	5	6	5	6
2.5	3	2	3	2	3	2	2
1.6	2	1	2	1	2	2	2
1.1	2	1	2	1	1	1	1
1.0	1	1	1	1	1	1	1
-1.0	-1	-1	-1	-1	-1	-1	-1
-1.1	-2	-1	-1	-2	-1	-1	-1
-1.6	-2	-1	-1	-2	-2	-2	-2
-2.5	-3	-2	-2	-3	-3	-2	-2
-5.5	-6	-5	-5	-6	-6	-5	-6

Chart interactions in a data visualization

You can set what occurs when a user interacts with a chart, such as by selecting a bar column. Possibilities include navigating to a URL, opening another data visualization, and filtering all visualizations on the dashboard by the selected value.

https://player.vimeo.com/video/1003324543?badge=0&autopause=0&player_id=0&app_id=58479

The configuration panel of a data visualization includes a section labeled Chart interaction. In this section, you set what is called "on-click behavior." This term refers to what happens when a user interacts with a segment of the chart that represents a value. Examples include selecting a point on a time series or a segment of a pie or donut. You can also disable chart interactions for the visualization.

Important:
You cannot configure chart interactions for data visualizations on technical dashboards or other UI Builder pages. You can turn chart interactions on or off with the **Enable drilldowns** toggle, but you cannot otherwise change them. Instead, you have to configure handlers for on-click events. For information about configuring drilldowns from data visualizations on a technical dashboard, see Add a drilldown event to a data visualization on a technical dashboard.

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The following actions are available for a chart interaction:

Go to data view

Opens a view of the data appropriate to the data type. For information about the views for each data source, see Data views for different data sources.

> **Note:**
> Go to data view is the default interaction for all supported data sources. User Experience Analytics data is not supported.

Go to URL

Opens the URL you specify. This URL can be on the instance or external to it. Where relevant, you can specify the name of the page that is opened in a tooltip. Go to URL is the default interaction for User Experience Analytics data sources.

Apply as filter

Filters all applicable data visualizations on the dashboard by the value of the selected segment. Does not apply when the Group by field is a time duration. Available only for Horizontal and Vertical Bar and Pie/Donut visualizations, and only for table and indicator data sources. Not available on UI Builder. For more information, see Make a data visualization act as a filter.

Drill down to chart

Opens a different data visualization that is filtered by the selected data. You can add a drill-down visualization for each metric on the parent visualization. You configure this new drill-down visualization seamlessly as part of the process of configuring the chart interaction.

> **Note:**
> Drill down to chart has the following limitations:
>
> - You cannot configure Drill down to chart in the inline dashboard editor, only in the Visualization Designer.
> - Drill down to chart is available only for table data sources.
> - You cannot set drill down to chart from the Calendar, Geomap, Indicator scorecard, or List visualizations. However, you can drill down from supported visualizations to any visualization that can display table data.

Different chart interactions support different data sources and data visualization types. The following table shows the matrix of support.

Chart interaction support

Action	Supported data visualizations	Supported data sources
Go to data view	All	All that the visualization supports except User Experience Analytics
Go to URL	All except Geomap and Indicator Scorecard	All that the visualization supports
Apply as filter (Available only in inline dashboard editor)	• Horizontal and Vertical Bar • Pie and Donut	Table and indicator

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Chart interaction support (continued)

Action	Supported data visualizations	Supported data sources
Drill down to chart (Available only in Visualization Designer)	All except Calendar, Indicator scorecard, List, and Geomap	Table

Configure chart interactions

Select what happens when a viewer interacts with a section of the chart for a data visualization that you are editing.

Before you begin

Role required: You can configure this option on any visualization you create, but the person viewing the data visualization must have the right to see the underlying data.

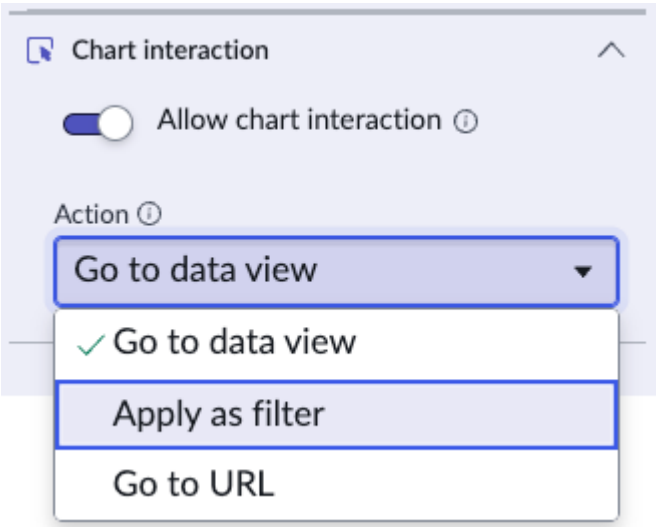
About this task

You can configure chart interactions only in the Visualization Designer or the inline dashboard editor, not in UI Builder.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.
2. Select or create the visualization you want to configure.
3. Under Chart interaction, turn on **Allow chart interaction**.
4. Under Action, select from the available chart interactions.
   The possible interactions are:
   - Go to data view
   - Go to URL
   - Drill down to chart (available from within the Visualization Designer): Lets you add multiple layers of charts to drill down to from each metric in the visualization.
   - Apply as filter (available only when editing within a dashboard)

   The interactions are described in Chart interactions in a data visualization.

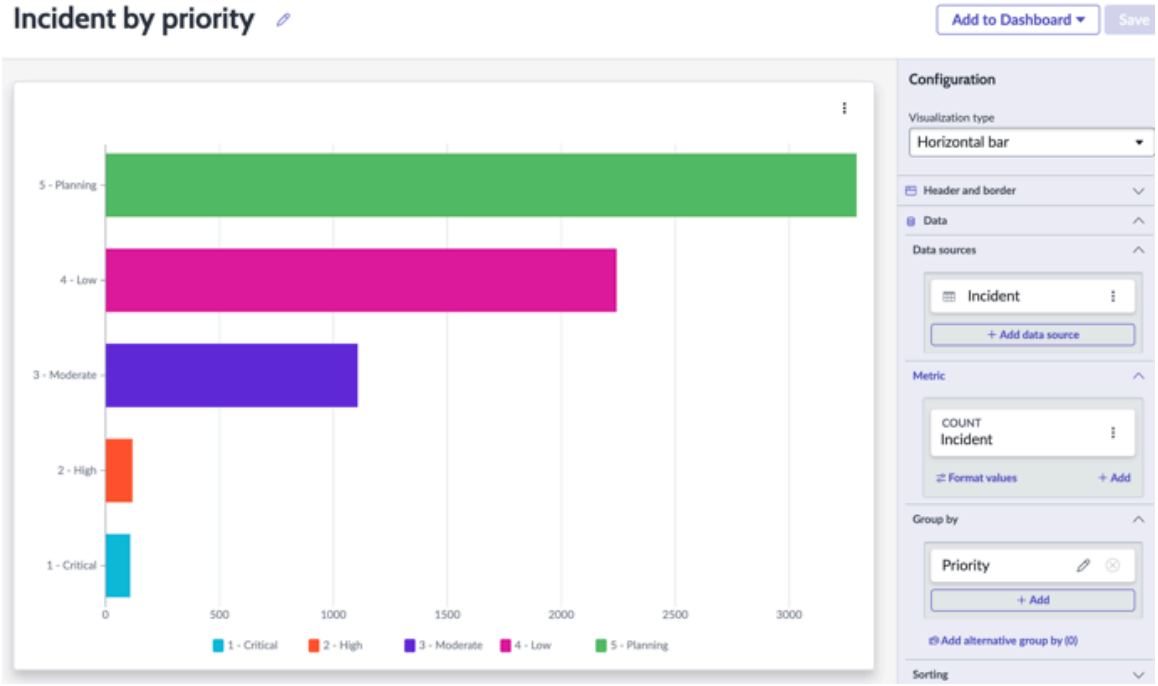


5. Select **Save**.

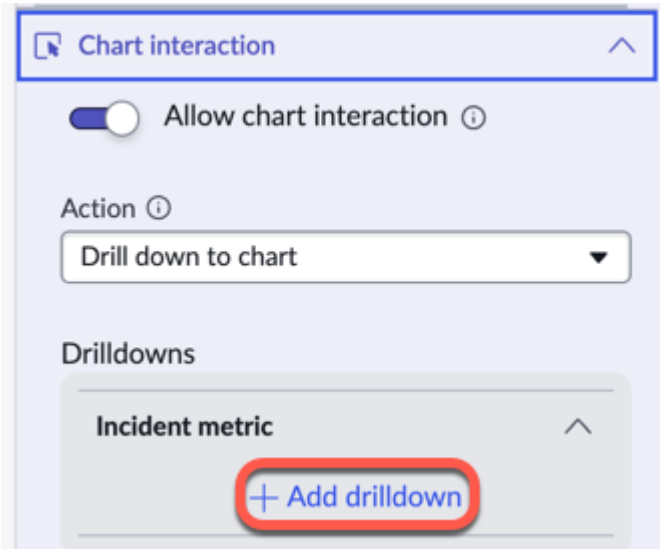
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Example: Drill down to chart

Consider a horizontal bar data visualization of the number of incidents on the Incident table grouped by Priority. You decide that users should drill down from a value on this chart to a single-score chart showing the total number of incidents.

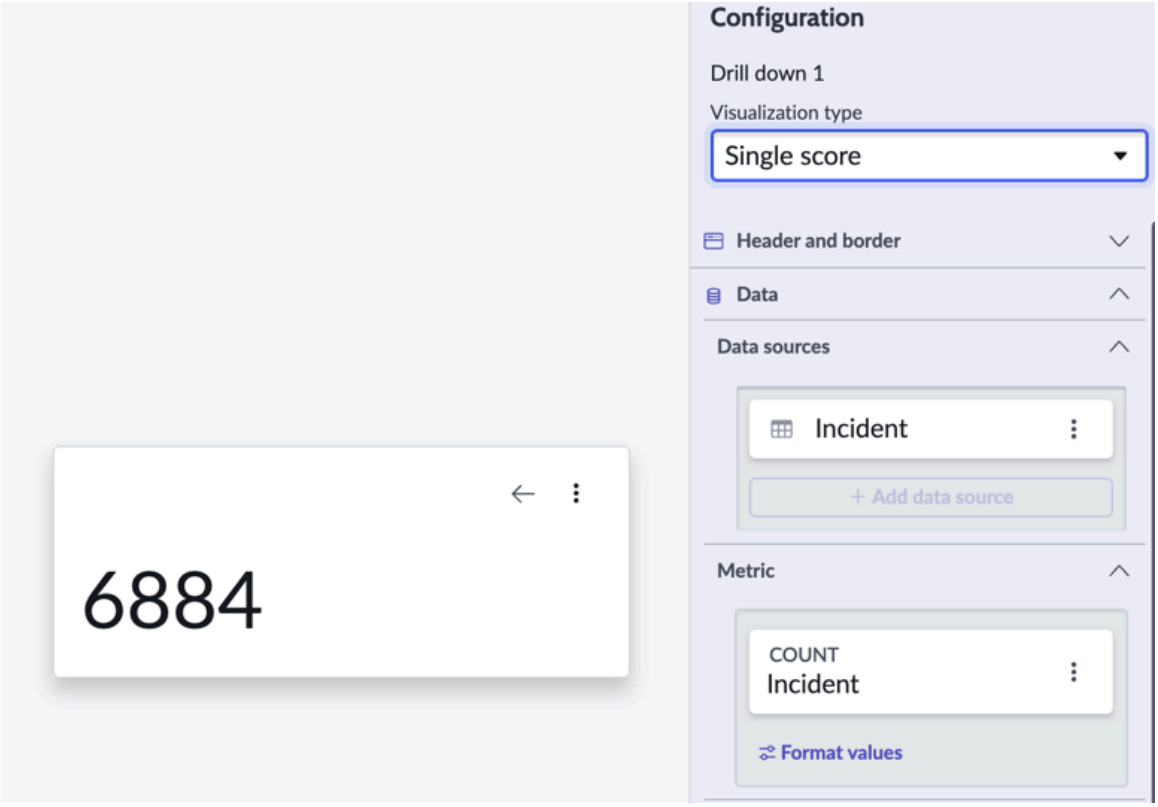


1. You navigate to the Chart interaction section of the configuration panel. Here you select **Drill down to chart** as the action. You can add a drilldown chart to any of the metrics in the visualization. As the Incident metric is the only one on the visualization, this metric is your only choice.

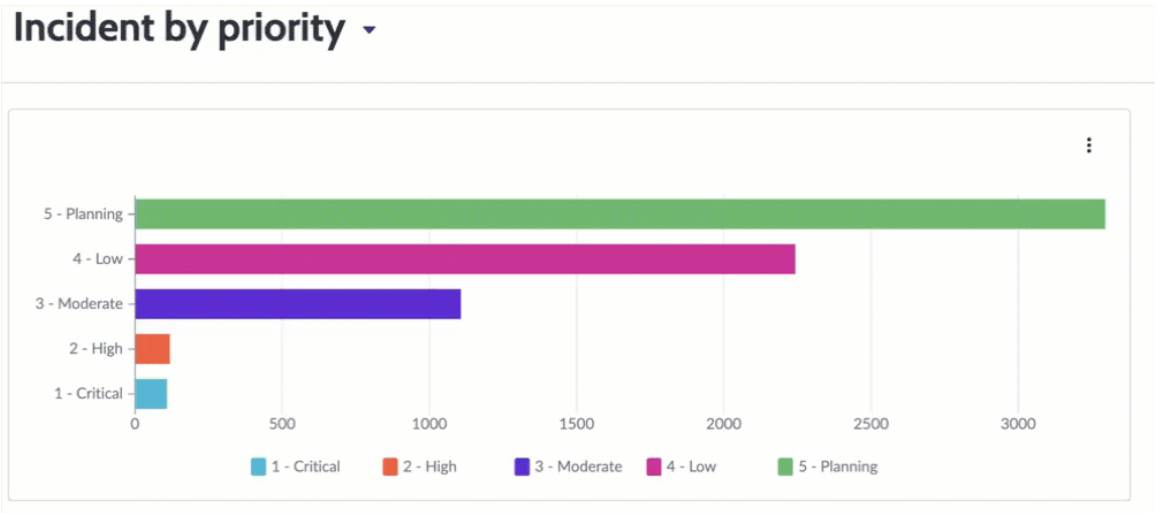


2. You select **+ Add drilldown** for the Incident metric. A configuration panel for a new chart called Drill down 1 opens.
3. You configure the chart to show a single score representing the number of incident records on the Incident table and save the chart.

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4. You could add another chart to drill down to from the single score chart that you created, but you don't think this is necessary.
5. Now, when a viewer interacts with this visualization on a dashboard, they can drill down from the bar chart to the single score chart and navigate back up. Similarly, you or another editor of the visualization can move between the parent and child charts to edit the configuration of either one.



Data views for different data sources

When the chart interaction for a data visualization is set to Go to data, interacting with a data value on the chart opens different pages depending on the data source.

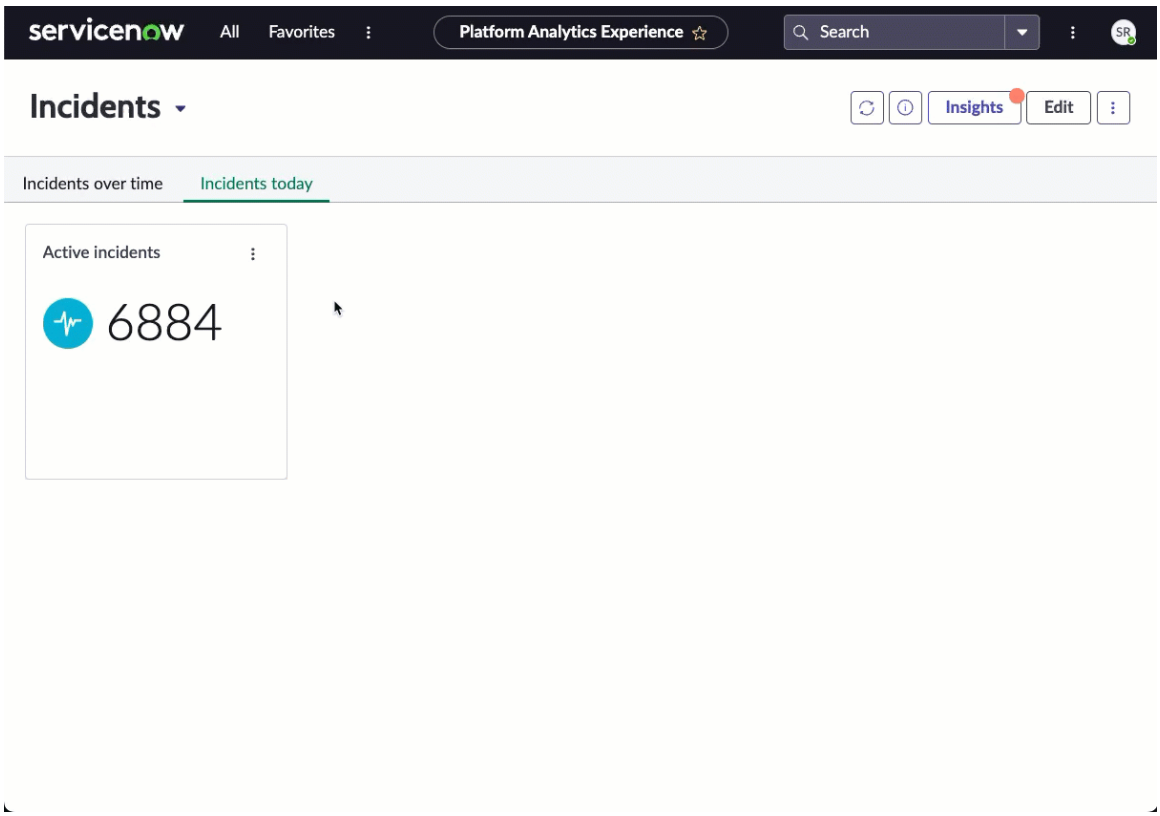
Note:
For an overview of the data sources that are available for data visualizations, see Data sources for data visualizations.

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Table data visualizations

Go to data chart interactions from table data visualizations open the associated Core UI list of table records.

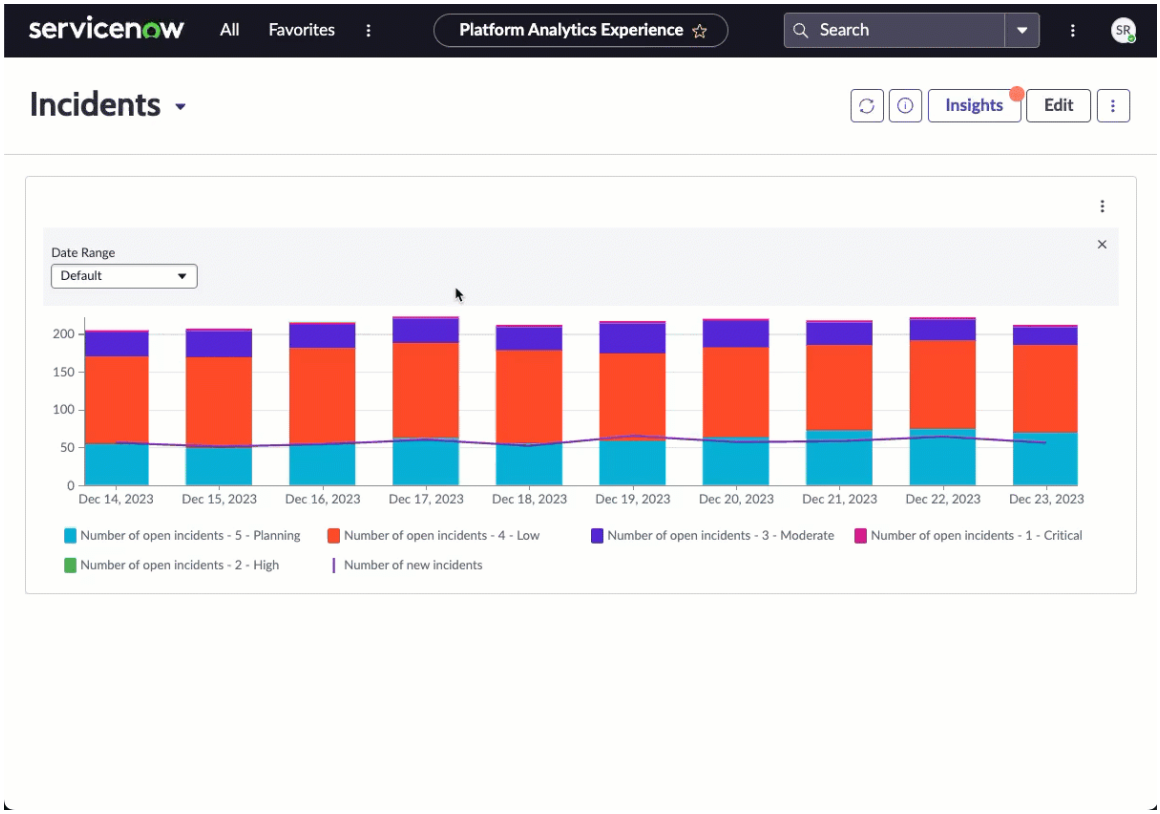
Note:
This chart interaction can only open the default ServiceNow AI Platform list view of table records, which is currently in the Core UI. For technical reasons, it cannot open a Simple List or other Platform Analytics component. This restriction does not apply to dashboards in configurable workspaces and experiences, which use manually configured event handlers instead of chart interactions.



Indicator visualizations

Go to data chart interactions from indicator visualizations open the associated KPI Details page. For more information, see KPI Details.

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Health Log Analytics

Go to data chart interactions from Health Log Analytics data visualizations open the log viewer. For more information, see Health Log Analytics.

Note:
You cannot create or edit data visualizations for Health Log Analytics from the Platform Analytics experience, but only from the UI Builder.

MetricBase

Go to data chart interactions from MetricBase visualizations open the Metrics Explorer. For more information, see MetricBase.

Important:
Go to data chart interactions for MetricBase require the Metric Explorer for Service Operations (sn_sow_metric_exp) plugin.

User Experience Analytics

User Experience Analytics does not support **Go to data** chart interactions.

Questions in data visualizations

You can group or filter table data in data visualizations by questions. The table must support questions.

Creating data visualizations grouped by questions is helpful to:

- Determine whether questions that customers ask are getting answered.
- Gain more information from customers during the request process.

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The data source must be a non-service catalog table that has questions associated with it. You can filter or group by questions on a table extended from the Task [task] table, for example the Incident [incident] or Problem [problem] tables, or from the Record Producer table [sc_cat_item_producer].

You can use questions when you create custom conditions to filter the data source. You can also use questions in any Group by or Alternative group by fields that the type of data visualization supports.

Note:

If there is a Record Producer associated with the table, variables defined in that Record Producer are available as Questions in the condition builder for filtering the data source, except for the following question types:

- Label
- Rich text label
- Macro
- Container

You cannot group by Record Producer variables. For more information, see Record Producer.

Use questions in data visualizations

In visualizations of data from the Task [task] hierarchy of tables, you can use questions defined for the table to filter or group the data.

Before you begin

Role required: viz_creator or higher, including itil. To see the data, you need a role permitted by a report_view access control on the data source table

About this task

Use a question as a filter, a group by, or an alternative group by.

Note:

Box, and Trendbox visualizations can't use questions as a group by or alternative group by. Single Score, Calendar Report, and Geomap visualizations don't support grouping on any fields. Simple lists can use questions only as columns. Pivot Table visualizations can group by questions only as columns or rows.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** and open the visualization to add the question to.
2. Select one of the following options.

Option	Description
Use the question as a filter	Add or edit a data source and select **Add custom conditions**. If any custom conditions have already been defined, select **+ Add**. Then select **Questions** at the bottom of the field list.

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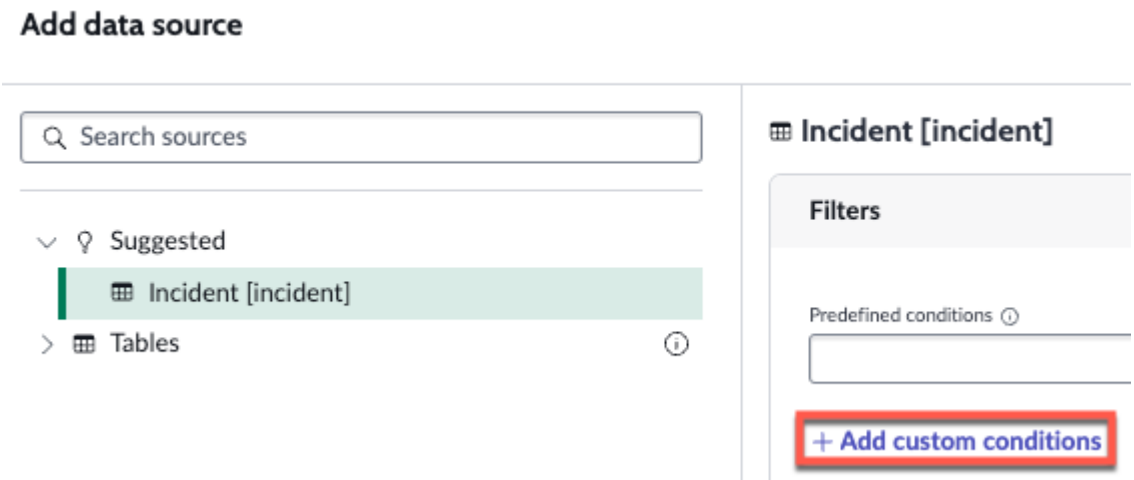
Option	Description
Add the question as a column in a Simple List	Under **Default display**, select **+ Add** next to Columns. Then select **Questions** at the bot tom of the field list.
Add the question as a group by	Under **Group by**, select **+ Add**. Then select **Questions** at the bottom of the field list.
Add the question as an alternative group by	Under **Group by**, select **Add alternative group by**. Then select **Questions**.
Add the question as a column or row in a piv ot table	Under **Group by**, select **+Add** for Columns or Rows, then select **Questions** at the bottom of the field list. **Note:** ○ If you create the report with the ques tion as the main Group By, the ques tion behaves as an inner join. ○ If you create the report with a regular field for primary grouping, and a sec ondary grouping on the question, the question works as an outer join.

The available questions appear. Not all questions that are available as group by values are also available as alternative group by values.

3. Select the question you want.
4. If you are using the question in a custom condition, select the operator and the value.
5. Select **Apply**.

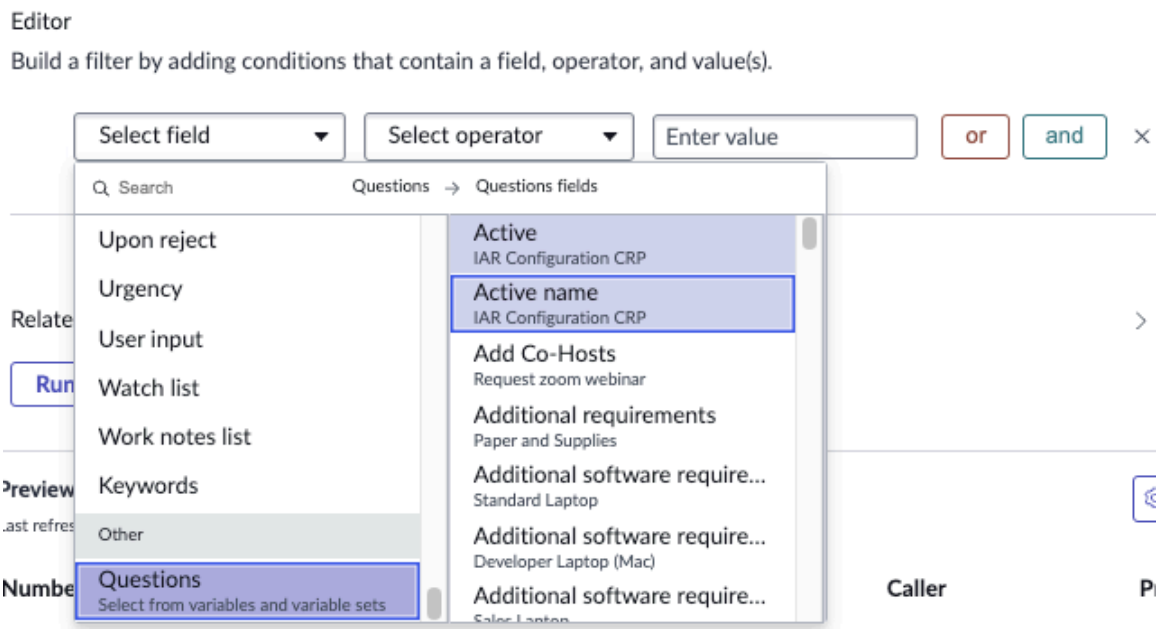
Example: Question as a filter

Here you have opened the Edit data source page for a data visualization. No custom conditions have been defined for this data visualization, so you select **Add custom condition**.



Next, you scroll down the Select field list to question, select that, and select a question.

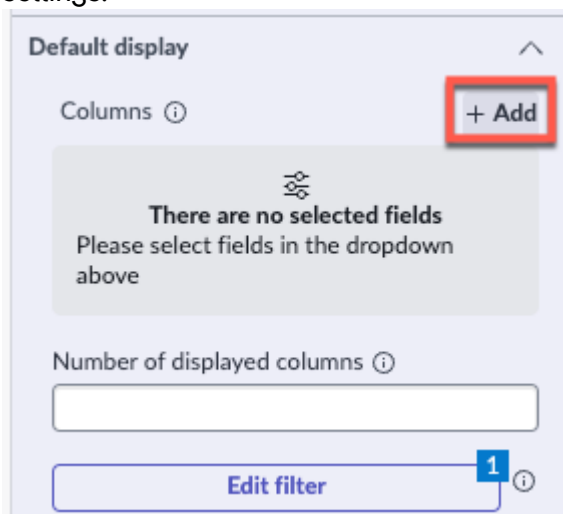
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Finally you select the operator and the value, such as Is | A4, and select **Apply**.

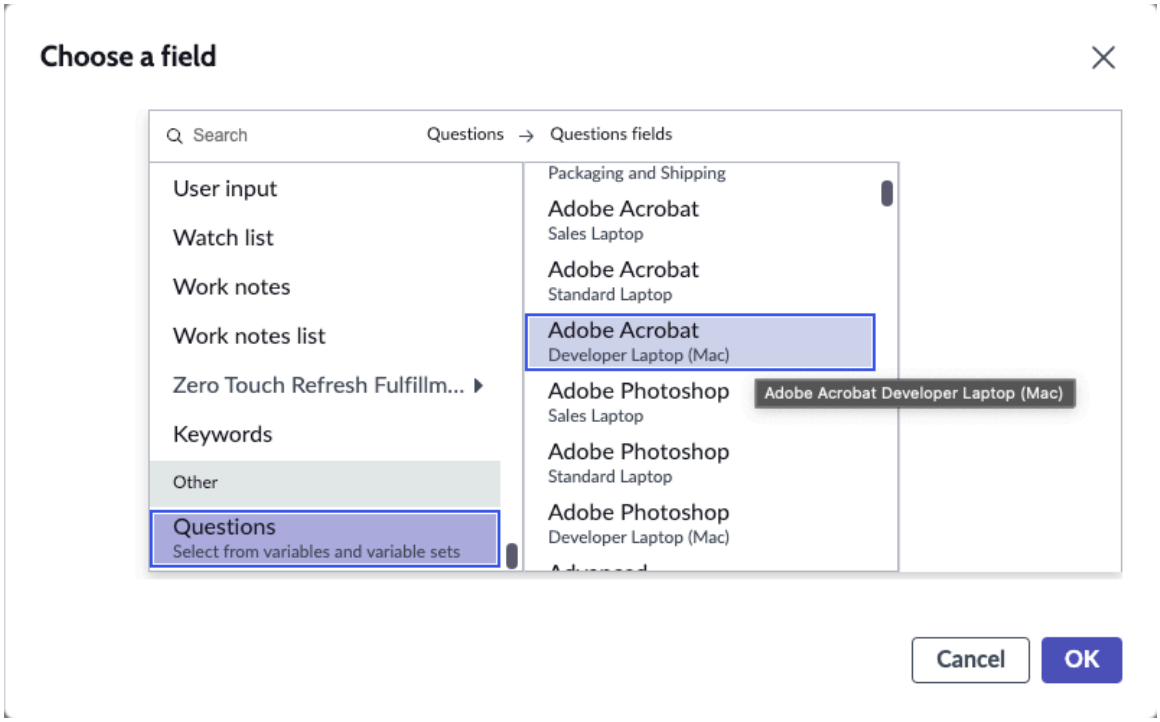
Example: Question as a column in a simple list

Here you have a simple list showing records on the Incident table. You want to add a column for one of the questions. So, first you select **+ Add** next to Columns under the Default display settings.



The Choose a field pane opens. You scroll to the bottom and select **Questions**.

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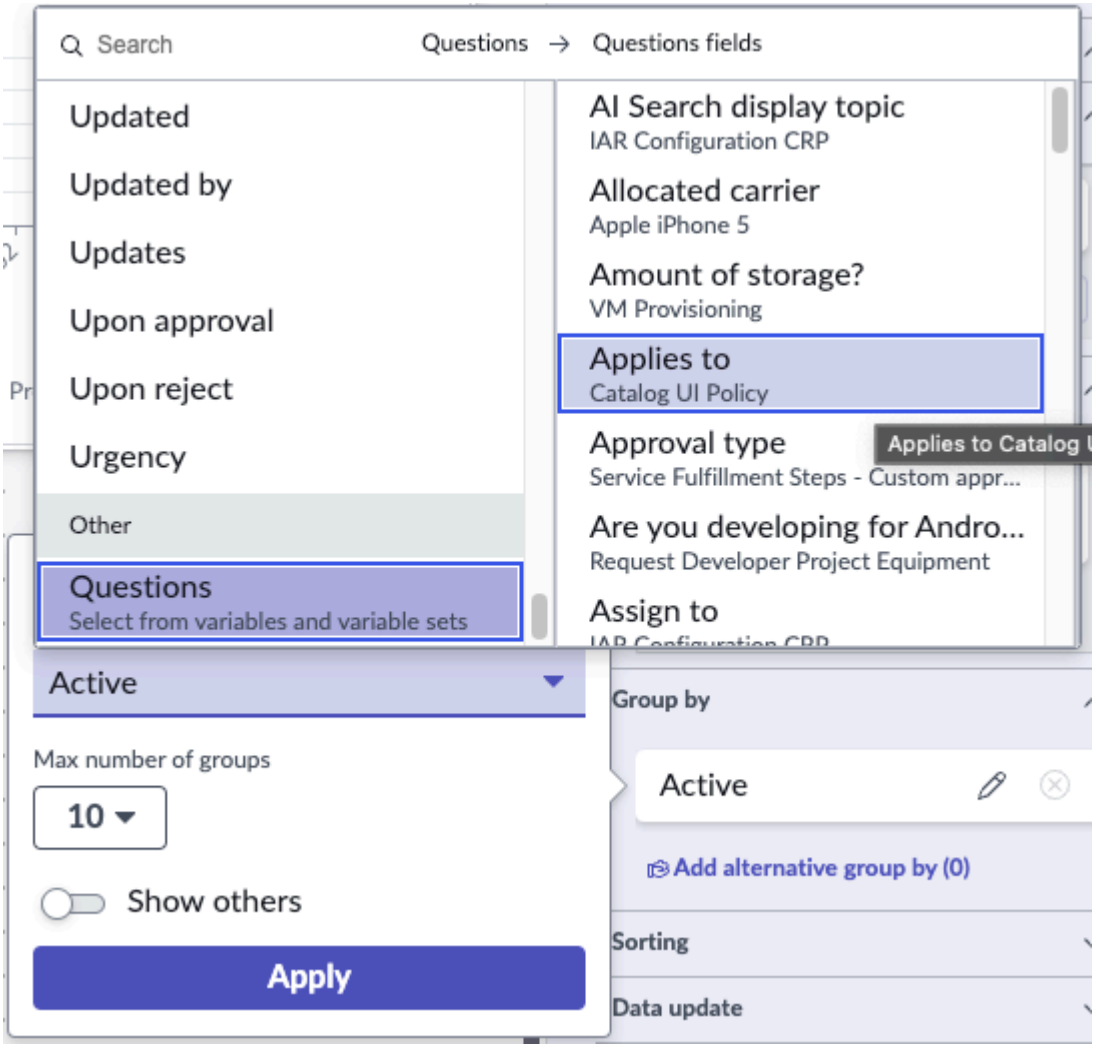


You select the question you want, such as Adobe Acrobat for a developer laptop, then press **OK**.

Example: Question as a group by

In this case, you have a horizontal bar visualization of data in the Incident table. In the Group by section, you edit the group by. You scroll to the bottom of the list of fields and replace the Active field with questions, and select your question.

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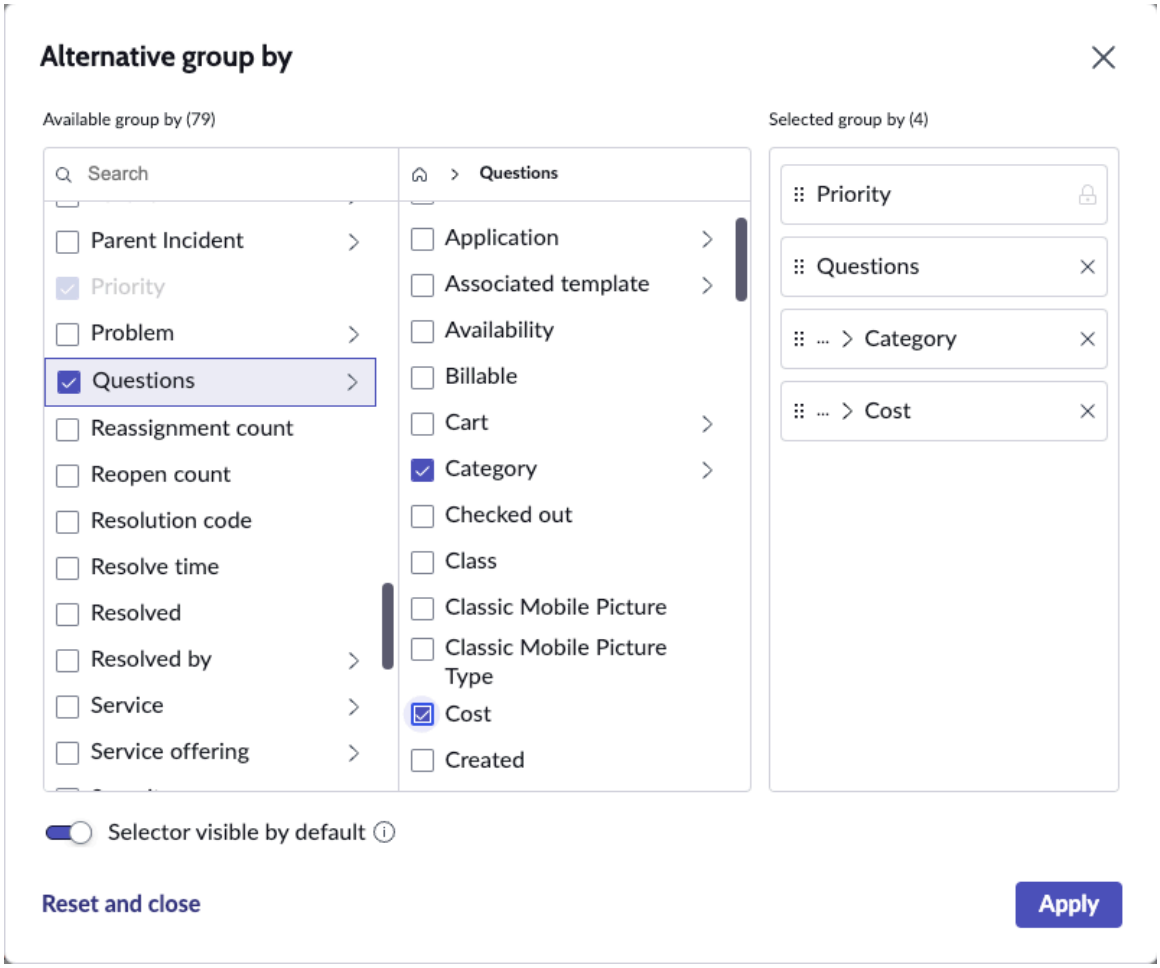


If you want to add a question as a row or column on a Pivot Table, the experience is almost identical.

Example: Question as an alternative group by

You want a different question as an alternative group by. You select **Add alternative group by** and scroll to **Questions**. Unlike other menus, its position is alphabetical instead of at the bottom. You expand **Questions**, and the list changes to a selection of questions. Not all questions that were available as a group by are available as an alternative group by. Anyway, you select some questions and press **Apply all**.

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Service catalog variables in data visualizations

Group or filter data on visualizations by a variable on a selected service catalog item.

Reporting on variables can be helpful in determining if certain catalog items are useful on an instance, for example.

Additionally, you can create filters on the same variable. For example, if a specific mobile phone item has a storage variable, you can create a report that only shows those phones with 32 GB of storage.

Use service catalog variables in data visualizations

In data visualizations based on service catalog data, stack and group by variables, use variables as columns in lists, and as columns and rows in multilevel pivot tables.

Before you begin

Role required: viz_creator or higher, including itil. To see the data, you need a role permitted by a report_view access control on the data source table

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Note:

- Users with a role other than viz_admin can use service catalog variables if as admin you add their role to the access control lists (ACLs) for the following tables: Options [sc_item_option], Variable Ownership [sc_item_option_mtom], and Variables [item_option_new].
- The data source for the visualization must be based on the Requested Items table [sc_req_item] or the Catalog Task table [sc_task]. Using other types of variables causes an error when generating the data visualization.
- The Oracle Database CLOB field doesn't have the functionality to retrieve the variables data in data visualizations. For a column string field of less than 4000 bytes, you can change the column type to varchar2. To compare the CLOB columns of a smaller size, use the to_char() function. For a larger size CLOB, you must get a substring for comparison using the dbms_lob.substr functions.

About this task

Use a variable as a filter, a group by, or an alternative group by.

Note:

Box and Trendbox visualizations can't use service catalog variables as a group by or alternative group by. Single Score, Calendar Report, and Geomap visualizations don't support grouping on any fields. Simple lists can use service catalog variables only as columns. Pivot Table visualizations can group by variables only as columns or rows.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations** and open the visualization to add the variable to.
2. Select one of the following options.

Option	Description
Use the variable as a filter	Add or edit a data source and select **Add cus tom conditions**. If any custom conditions have already been defined, select **+ Add**. Then select **Variables** at the bottom of the field list.
Add the variable as a column in a Simple List	Under **Default display**, select **+ Add** next to Columns. Then select **Variables** at the bot tom of the field list.
Add the variable as a group by	Under **Group by**, select **+ Add**. Then select **Variables** at the bottom of the field list.
Add the variable as an alternative group by	Under **Group by**, select **Add alternative group by**. Then select **Variables** at the bot tom of the field list. A viewer can choose one of these variables at runtime, as described in Select a group-by value in a data visualization as a viewer.
Add the variable as a column or row in a piv ot table	Under **Group by**, select **+Add** for Columns or Rows, then select **Variables** at the bottom of the field list.

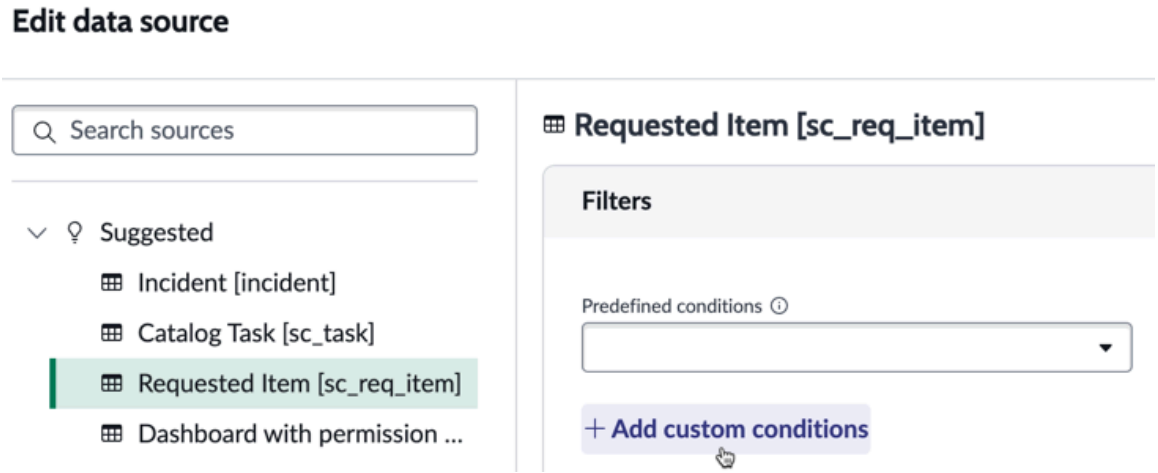
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Option	Description
	Note: ○ If you create the report with the vari able as the main Group By, the vari able behaves as an inner join. ○ If you create the report with a regular field for primary grouping, and a sec ondary grouping on the variable, the variable works as an outer join.

3. Scroll to the end of the list of fields and select **Variables**.
   The available variables appear. Not all variables that are available as group by values are also available as alternative group by values.
4. Select the variable you want.
5. If you are using the service catalog variable as a filter, select the operator and the value.
6. Select **Apply**.

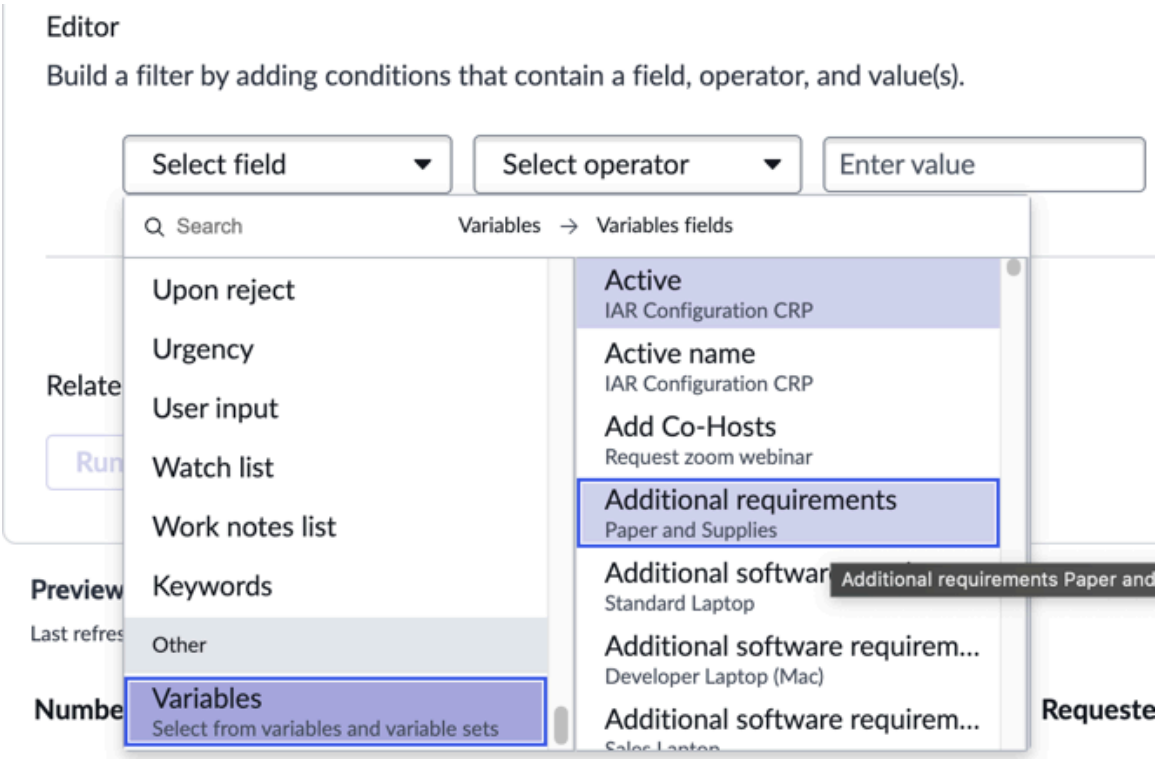
Example: Variable as a filter

Here you have opened the Edit data source page for a data visualization. No custom conditions have been defined for this data visualization, so you select **Add custom condition**.



Next, you scroll down the Select field list to Variable, select that, and select a variable.

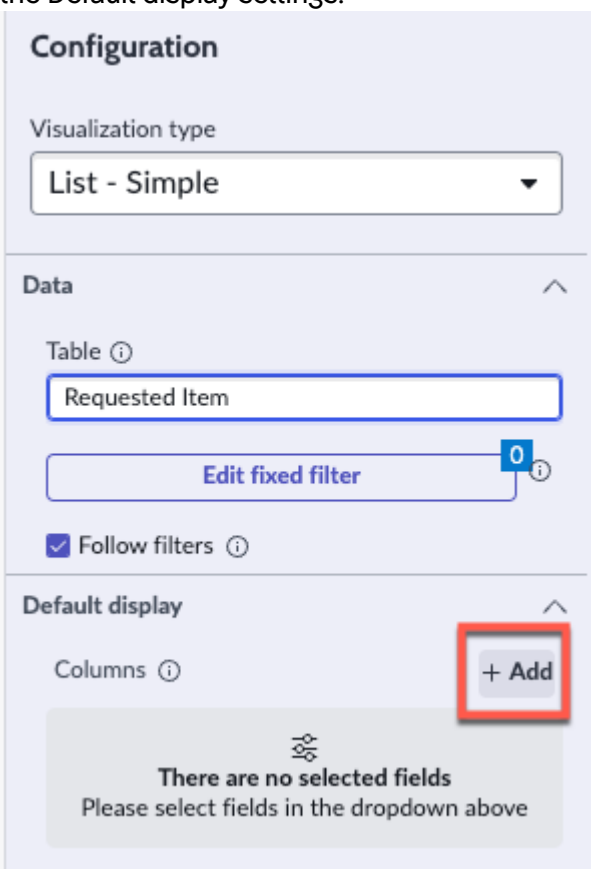
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Finally you select the operator and the value, such as Is | A4, and select **Apply**.

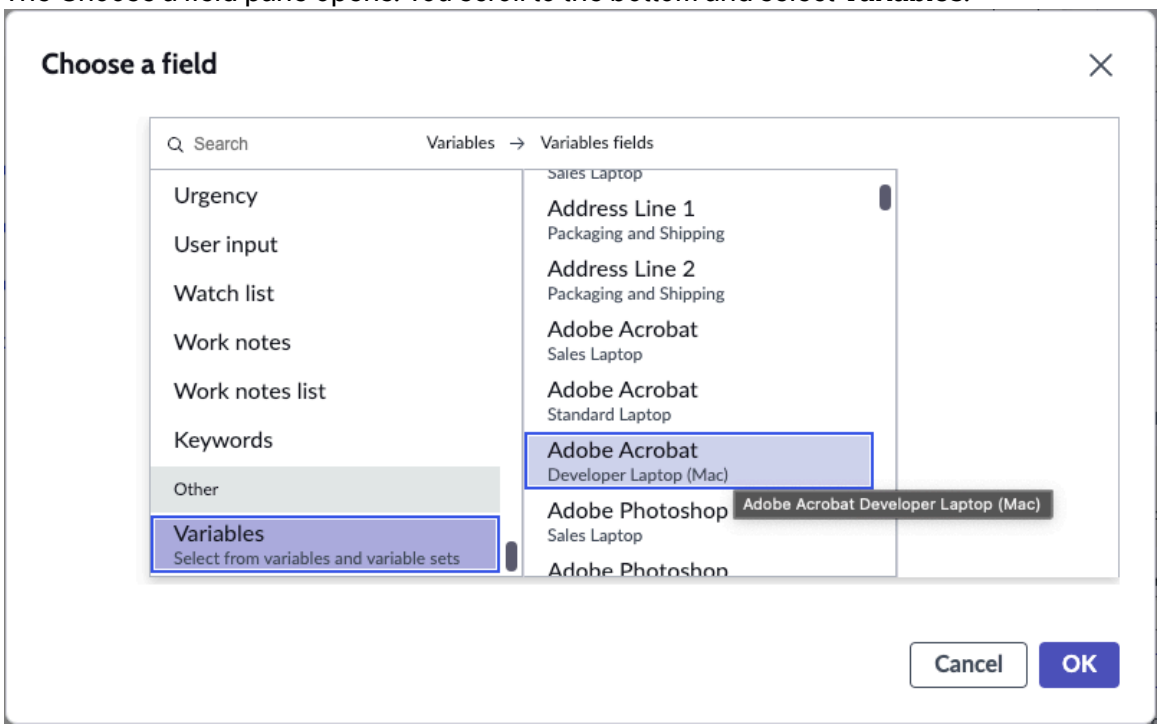
Example: Variable as a column in a simple list

Here you have a simple list showing records on the Requested Item table. You want to add a column for one of the service catalog variables. So, first you select **+ Add** next to Columns under the Default display settings.



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The Choose a field pane opens. You scroll to the bottom and select **Variables**.

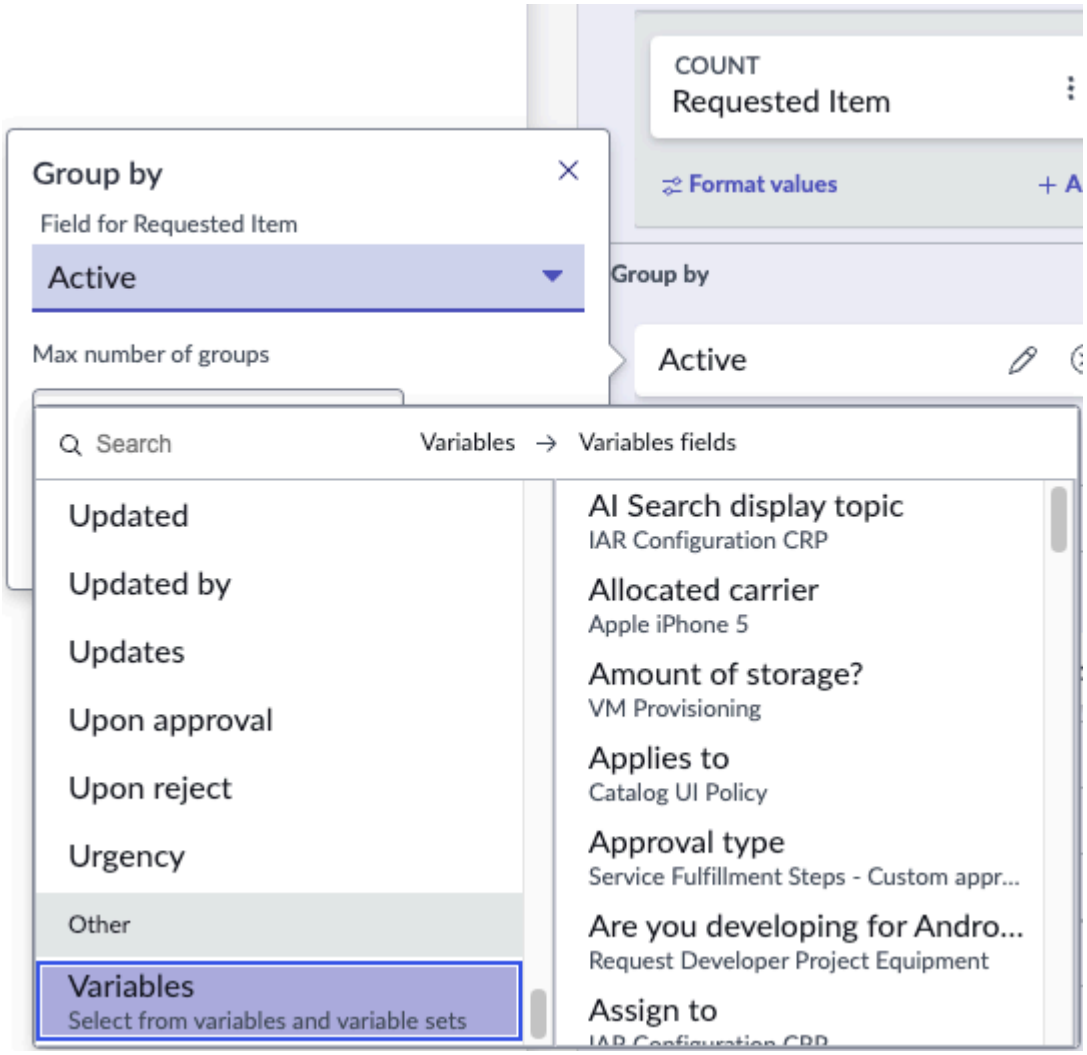


You select the variable you want, such as Adobe Acrobat for a developer laptop, then press **OK**.

Example: Variable as a group by

In this case, you have a horizontal bar visualization of data in the Requested Items table. In the Group by section, you edit the group by. You scroll to the bottom of the list of fields and replace the Active field with Variables, and select your variable.

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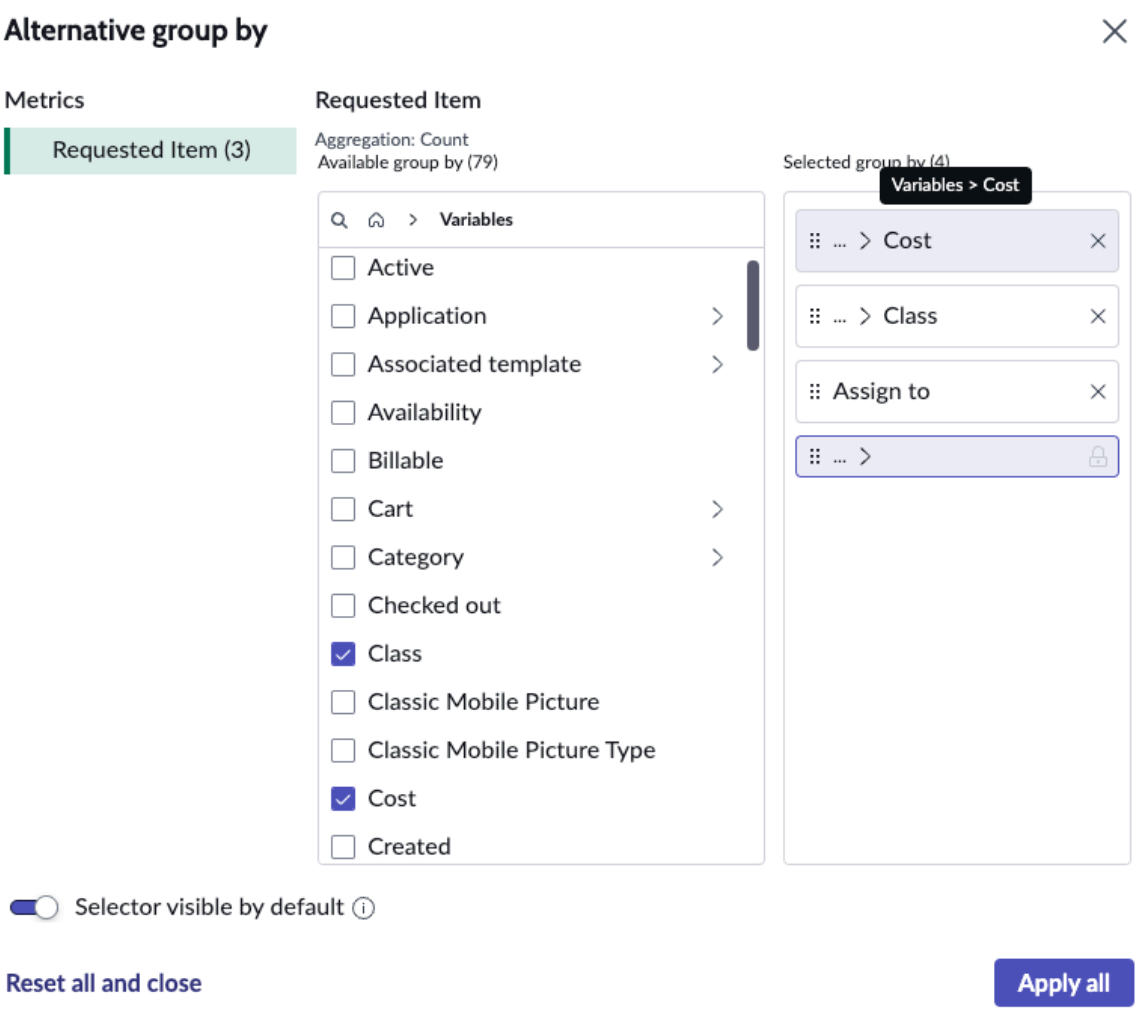


If you want to add a service catalog variable as a row or column on a Pivot Table, the experience is almost identical.

Example: Variable as an alternative group by

You want a different service catalog variable as an alternative group by. You select **Add alternative group by** and scroll to the bottom. You expand **Variables**, and the list changes to a selection of variables. Not all variables that were available as a group by are available as an alternative group by. Anyway, you select some variables and press **Apply all**.

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System tables in data visualizations

System tables are excluded from data visualizations by default. However, you can exempt system tables from the prohibition. Some system tables are exempt from the restriction by default. Be very careful when creating data visualizations on these system tables.

Prohibited system tables include, but are not limited to:

- Log [`syslog`]
- Transaction Log [`syslog_transaction`]
- Attachment [`sys_attachment`]
- Email [`sys_email`]

If you must report on a system table, you can add it to the *`glide.ui.permitted_tables`* system property. Several system tables are listed in this property by default. Only admin users can create reports on the tables permitted in this property.

Use extreme caution when creating a report or a data visualization on any system table. Consider the Audit [sys_audit] table, which is allowed in reports and data visualizations by default. Typically, this table is the largest table in any instance. It is not unusual for the Audit table, in even a mid-sized instance, to be several gigabytes. In a large installation, this table can be 50GB or more.

When you access a table like Audit programmatically, you know what your query pattern is going to look like, so you can add appropriate data indexes to match your queries. This means that

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when you bring up, for example, the history of an incident, the database can use an index to efficiently pull back the few dozen rows it needs for that query.

With reports and data visualizations, however, you cannot predict what your query pattern is going to look like. Maybe you want to group by `fieldname` or sort by `oldvalue`. Thus, your queries might not be indexed queries. You can end up asking the database to table scan a multiple gigabyte file, which is bad for these reasons:

- It is slow, so your report or data visualization will take an unacceptably long time to run.
- While the database is scanning your table, your instance will slow down or even become unavailable because other queries cannot get the resources they need.

Colors in data visualizations

Depending on the data visualization, you can select different colors: a fixed color for each Group by element, a predefined color palette, a spectrum spanning high and low values, or a single color.

By default, the data visualization uses the colors that are set in the UX Theme [sys_ux_theme] used by the instance. These colors in turn are defined in the UX theme properties [sys_ux_theme_properties] table. Themes include the following colors:

- A default single color
- A default color palette
- A default spectrum of shades for a color range

You can create a theme and select it either for a specific user or set it as the default theme for an instance. For more information, see Working with themes in Next Experience.

In a specific visualization, you can override the colors set in the UX theme. Set colors in the Colors subsection of the Presentation section in the visualization's configuration panel. The available options are described in the "Create a..." topic for each visualization type.

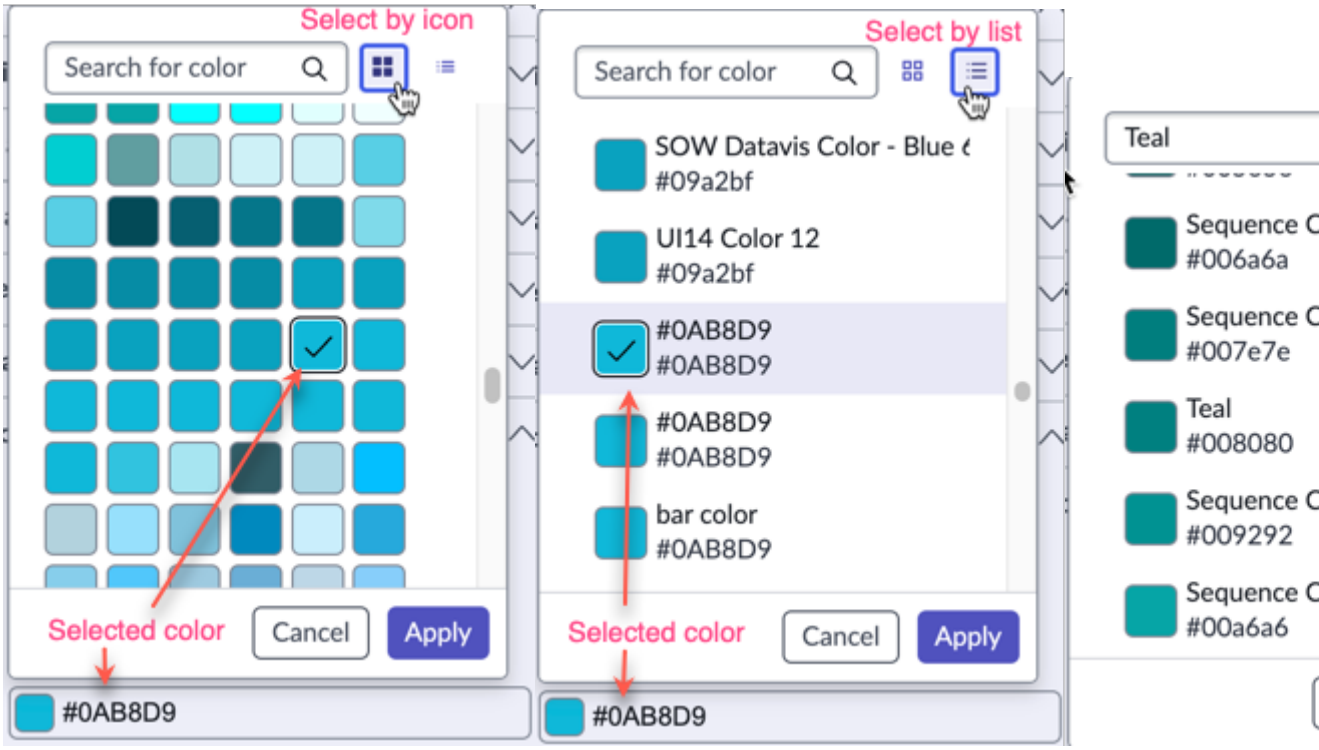
Selecting a single value color or a color per metric

You can select a single value color for any visualizations except gauge and pie/donut. When you select a single color, you are at first offered the default color. You can choose a color instead in the **Set value color** field. Interacting with that field opens a selector where you can choose a color by color icon or from a list. The list also shows you an icon for each entry. The selector also has a search field. Entering a value into that search field shows you a list of colors filtered by the search term, which can be plain language or part of a hexadecimal code.

If the data visualization shows more than one metric, you can select a single color for each metric.

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Color selector in icon and list modes



Color rules for pivot table, dial, and single score visualizations

Single score, dial, and pivot table visualizations can use a single color that is set dynamically when the data meets certain conditions. For example, you can create a rule to show the score in green for values under 25. For more information, see Create coloring rules for data visualizations.

Color options for Group by values from table data sources

If you group by a value in a visualization based on a Table data source, you have the following two color range options:

Color palette

A sequence of colors applied to the Group by elements. The colors repeat in order from highest value to lowest. Use color palettes in data visualizations when you want the colors to denote order. Visualizations that use the same palette use the same colors regardless of what data they're showing.

Color palettes are the default coloring pattern in a data visualization where a Group by value is defined. If you don't specify a color palette, the color palette from the UX theme is used.

Non-default color palettes are defined in the Chart color scheme [pa_chart_color_schemes] table. The admin or pa_admin role is required to create a color palette. For more information, see Create a color scheme.

In the following example, you see two data visualizations that show incidents. One visualization shows incidents grouped by Priority, and the other visualization shows incidents grouped by Category. Both visualizations use the Blues dark to light (6) color palette, which uses six shades of blue. Both visualizations show the same colors for the same ranking of values, although the values are different.

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Color palette: Blues light to dark



Fixed element colors

Fixed element colors always apply the same color to the same grouping or stacking value. Different grouping and stacking values in different visualizations have different colors. Use fixed element colors if, for example, you always want an element like Priority > 1 - Critical to have the same color.

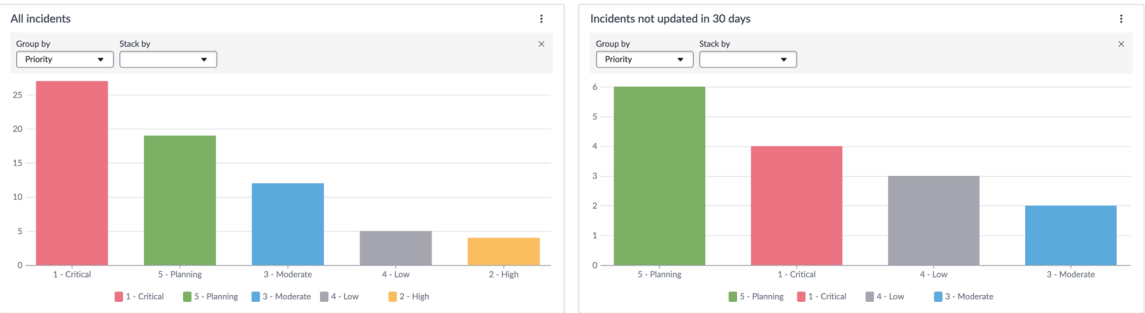
Important:

Fixed element colors are only available for visualizations of Table data sources.

When an element appears for the first time in a data visualization that is using fixed element colors, a color is defined for that element. Thereafter that element has the same color in any data visualization that shows it. The colors are stored for each element in the Chart Colors [sys_report_chart_color] table. To change the color assigned to an element, you need the admin or report_admin role. For more information, see Define colors for data categories.

In the following example, you see two data visualizations that show incidents that are grouped by the same field, Priority. Both visualizations use fixed element colors. The same values of Priority have the same color despite being in a different order.

Fixed element colors: Same elements, different order



In the following example, the data visualizations are grouped by different fields and use fixed element colors. The bars are in different colors, because each element has a unique color.

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Fixed element colors: Different elements





Related topics

Working with themes in Next Experience

Create coloring rules for data visualizations

Configure rules for how numerical values are displayed, to easily highlight why a value is important.

Before you begin

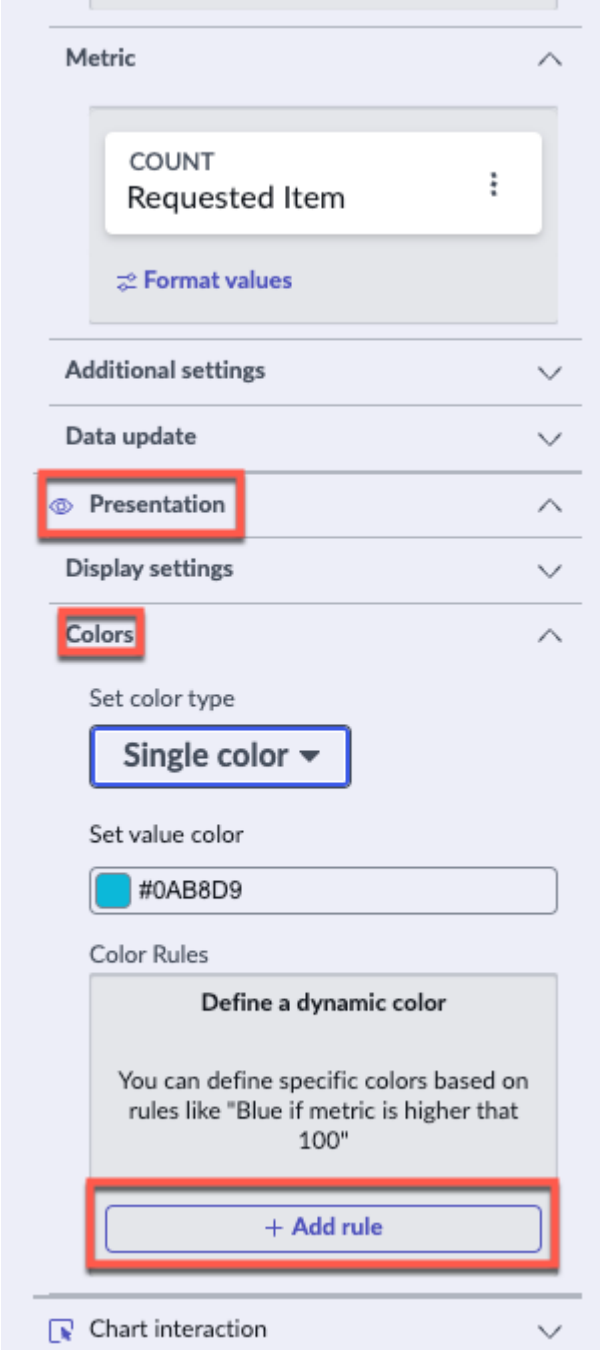
Role required: Any role, and editing rights to the visualization

This task is part of configuring the display settings of some data visualizations.

Procedure

1. Open the data visualization for editing, either in the dashboard in-line editor or the Visualization Designer.
   For more information, see Edit a data visualization in an inline dashboard or Edit a data visualization in the Visualization Designer.
2. In the **Presentation** area of the configuration panel, open the **Colors** section.
3. Choose the **Single Color** type and select **Add rule**.

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4. Fill in the fields on the form.

Color Rule fields

Field	Description
Operator	The operator used when evaluating values, such as **greater than** or **between**. For example, to style values of less than 5, select **lower than** and specify a **Value 1** value of 5.
Value 1	The number to evaluate cell values against. When the **Operator** value is **between**, enter the lower value in the **Value 1** field.

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Field	Description
	Note: ○ The color rule is applied to the aggregated values. ○ When creating rules based on a duration value, specify the duration in seconds.
Value 2	The maximum value to match this rule. This field only appears when the **Operator** value is **between**.
Font color	The font color to apply to values that match this rule.
Rule order (Optional)	A numerical value that determines the order in which rules apply. Rules are evaluated from lowest value to highest. For example, you have one rule applies the color blue to the value 7, and a second rule that applies the color red to values between 1 and 10. If you want the 7 to appear blue, the **Rule order** value for the first rule should be higher so that the second rule does not override it. If you do not specify a rule order, coloring rules are applied in the order in which they were created.

5. Select **Apply** to save the rule.
   Create a new rule or return to the Visualization Designer.

Domain separation and data visualizations

Domain separation is supported for data visualizations and relates to the data visualizations themselves and which data is visible. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data.

Support level: Standard

- Includes all aspects of **Basic** level support.
- Application properties are domain-aware as needed.
- Business logic: The service provider (SP) creates or modifies processes per customer. The use cases reflect proper use of the application by multiple SP customers in a single instance.
- The instance owner must configure the minimum viable product (MVP) business logic and data parameters per tenant as expected for the specific application.

Sample use case: An admin must be able to make comments required when a record closes for one tenant, but not for another.

For more information on support levels, see Application support for domain separation.

Overview of domain separation

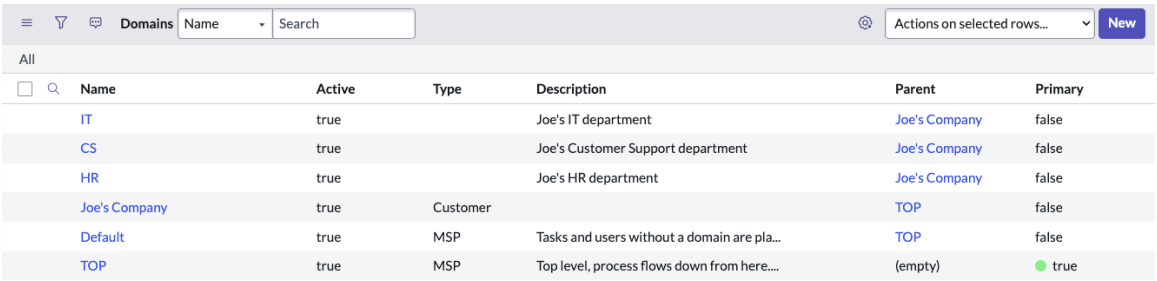
To activate the domain separation plugin, see Request domain separation.

How domain separation works in data visualizations

Separated data includes data visualization designs and data visualization content. A data visualization defined at the global level is visible to users in all child domains.

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- Data visualizations created in the TOP domain are visible to users in the Joe's Company domain and in the HR, CS, and IT child domains of Joe's Company.
- Data visualizations created in either the IT, CS, or HR child domains aren't visible to users in the other child domains, but they are visible to users in the parent Joe's Company domain.
- Data visualizations created in the parent (Joe's Company) domain are available only to users in that domain, but not to users in the child domains.



Name	Active	Type	Description	Parent	Primary
IT	true		Joe's IT department	Joe's Company	false
CS	true		Joe's Customer Support department	Joe's Company	false
HR	true		Joe's HR department	Joe's Company	false
Joe's Company	true	Customer		TOP	false
Default	true	MSP	Tasks and users without a domain are pla...	TOP	false
TOP	true	MSP	Top level, process flows down from here....	(empty)	true

If you create a data visualization in one domain and copy it to another, the data visualization structure remains the same, but the data visualization data is adjusted for the domain. For example, a data visualization with data from the Incident table where Active=true shows all active incidents to a user in the parent global domain, but only IT incidents to a user in the IT domain.

Data visualization reference

Reference topics provide information on roles, variables, and other information for working with data visualizations.

Data sources for data visualizations

Each workspace data visualization references a specific data source.

Data source	Available in	Description
Table	Base system	A Table data source is a collection of database records that together constitute the current state of your data. The rows of the table correspond to records and the columns correspond to fields. You often choose both table and field, or you group data by fields, when you configure a data visualization. Configured report sources appear in the **Predefined conditions** list when you choose to filter table data.
Indicator	Base system	An indicator, also called a key performance indicator (KPI), is a record of the changes to your table data over a period of time. You use indicators to determine trends and forecast the future. Indicators apply an aggregation and conditions to the data. For example, the indicator Number of open incidents applies the Count aggregation to the Incident table, resulting in a number of incidents. It also applies the conditions that the State of the incidents must not be Closed or Canceled, and the Active field must be True. Indicators often have breakdowns applied. A breakdown is a qualitative property for filtering the indicator scores. For example, for incident data, the priority, category,

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Data source	Available in	Description
		and assignment group for the incident are all commonly applied breakdowns. For more information, see Performance Analytics indicators.
User Experience Analytics	Activated by default. However, to include User Experience Analytics data sources in your visualizations, you need the User Experience Analytics in PAR Integration application from the ServiceNow® Store.	The ServiceNow® User Experience Analytics application provides dashboard views for monitoring usage analytics of your web applications as well as Virtual Agent, ServiceNow mobile, and Service Portal applications. Visualize metrics and interactions to better understand the user experience, and create more intuitive journeys for your users. For more general information about User Experience Analytics, see User Experience Analytics. For more information specific to data visualizations, see User Experience Analytics data sources for data visualizations.
MetricBase	Requires a separate subscription and must be activated by ServiceNow personnel.	The MetricBase application stores time-series data, which is data that is sampled at regular intervals. You can graph the stored data or use it with triggers to execute Flow Designer flows. MetricBase helps developers working with IoT-based applications that monitor or act on large amounts of machine-generated data. For more information, see MetricBase.
Health Log Analytics	Requires a separate subscription and must be activated by ServiceNow personnel.	The Health Log Analytics application helps prevent IT issues before your users are affected. It helps you identify the root cause of an issue by enabling you to triage related logs and analyze the raw data. For more information, see Health Log Analytics. **Note:** You can create and edit data visualizations for Health Log Analytics only in the UI Builder, not in the Platform Analytics Visualization Designer or in dashboards.

Indicator management and Performance Analytics

Indicator data sources are created and managed through the architecture of the Performance Analytics application. This functionality is now part of Platform Analytics administration.

Long-term users of the ServiceNow AI Platform® may be familiar with Performance Analytics. Performance Analytics is an application for creating indicators, or KPIs. It includes the back end of indicators, breakdowns, indicator and breakdown sources, and scheduled data collection jobs. It also included a Core UI front end of PA Widgets that went on responsive dashboards, and the Analytics Hub for exploring indicators in depth.

In Platform Analytics, the old Performance Analytics front end is replaced. Data Visualizations, which can apply to many data sources, replace both PA Widgets and reports. They can go either on a new type of dashboard or on UIB pages. KPI Details replaces the Analytics Hub.

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If you are a new customer, or if you have fully migrated to Platform Analytics, the back end functions of Performance Analytics are grouped under Platform Analytics administration. However, the following material that refers to Performance Analytics continues to apply, at least regarding the back end:

- Training material
- ServiceNow University courses
- ServiceNow Community posts
- Product documentation

If you have upgraded your instance but not yet fully migrated to Platform Analytics, you continue to have Performance Analytics as a navigation area on your instance. Also, administrators who maintain Service Portal pages with Performance Analytics content continue to have access to the Core UI Performance Analytics front end objects on those pages.

Data Visualization roles

There are several roles associated with the Visualization Designer and Visualization Library. Roles limit what users can do with visualizations.

Roles

Any role

Users with any role can create visualizations in dashboards that they have editing rights to. They need access to the data that they wish to display. They can also add visualizations from the library to their dashboards if those visualizations have been shared with them. They can also bookmark or export visualizations that have been shared with them from the Visualization Designer. They can share a visualization with other users and groups if it was shared with them with sharing rights. Specific roles are needed to create or edit visualizations in the Visualization Designer.

viz_creator, itil, report_user

Creates visualizations in the Visualization Designer that are then available throughout the organization in the Data Visualizations library. Cannot delete visualizations that have been shared with them. Can edit visualizations in the library only if they created them or if the visualization was shared with them with editing rights. Can share visualizations only with groups and users.

viz_admin, platform_analytics_admin

Creates visualizations in the Visualization Designer that are then available throughout the organization in the Data Visualizations library. Edits, deletes, shares, exports, and schedules the export of any visualization. Can share visualizations with roles, not only users or groups. Can schedule export and email of any data visualization on the instance.

report_admin, admin

Has the rights of a viz_admin and can also manage all Core UI reports, including reports on the Service Portal.

par_scheduler

Schedules export and email distribution of any visualizations that they can access. Users with this role must also have another role that grants permission to create, edit, and share visualizations.

sn_par_sche_export.par_scheduler_admin

Schedules export and email of any data visualization on the instance.

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Data visualization roles

Use case	Required role
Create a data visualization	Anyone with access to data can create a visualization of that data on a dashboard that they own. Users with the viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the library.
Edit a data visualization	You can edit any visualization that you created or that was shared with you with editing rights, if it is not in the library. If it is in the library, you also need the viz_creator role. Edit any visualization on the instance with viz_admin or higher.
Add a visualization from the library to a dashboard	Any role, if the visualization has been shared with you. viz_creator to add any visualization from the library.
Add a visualization that was created in a dashboard to the library	viz_creator or higher and the right to edit the dashboard
Unlink a data visualization on a dashboard from the library, creating a version that is local to that dashboard.	Any role, if you can edit the dashboard containing the visualization
Duplicate a visualization in the Visualization Designer	viz_creator or higher
Share a visualization with users or groups	Any role to share a data visualization that you created or that was shared with you with sharing rights. With the viz_admin role or higher, you can share any data visualization on the instance. When you share a data visualization, you can pass along the rights to share that visualization further. You also decide whether to share with editing rights or only viewing rights. If a data visualization has been shared with you with sharing and editing rights, you can also pass along editing rights.
Share a data visualization with roles	viz_admin or higher
Export a visualization	Any role, if you can view the visualization in the Visualization Designer.
Schedule the export of a data visualization	par_scheduler or higher to schedule the export of a data visualization that you can edit. viz_admin or higher to schedule the export of any data visualization on the instance.
Delete the scheduled export of a data visualization	sn_par_sche_export.par_scheduler_admin (contained in viz_admin)

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Data visualization roles (continued)

Use case	Required role
Delete a visualization	Any role, to delete a data visualization that you created. viz_admin or higher to delete any data visualization on the instance.
Control data source availability by role	admin
Configure chart interactions	Any role if you have the right to edit the data visualization. The viewer needs the right to view any data they drill down to.
Use service catalog variables in data visualizations	viz_creator or higher
Create coloring rules for data visualizations	Any role if you have the right to edit the data visualization.

Data Visualization properties

Several properties that limit what can be displayed in data visualizations.

These Platform Analytics data visualization properties are available in the System Properties [sys_properties] table.

Note:
To open the System Properties table, enter `sys_properties.list.do` in the navigation filter.

Properties for Data visualizations

Property	Description
par_vis_config.data_source.can_select_indicator	Specifies roles (comma-separated) which can select indicators as data sources from the Data Visualization configuration panel. If empty, all users can select the indicator sources that they have access to. • Type: string • Default value: empty • Location: System Property [sys_properties] table
par_vis_config.live_refresh_rate_min_value	Specifies the minimum interval in seconds for the Live refresh rate setting in the Data Visualization configuration. If set, a user can still set an empty or 0 value. • Type: integer • Default value: 30 (seconds) • Location: System Property [sys_properties] table

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Properties for Data visualizations (continued)

Property	Description
par_viz.table_data.max_data_points	Maximum number of data points for data visualization charts based on table sources. • Type: integer • Default value: 10000 • Location: System Property [sys_properties] table
par_viz.table_data.max_groups	Maximum setting recognized for the maxNumberOfGroups property of data visualizations that have a Group by. Applies only to table data. • Type: integer • Default value: 50 • Location: System Property [sys_properties] table

Platform Analytics data visualization tables

The following tables relate to Platform Analytics data visualizations and can be accessed through scripts.

Table	Description
par_component	Contains all data visualizations in the visualization library and all filters in the filter library. Extends sys_metadata.
par_component_permission	Contains the role, group, and user permissions for all data visualizations and filters in their respective libraries.
par_export	Lists all scheduled dashboard and data visualization exports. Extends sys_metadata.
par_export_job	Stores details of every attempt to export a dashboard or data visualization.
par_export_visualization	Stores the export details of all scheduled data visualization exports. Extends par_export.
par_metadata	Stores the metadata for each data visualization type.
par_notification	Lists email notification definitions of scheduled dashboard and data visualization exports. Extends sys_metadata.
par_notification_email	Stores metadata of scheduled dashboard and data visualization export emails, including subject and message. Extends par_notification.

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Table	Description
par_notification_email_recipients	Stores groups and users who receive a notification email with a scheduled dashboard and data visualization export. Contains the non-metadata information for the emails.
par_visualization	Contains all data visualizations in the visualization library. Extends par_component.
par_visualization_permission	Contains the role, group, and user permissions for all data visualizations in the visualization library. Extends par_component_permission.

Filters in Platform Analytics

Filter lists and data visualizations on an inline or technical dashboard. Filter by possible data value, by whether the value is true or false, or by date.

https://player.vimeo.com/video/1107575376?h=196e6f69ab&badge=0&autopause=0&player_id=0&app_id=58479

The preceding video illustrates how to create a filter, in this case a multi-select filter for table data.

You can create a filter for either an inline dashboard or a technical dashboard. Inline dashboards are those dashboards created and populated in the inline dashboard editor. Technical dashboards are populated in the UI Builder and are more flexible but require considerably more expertise. For example, on a technical dashboard, you have to create custom event handlers for filters to apply to lists or data visualizations.

Filters on inline dashboards

For inline dashboards, you can either create a filter directly on the dashboard through the inline editor, or you can add a filter to the dashboard from the filter library. In either case, you can add filters to a specific tab or have them apply to the entire dashboard. To take these actions, you only need the right to edit the dashboard.

If you have the analytics_filter_admin role, you can also create a filter for the library through the Filter Designer or copy an existing filter to the library.

The filter applies to those data visualizations and list components that contain a target of the filter.

If you want to put multiple filters on your dashboard, consider adding a filter group. In a filter group, you configure several filters and apply or clear them with one action, making only one call to the database. A filter group may therefore be more efficient than multiple separate filters.

When you create a filter, you first specify the filter type. All further configuration options depend on the selected type.

Important:
When using this documentation, first select a topic for creating a filter. After you create a filter and select the filter type, follow the appropriate topic for configuring a filter of that type.

Retaining filter values

On inline dashboards, filters retain their values across logins or page refreshes. However, these values are no longer retained when someone edits the filter configuration. Afterward, the

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filter reverts to its default values for all users on their next login or page refresh. On technical dashboards and pages created in UI Builder, filters do not retain values across logins or refreshes. For an exception, see Add a dashboard to a Dashboards page.

Filter values can also be retained when you export an inline dashboard. When you export a dashboard to Microsoft PowerPoint, filter values are applied automatically. When you export a dashboard to PDF, you have the option whether or not to retain filter values. Filter values are not retained when you export a technical dashboard. For more information, see Export a Platform Analytics dashboard.

Domain filters

You can filter visualizations by domain on domain-separated instances. Domain filtering uses a different component. For more information, see Create a domain filter.

Create or add a filter on an inline dashboard

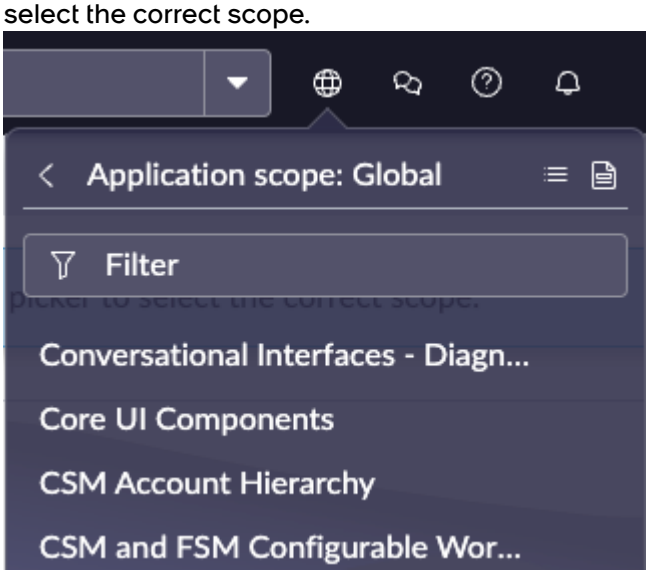
Create a filter or select one from the filter library. When creating a filter, name it, and choose whether to create a single select, multiple select, date, or true/false filter.

Before you begin

Role required: dashboard_admin, or you must be the dashboard owner or have had editing rights shared with you.

Procedure

1. Open **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Locate the dashboard in the dashboard library and open it for editing, as described in Edit Platform Analytics dashboards.
   If the dashboard is in the inline editor, you see an **Edit** button. If it is a technical dashboard, you see an **Edit in UI Builder** button. In the latter case, go to Create a filter on a technical dashboard in UI Builder.
3. If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



4. Select **Edit** to enter edit mode.
5. Select **Add new element**.
6. Select **Filter** then either a new or a saved filter.

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- Select **New filter** to create a filter from scratch.
- Select **Saved filter** to reuse a filter from the library.
  When you select **New filter**, the **Configuration** panel opens for the selected filter. When you select **Saved filter**, you can choose an existing filter to add to the dashboard.

7. If you are creating a new filter, select the type of data to filter.

   Other configuration options vary depending on the data type you select.

   - Single select: A single value from a set of choices. Single select is the default filter type.
   - Multiple select: More than one value from a set of choices, such as both High and Critical Priority
   - Date: A calendar date. You can also set a time. Automatically applies to all indicator data on page or tab.
   - True/False: Whether a field value is true or false. Can also be used with indicator breakdowns that are based on a bucket group with only two values. The labels for 'true' and 'false' can be customized. The viewer can select **(empty)** to clear their selection.

8. Position the filter.
   If the dashboard has tabs, putting the filter in a tab affects only the visualizations in that tab. If the dashboard has no tabs, or you place the filter above the tabs, it affects all visualizations in the dashboard.
9. In the **Filter label** field, type a meaningful name for the filter.
   This name is the name that the runtime user sees.

What to do next

Note:
Filter values persist across user sessions. When a viewer reopens a dashboard, whatever values they last selected for any filters on the dashboard are preselected. This feature applies only to dashboards created in the inline editor, not technical dashboards.

Create a filter in the Filter Designer

Create a Platform Analytics filter in the Filter Designer and add it to the library for reuse.

Before you begin

Note:
Filters that are saved to the filter library are not accessible in the technical editor (UI Builder).

Role required: analytics_filter_admin, admin

Procedure

1. To add a filter to the filter library, navigate to **Platform Analytics** > **Library** > **Filters** and select **New**.
   The Filter Designer opens.
2. Select the type of data to filter.

   Other configuration options vary depending on the data type you select.

   - Single select: A single value from a set of choices. Single select is the default filter type.
   - Multiple select: More than one value from a set of choices, such as both High and Critical Priority

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- Date: A calendar date. You can also set a time. Automatically applies to all indicator data on page or tab.
- True/False: Whether a field value is true or false. Can also be used with indicator breakdowns that are based on a bucket group with only two values.

3. In the **Filter label** field, type a meaningful name for the filter.
   This name is the name that the runtime user sees.

Result
Upon saving, the filter is saved to the library, where any user can add it to their dashboards.

Create a filter group

Create a set of filters that you can apply simultaneously. When you have multiple filters, applying them all together can be faster than applying them separately.

Before you begin
Role required: dashboard_admin, or any role if you are the dashboard owner or have had editing rights shared with you.

About this task
If you have many filters that apply to many visualizations on a dashboard, it can take a long time to apply all the filters. Each filter whose value you set makes a separate call to the ServiceNow AI Platform. You can speed this process up by organizing filters into groups, where you make a single call to apply multiple filters at once.

Procedure
1. Navigate to **All** > **Platform Analytics** > **Dashboards**.
2. Locate and open or create the dashboard to which you want to add a filter group.
   Technical dashboards are not supported. You can only add a filter group to a dashboard in the inline editor. For more information, see Edit Platform Analytics dashboards.
3. Select **Add new element** and add a Filter Group element.
4. In the **UI Element** section, configure the appearance of the filter group

UI element settings

Option	Description
Show filter group label	Turn on to show the label of the filter group. Default: on
Filter group label	A meaningful name for the filter group, which is visible to the user. Available only when **Show filter group label** is on. Default: Label
Filter group layout	Select Horizontal to show the filters side by side. Select Vertical to show the filters in a column. Default: Horizontal
Filter spacing	Choose how far apart you want to space the filters.

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Option	Description
	Options: S, M, L Default: S
Show values in pill	Turn on to show the selected filter elements inside the pill for all filters in the group. Default: on
Show border	Turn on to display a line around the filter group. Default: on
Bare	Turn on to remove padding around the filter group to provide more compact positioning. Available only when **Show border** is off. Default: off
Show round corners	Turn on to have the group border and radius match the pill border and radius. Available only when **Show values in pill** is turned off and **Show border** is turned on. Default: off

5. Add filters.
   You can add filters of any type except Domain. The filter configuration is the same as for the Filter component:
   - Configure a Single/Multiple select or cascading filter
   - Configure a True/False filter
   - Configure a Date filter in the inline editor

   When you complete the configuration of each filter, select **Back to group configuration**.
6. Configure any additional settings that you want to change.

Additional settings

Option	Description
Show group apply	Turn on to enable applying all filters in the group together. When disabled, changes to any individual filters in the group apply immediately. Default: on
Show group clear	Turn on to enable clearing all filters in the group together. Default: on

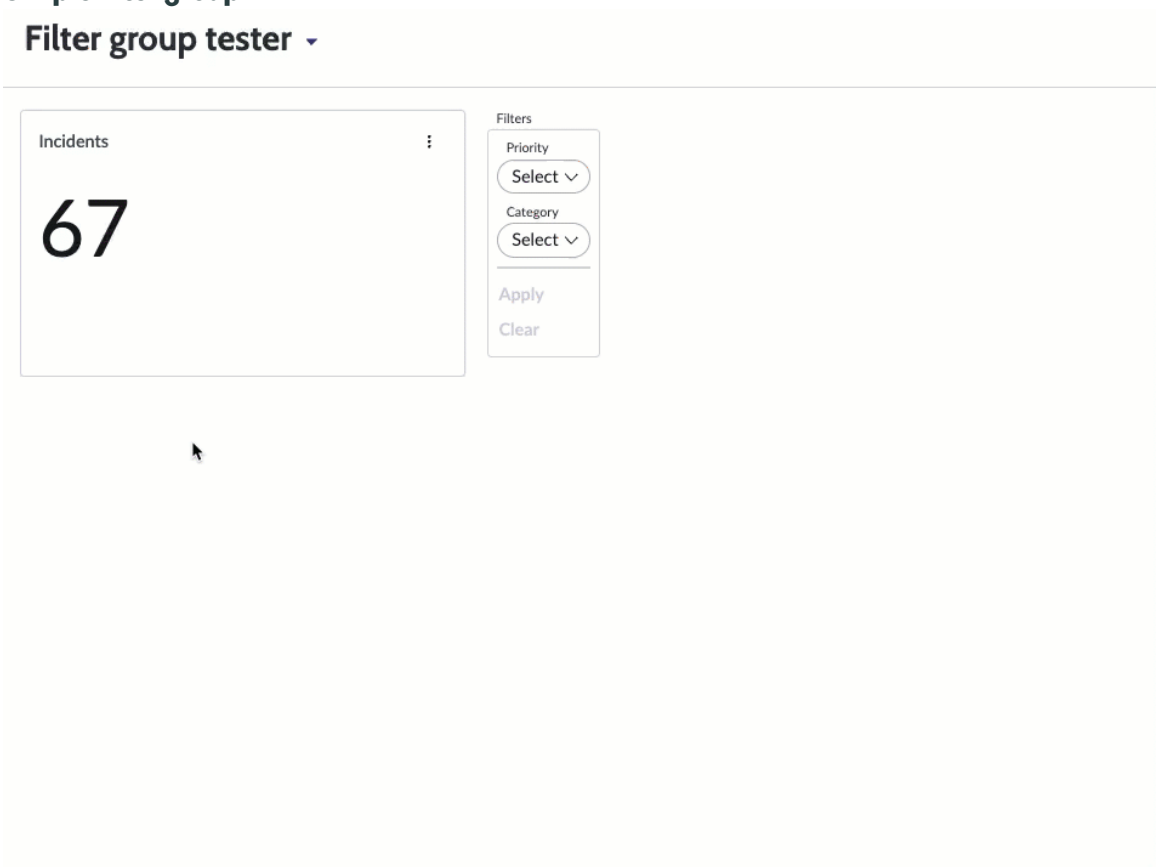
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Option	Description
Show group reset	Turn on to enable clearing all filters in the group together. Default: off
Combine clear and reset	Turn on to move Clear and Reset into a More actions ⋮ menu. Available only when **Show group reset** is on.
Show separator	Turn on to show a line between the filters and other content on the dashboard. Default: on
Max filter item width, px	Defines number of pixels allowed for each filter in the group. Text that is wider than this limit wraps to a new line.

Example: Filter group in action

The following example shows a group of two filters being applied to a data visualization. A simple use case is used here for clarity and brevity. In practice, you would use a filter group with multiple visualizations and filters.

Simple filter group



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Create a filter on a technical dashboard in UI Builder

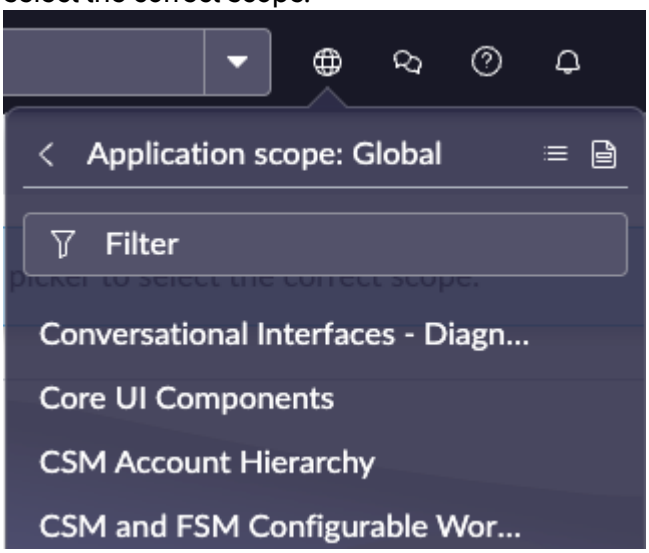
To filter data visualizations and simple lists in a technical dashboard, add a filter component in UI Builder and configure event handlers.

Before you begin

Role required: ui_builder_admin, admin

Procedure

1. Locate the dashboard in the dashboard library and open it for editing, as described in Edit Platform Analytics dashboards.
   If the dashboard is a technical dashboard, you see an **Edit in UI Builder** button. If it is in the inline editor, you see an **Edit** button. In the latter case, go to Create or add a filter on an inline dashboard.
2. If you are in a different application scope than the dashboard, use the application picker to select the correct scope.



3. Select **Edit in UI Builder**.
4. Add layout elements and a filter component as described in Add and configure components.
5. Configure the filter as described in the Filter component reference on the Developer Site . This reference includes a description of each configuration field and general usage information that applies to UI Builder pages in general.

> **Important:**
> Be certain to configure the event handlers and page scripts to link the filter to the relevant data visualizations or lists.

Make a data visualization act as a filter

You can set a data visualization to act as a filter on a dashboard that contains it. Only table or indicator data can be so filtered.

Before you begin

To use a data visualization as a filter, you have to meet these requirements:

- The visualization can only be of pie/donut or horizontal/vertical bar type.
- The visualization can show only table or indicator data.

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- The visualization must be on a dashboard that was created in the inline editor. You cannot use a visualization as a filter on a technical dashboard or other UI Builder page.
- The visualization cannot have a group by value based on a time duration.

Role required: Any internal role and the right to edit the dashboard with the visualization

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Find and open the dashboard that contains the data visualization.
3. Select **Edit** to put the dashboard in edit mode.
   If you do not see an Edit button
4. Find the pie/donut or bar visualization that you want to use as a filter on the dashboard.
5. Open the visualization's configuration panel.
6. Locate the Chart Interactions section.
7. Select **Apply as filter**.
8. Save and exit editing mode.

Related topics

Chart interactions in a data visualization

Create a pie or donut visualization in the Visualization Designer

Create a horizontal or vertical bar data visualization

Configure a Single/Multiple select or cascading filter

Let users filter a dashboard tab on one or more values from a set of choices, such as incident priority. You can have a single or multiple select filter follow another filter in a cascade.

Before you begin

Important:
This procedure assumes you've created a filter in the Filter designer or added a filter to your dashboard with the Single select or Multiple select filter type. See Create or add a filter on an inline dashboard, Create a filter in the Filter Designer, or Create a filter group.

Role required: In the inline dashboard editor: dashboard_admin, or you must be the dashboard owner or have had editing rights shared with you.

In the Filter Designer (**Library** > **Filters** > **New**): analytics_filter_admin, admin

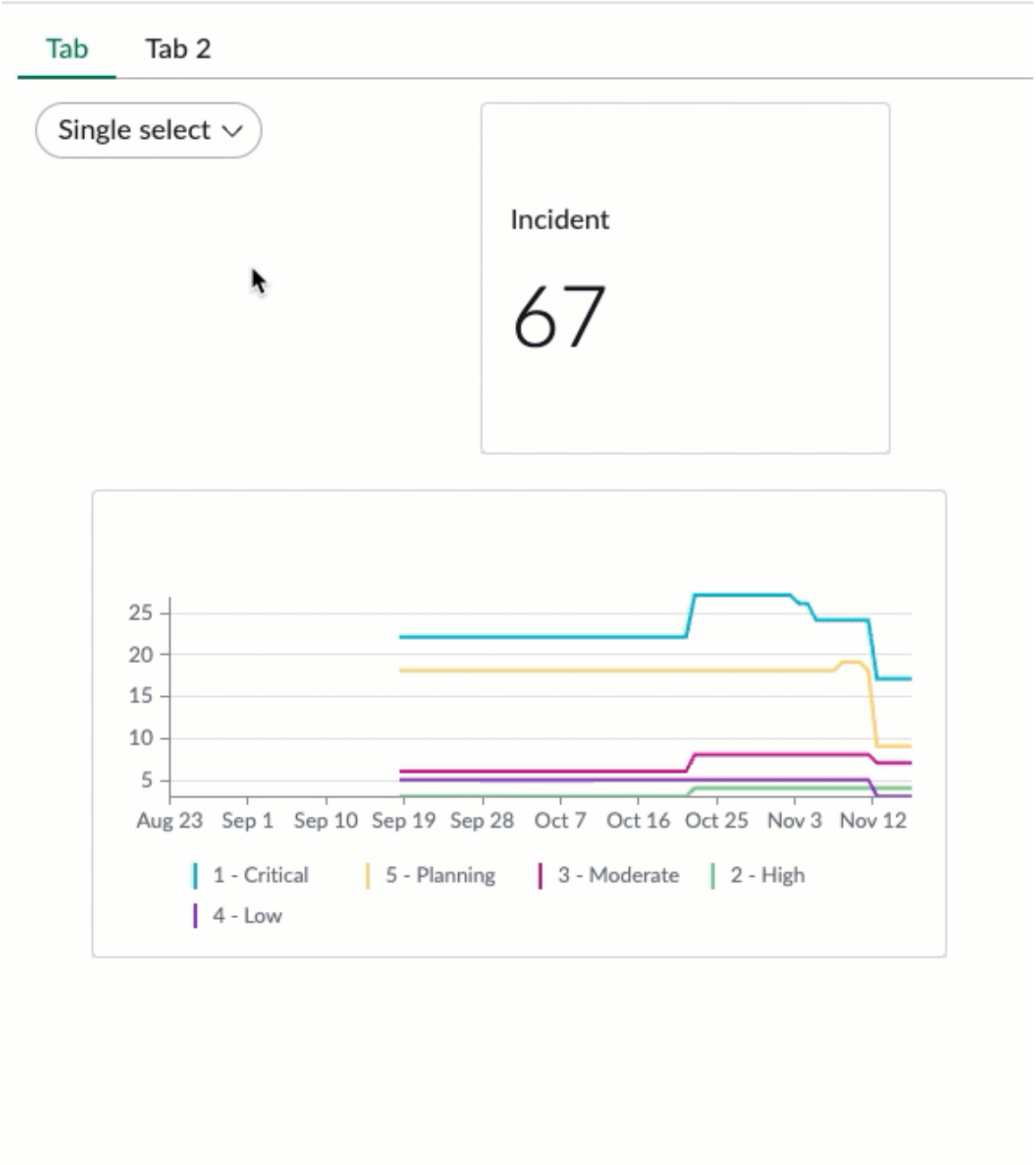
About this task

Filters apply to data visualizations and simple lists. For the filter to apply to a specific data visualization, it must be based on the same table or indicator breakdown as that visualization. For it to apply to a list, it must filter a field in the list.

On a tabbed dashboard, a filter can apply either to the items in a single tab or to the entire dashboard. For the filter to apply to a single tab, add the filter to that tab. For the filter to apply to the entire dashboard, add it above the tabs.

A Single select filter lets users filter items by one value.

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A Multiple select filter lets users select multiple values of a field or breakdown.

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Procedure

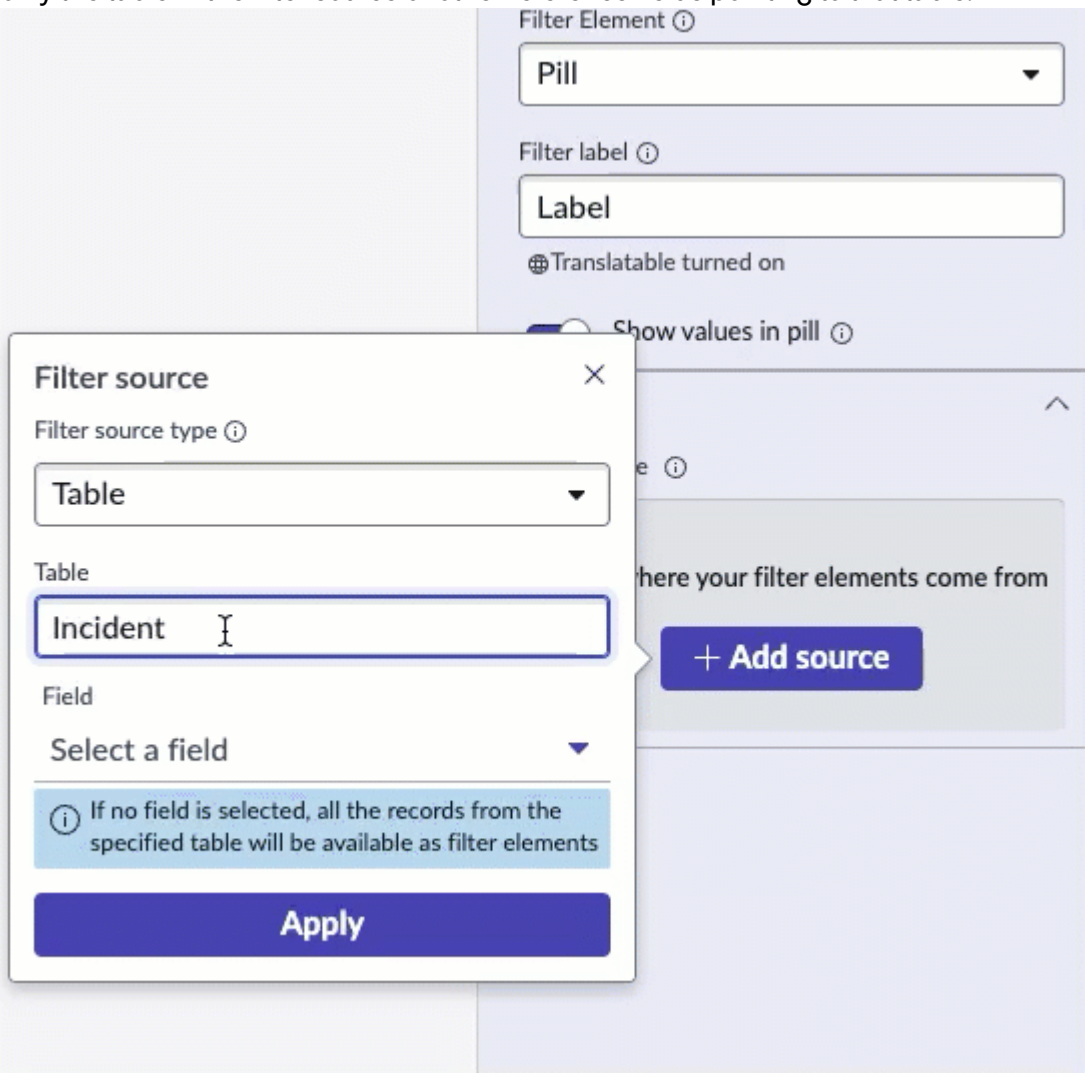
1. Create a filter and select the Single or Multiple Select filter type, as described in Create or add a filter on an inline dashboard or Create a filter in the Filter Designer.
2. In **Filter source type**, select either a Table or an Indicator breakdown. MetricBase tables are available under Tables.
3. Specify the filter source, depending on source type.

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- If you selected the Table type, select the table and the field.

Note:

- You can select only reference fields and fields that have a Choice list. If the table has only non-reference string and numeric fields, you do not have any fields to select from.
- If you select no field, you can filter only data on that table or in reference fields that point to that table. For example, if you select the Company table as your filter source, you can only filter the Company table or reference fields pointing to Company, such as Incident.Caller.Company or Incident.Location.Company.
- If you select a MetricBase table, don't select a field.
- If you select a field that is a reference field to another table, the filter source resets to refer to that table with no field selected. The data to filter is set automatically to the reference field that you originally selected. As additional data to filter, you can set only the table in the filter source or other reference fields pointing to that table.



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- If you selected the Indicator breakdown type, select an indicator breakdown.

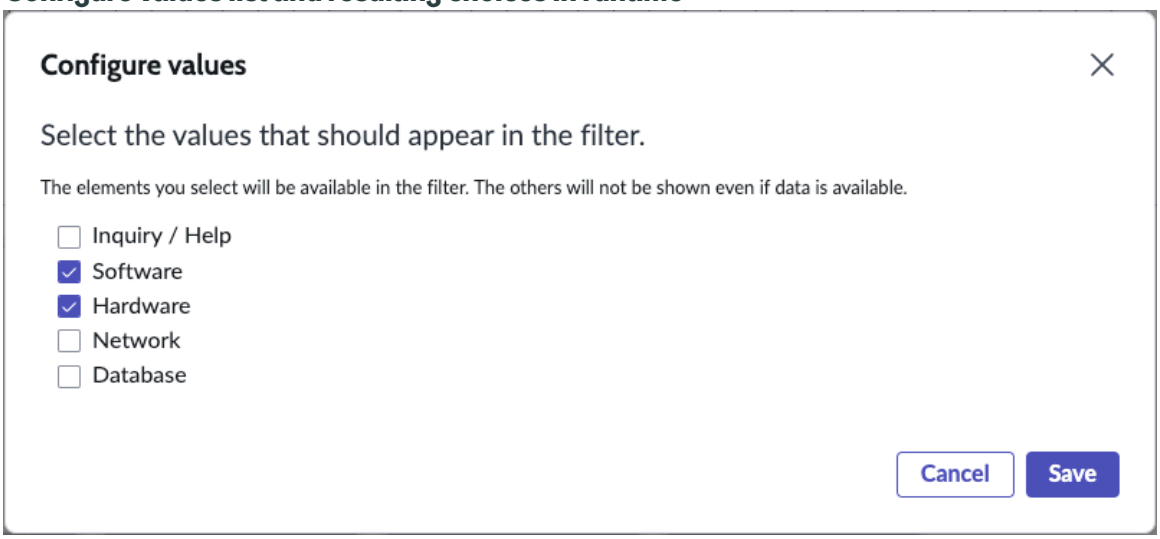
  Important:

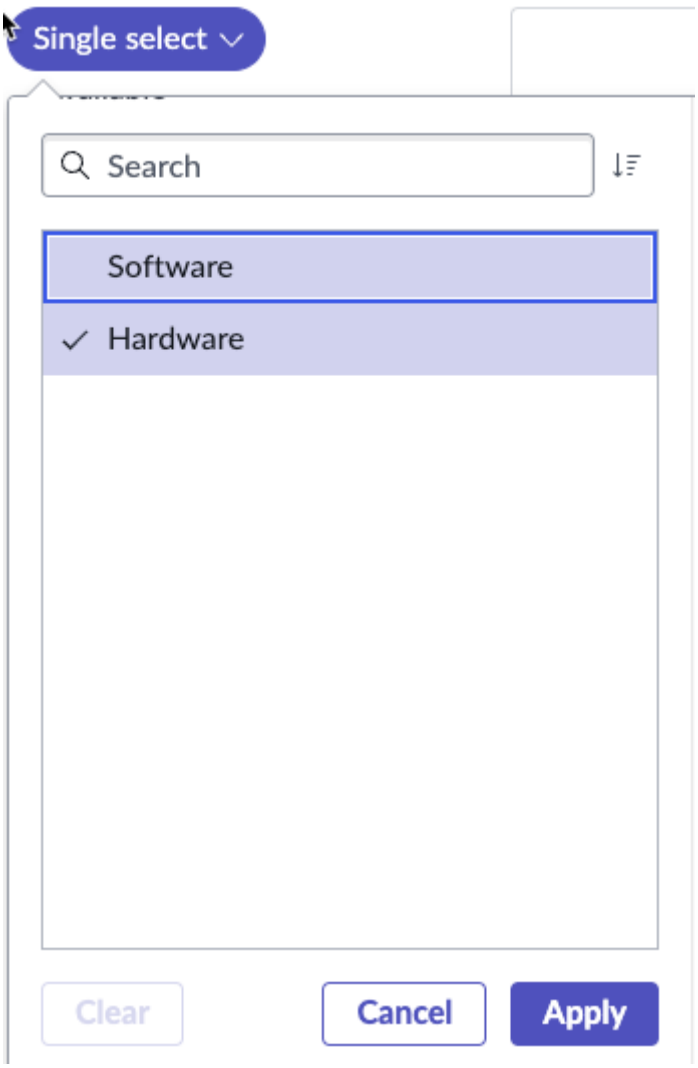
  - You can only select a breakdown that is used by at least one indicator.
  - Scripted breakdowns on data visualizations are not supported.
  - Only two levels of breakdown can be applied to an indicator at the same time. On a dashboard, this could be two filters or one filter and a breakdown specified in the data visualization. However, if data snapshots are enabled on this indicator, this restriction does not apply. For more information, see Data snapshots and multiple breakdowns.

4. **Optional:** To limit the values that the runtime user can choose to filter by, select **Configure values (number)**.
   A list of possible values opens. Clear a value to prevent runtime users from filtering by it.

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Configure values list and resulting choices in runtime





Note:
If the filter source is a reference to a table, you don't have a list of values to configure. Instead, you can build a condition to set the values in the filter. You can also set a related list condition.

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5. **Optional:** Select the default value or values for the filter.
   The dashboard applies these values when a user opens the dashboard.
6. **Optional:** Select the data to filter.
   Some data to filter is chosen automatically depending on the filter source. For example, if you select the Category indicator breakdown from the Incident.Category breakdown source, the filter automatically filters the Category field on the Incident table and any indicators with the Category breakdown. You can edit the automatic data selection or add more data to filter.

   Note:
   Your selection of filter source can impact which data you can filter. For more information, see Step 3.

7. Under **Other filters to follow**, if the conditions are met, you can select another filter for the current filter to follow in a hierarchy, creating a cascade.

   Note:
   You can only set **Other filters to follow** when you are configuring filters on a dashboard, not from the filter designer.

   When you set the filter to follow another filter, the choices available in the following filter are limited by the choices made in the followed filter. For more information, see the example Cascading filters for Manager and Assignment Group.

   Conditions:

   - You can follow a filter only if Pill is the UI element for that filter.
   - Only Table and Indicator Breakdown filters support cascading filters.
   - The filter to be followed must filter data on the same table as the filter source of the following filter.

   Note:

   - Some filters have a many-to-many relationship, where values on both filters can match multiple values on the other filter. One such filter can follow another only through a connecting table. Only admins can set up these cascading filters. For more information, see Set a filter to follow another filter in a many-to-many relationship.
   - Two filters can follow each other, but there are additional requirements. For more information, see Conditions for two filters to follow each other.

8. Select the **Sort direction**.
   If you select **Ascending**, the lowest filtered values are shown first. If you select **Descending**, the highest values are shown first. The user can change this value.
9. To let users clear the values they selected for the filter, enable **Allow filter clearance**.
10. **Optional:** Set the maximum number of elements that are loaded initially and at each page refresh.
    The default value is 500.
11. Select **Save**.

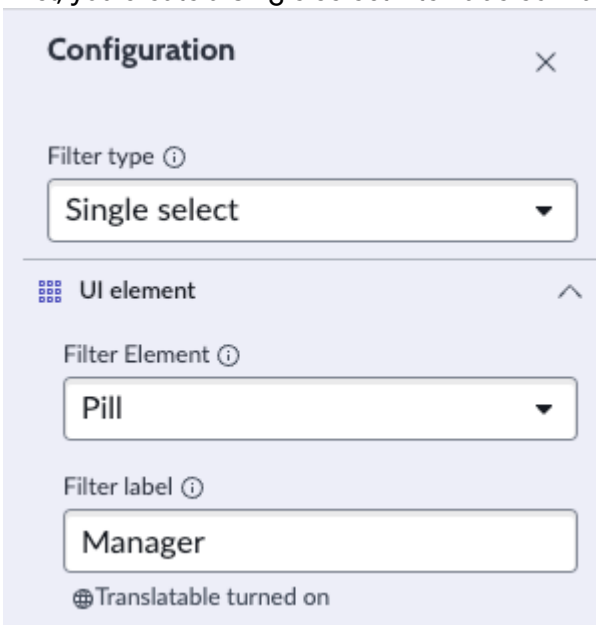
Result
The filter is ready to use when you exit editing mode.

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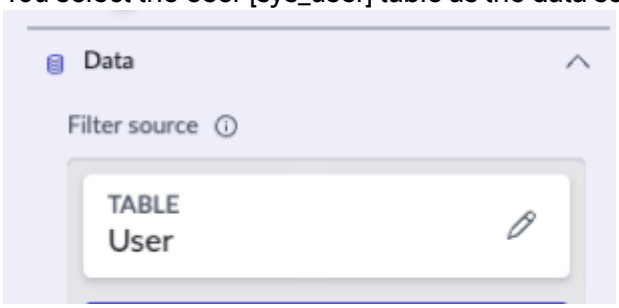
Example: Cascading filters for Manager and Assignment Group

In this example, you want your users to filter incidents by manager or by assignment group. Also, you want to limit the assignment groups that are available in the second filter to those with the manager selected in the first filter.

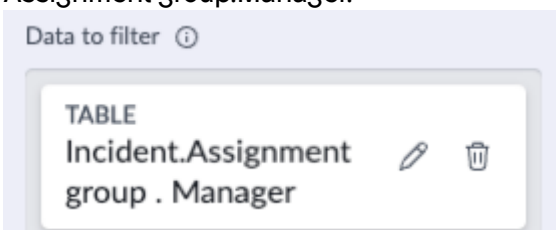
1. You create data visualizations of incidents, such as a single score data visualization of the number of incidents on the Incident [incident] table.
2. You create a filter to filter incidents by assignment group manager.
   a. First, you create a Single select filter labeled Manager.



   b. You select the User [sys_user] table as the data source. The Manager field is in that table.

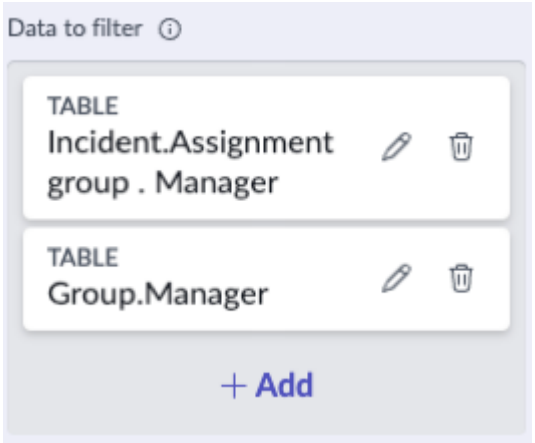


   c. Because you want to apply this filter to a data visualization of Incident table data, you edit the **Data to filter** field to point to the Incident table and the dotwalked reference field Assignment group.Manager.



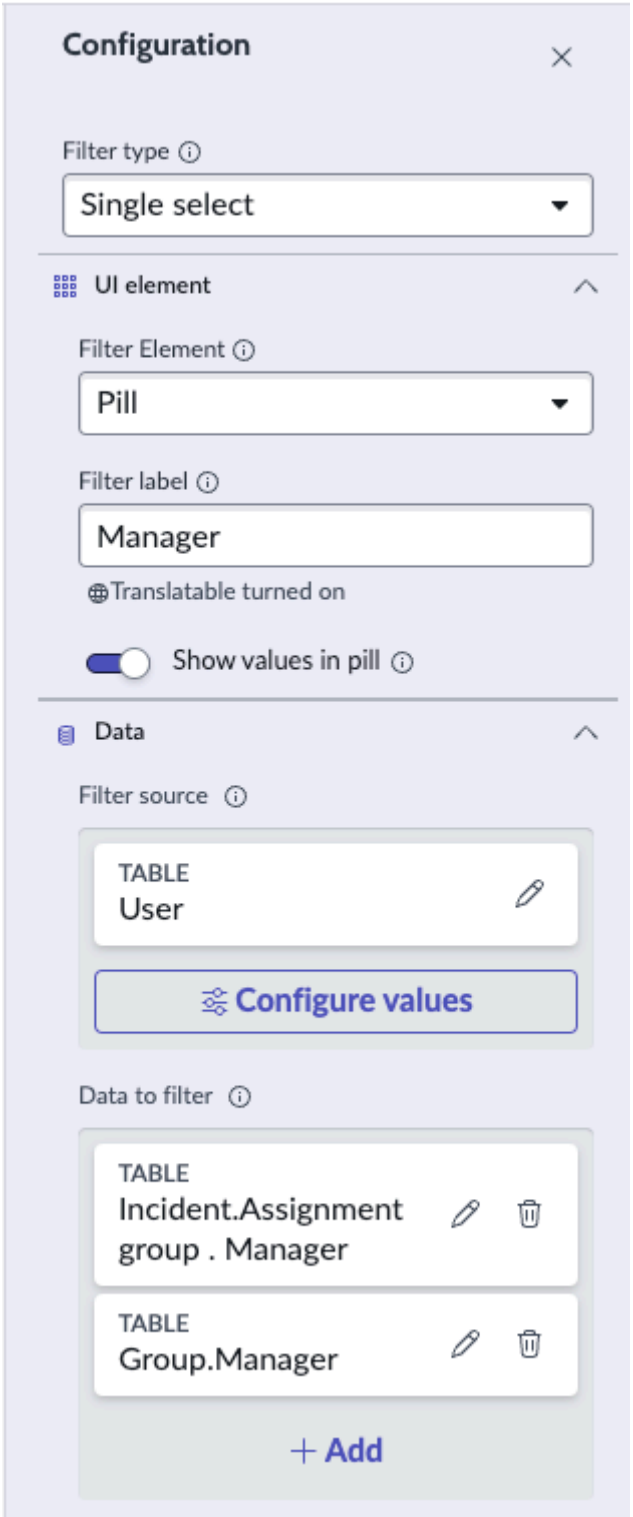
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d. Still under **Data to filter**, you select **Add+** and add the Manager field on the Group [sys_user_group] table. You will need this field later when you set up a cascading filter.



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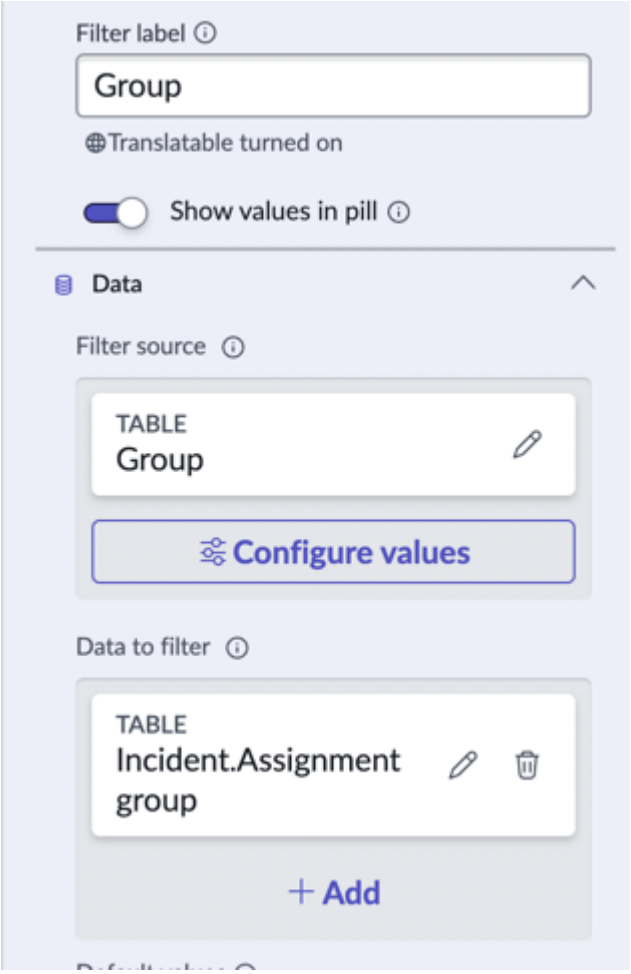
Completed configuration for the Manager filter



3. You create a filter to filter incident data by assignment group.
   a. First, you create a multiple select filter labeled Group.
   b. Then you select the Assignment Group field of the Incident [incident] table as the filter source.

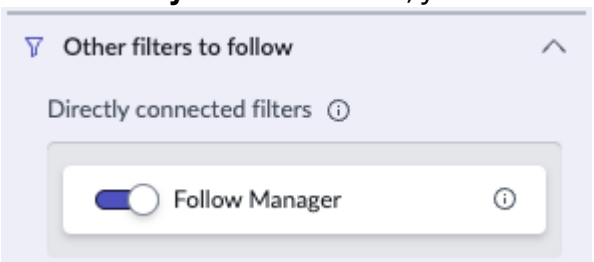
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Because Assignment Group is a reference field that refers to the Group [sys_user_group] table, the filter source resets automatically to the Group table. The data to filter remains Incident.Assignment Group.



4. Scroll down the Group filter's configuration panel to **Follow other filters**.

5. Under **Directly connected filters**, you select **Follow Manager**.

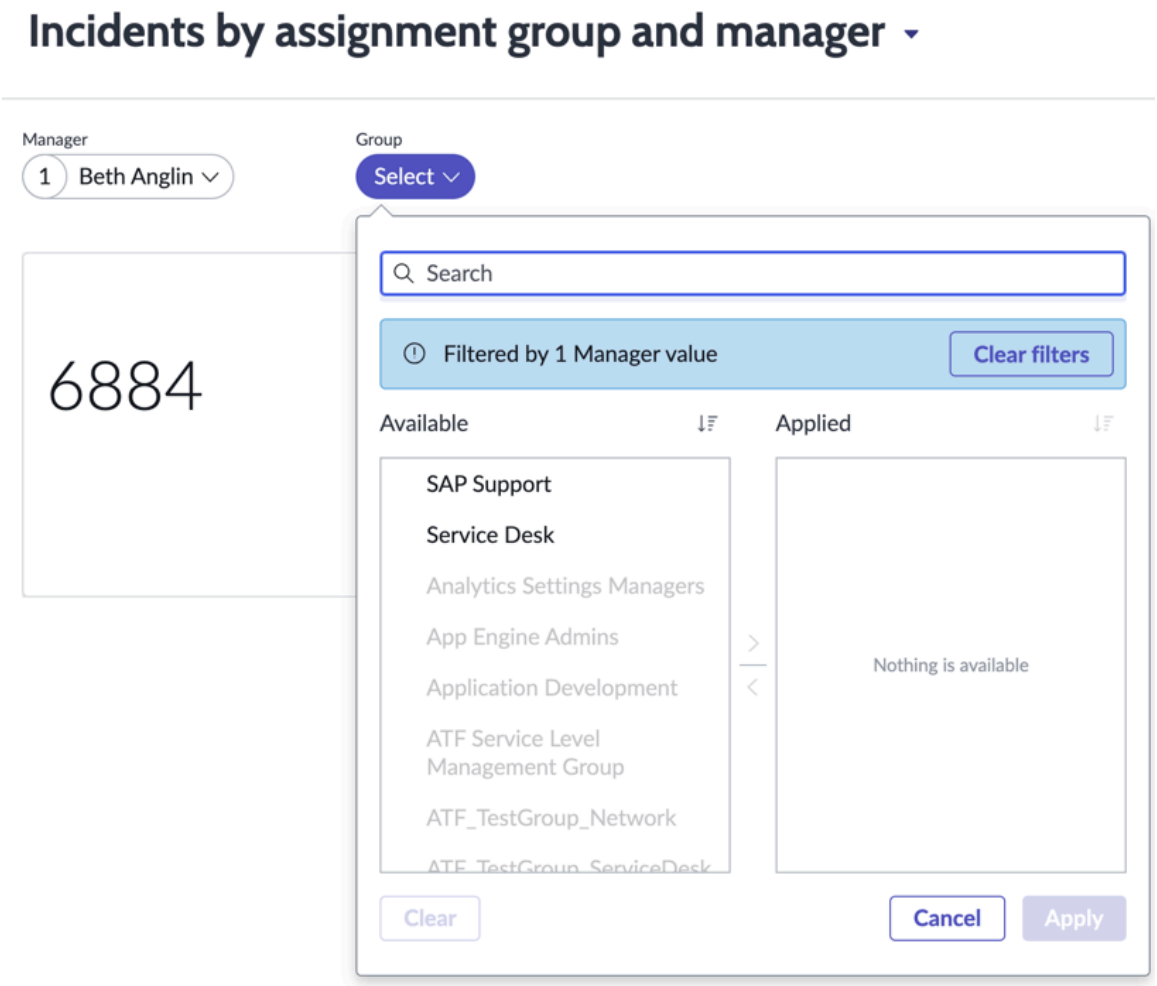


This choice appears because you configured the Manager filter to filter data on the Group table and not only on the Incident table. Remember that to have a cascading filter, the filter that will be followed (in this case Manager) must filter data on the same table as the filter that does the following (in this case Group, on the table sys_user_group).

6. Save and exit editing mode.

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Later, a dashboard viewer selects Beth Anglin in the Manager filter. Then, when selecting assignment groups in the Group filter, only those groups with Beth Anglin as the manager are available.



What to do next

If you have the required roles, add the filter to the filter library. You can also reconfigure, delete, or duplicate the filter. For more information, see Edit a Platform Analytics filter on a dashboard.

Related topics

- Applying filters to Process Mining maps
- Edit a Platform Analytics filter on a dashboard

Set a filter to follow another filter in a many-to-many relationship

In some cases, values on a pair of filters can refer to multiple values on each other. For one such filter to follow another, it must go through a connecting table.

Before you begin

Role required: admin

About this task

In most cases, a filter follows another filter either in a one-to-one relationship or in a one-to-many relationship. In the latter case, the filter source is a reference field. Anyone who can edit a dashboard can set up one such filter to follow another on that dashboard, in a direct connection. Users with the analytics_filter_admin role can also create such filters in the filter library. For more information, see the example in Configure a Single/Multiple select or cascading filter.

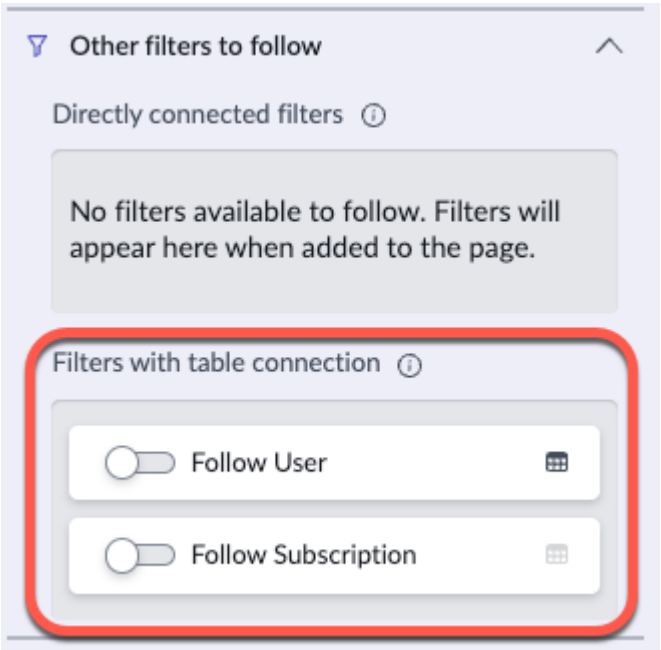
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If the values on each filter can refer to multiple values on the other filter (a many-to-many relationship), you have to select a connecting table. This connecting table has a unique record for every possible reference between the two filters. The connecting tables between two tables are defined in the Collection [sys_collection] and Many to Many Definition [sys_m2m] tables. Only administrators can access these tables.

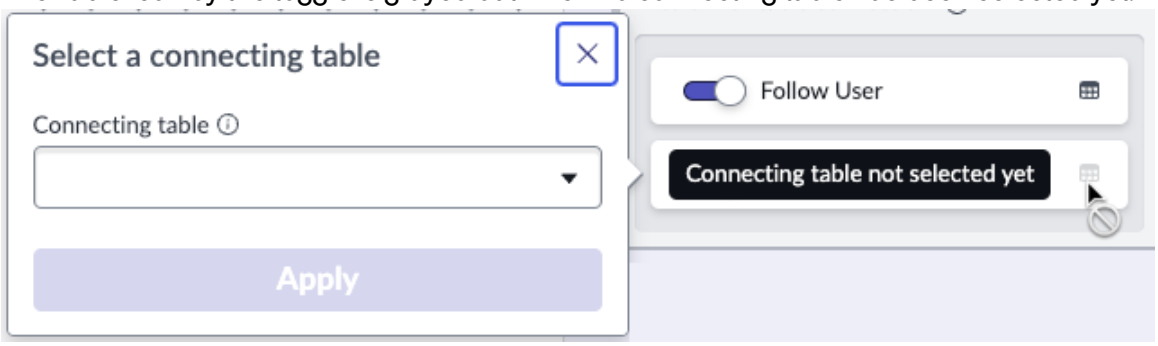
Connection tables come predefined for any relevant tables included in the base system or in Platform Analytics Solutions. However, if you want to use a custom table in a many-to-many relationship, you must define that relationship in the Many to Many Definition table. For more information, see Create a many-to-many table relationship.

Procedure

1. Add at least two single or multiple select filters to the relevant dashboard.
   For more information about adding filters to a dashboard, see Create or add a filter on an inline dashboard.
2. Put the dashboard in Edit mode.
3. Open the configuration menu for the filter that you want to follow the other filter.
   If the filter can follow any other filters on the dashboard in a many-to-many relationship, these filters are listed under **Filters with table connection** in the **Other filters to follow** section.



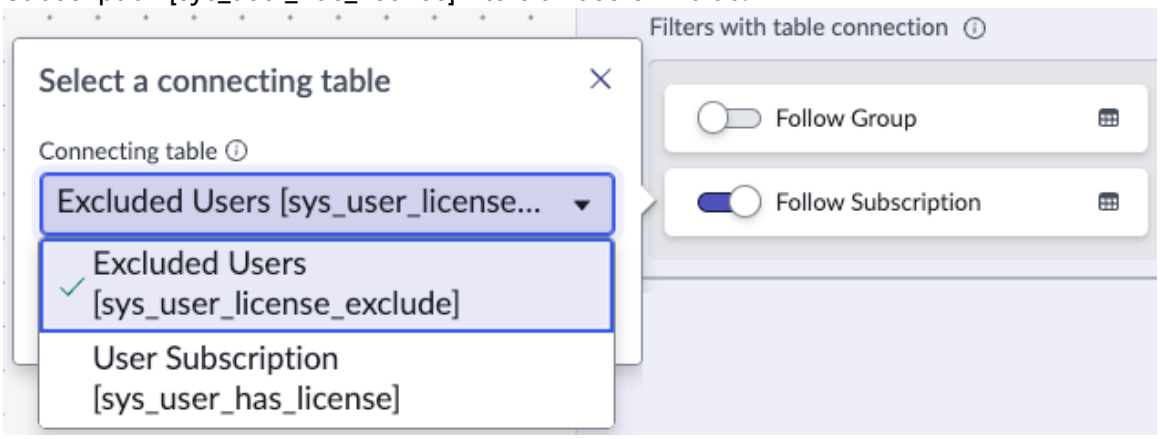
4. Turn following on for the filters that you want this filter to follow.
5. If no connecting table has been selected for that filter, a dialog opens to select the connecting table.
   The Table icon by the toggle is grayed out when no connecting table has been selected yet.



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After you set the connecting table, you can select the table icon to change it.

Example
If you have the choice between more than one connecting table, the names of the connecting tables should suggest which one to select. For example, Excluded Users [sys_user_license_exclude] filters on users who don't have a subscription whereas User Subscription [sys_user_has_license] filters on users who do.



6. Save the dashboard and exit editing mode.

Conditions for two filters to follow each other

It is possible to set up two filters to follow each other mutually. However, several technical limitations apply.

Two Single/Multiple select filters can follow each other through a direct connection, as described in Configure a Single/Multiple select or cascading filter. The conditions described in that topic apply to both filters. For example, both filters must filter data on the other's filter source.

Two Single/Multiple select filters can also filter each other through a many-to-many connection, as described in Set a filter to follow another filter in a many-to-many relationship. Only admins can set up such a connection.

Besides the general conditions for a filter to follow another, the following conditions also apply:

Mixed connection types are invalid

Both filters must follow each other through either a direct connection or a many-to-many connection. One filter cannot follow the other directly and be followed through a many-to-many connection.

Many-to-many connections must use the same connection table

If two filters follow each other through many-to-many connections, both connections must use the same connecting table.

Configure a True/False filter

Let users filter on true/false fields and breakdown elements. For example, you can enable users to choose only the incidents where the **Active** field is set to **true**.

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Before you begin

Important:
This procedure assumes you've created a filter in the Filter designer or added a filter to your dashboard with the True/False filter type. For more information, see Create or add a filter on an inline dashboard or Create a filter in the Filter Designer.

Role required: In the dashboard inline editor: dashboard_admin, or you must be the dashboard owner or have had editing rights shared with you.

In the Filter Designer (**Library** > **Filters** > **New**): analytics_filter_admin, admin

About this task
The filter applies to all elements on the same dashboard or the same dashboard tab, depending on filter placement.

Procedure

1. Create a filter and select the True/False filter type, as described in Create or add a filter on an inline dashboard or Create a filter in the Filter Designer.
2. **Optional:** Set custom display labels in place of 'True' and 'False,' such as 'Yes' and 'No.'
3. In **Data to filter**, specify a table field, indicator breakdown, or User Experience Analytics property to filter.
   You can add any number of targets to the filter. Select either a table and field or all indicators with a particular breakdown. If you select a table, you can also select to apply the filter to the hierarchy of related tables: Parents, children, siblings, and any database views that contain the table.

   MetricBase and Workflow Data Fabric tables can be filtered, and are listed with the other tables.

   Note:
   - If you select a table, you must select at least one true/false (Boolean) field. You can only select true/false fields.
   - To help you select only true/false indicator breakdowns, your choice is limited to breakdowns based on a bucket [pa_buckets] with only two values. However, the system can't check whether the indicator breakdown is really true/false. You have to determine whether the breakdown is Boolean yourself. Ask your ServiceNow AI Platform administrator for help.
   - An empty (null) value is possible for a field. Therefore, the total number of true and false values can be less than the total number of records or less than an indicator score that counts records. The viewer can also select **(empty)** to clear their selection.

4. **Optional:** Specify a default value of true or false.
   The filter is applied with this value when the dashboard is opened. If you do not specify a default value, the filter value is empty by default.
5. Select the **Sort direction**.
   If you select **Ascending**, the lowest filtered values are shown first. If you select **Descending**, the highest values are shown first. The user can change this value.
6. Select **Save**.

Result
The filter is ready to use when you exit editing mode.

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What to do next

If you have the required roles, add the filter to the filter library. You can also reconfigure, delete, or duplicate the filter. For more information, see Edit a Platform Analytics filter on a dashboard.

Related topics

Applying filters to Process Mining maps

Edit a Platform Analytics filter on a dashboard

Configure a Date filter in the inline editor

Let users select predefined periods or specify custom start and end dates for the data on a dashboard tab.

Before you begin

Important:
This procedure assumes you've created a filter in the Filter designer or added a filter to your dashboard with the Date filter type. For instructions, see Create or add a filter on an inline dashboard or Create a filter in the Filter Designer.

Role required: In the dashboard inline editor: dashboard_admin, or you must be the dashboard owner or have had editing rights shared with you.

In the Filter Designer (**Library** > **Filters** > **New**): analytics_filter_admin, admin

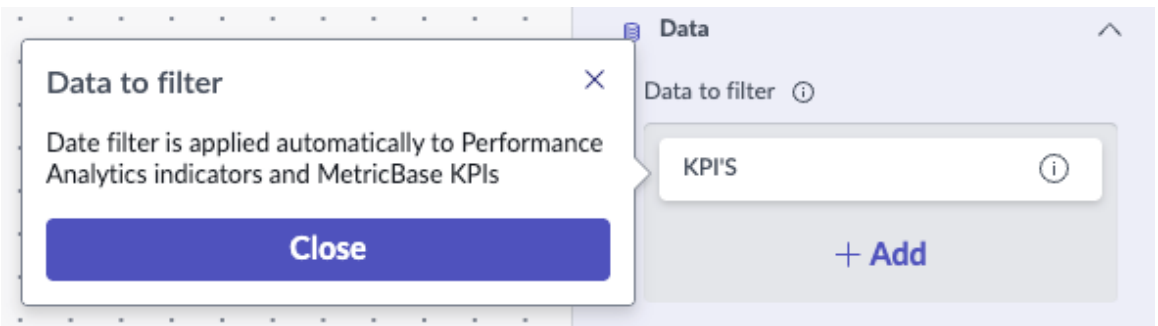
About this task

Date filters apply to Score, Time series, Bar, and Pie/Donut visualizations. For indicator data, the **Apply date range** option must be turned on in the visualization's configuration panel (except for time series, where it's implicitly always on). The filter applies to all such visualizations in the same dashboard or dashboard tab as the filter.

Procedure

1. Create a filter and select the Date filter type, as described in Create or add a filter on an inline dashboard or Create a filter in the Filter Designer.
2. Specify the data to filter.

   The filter is applied automatically to all Performance Analytics indicators and MetricBase KPIs on the tab or in the dashboard.

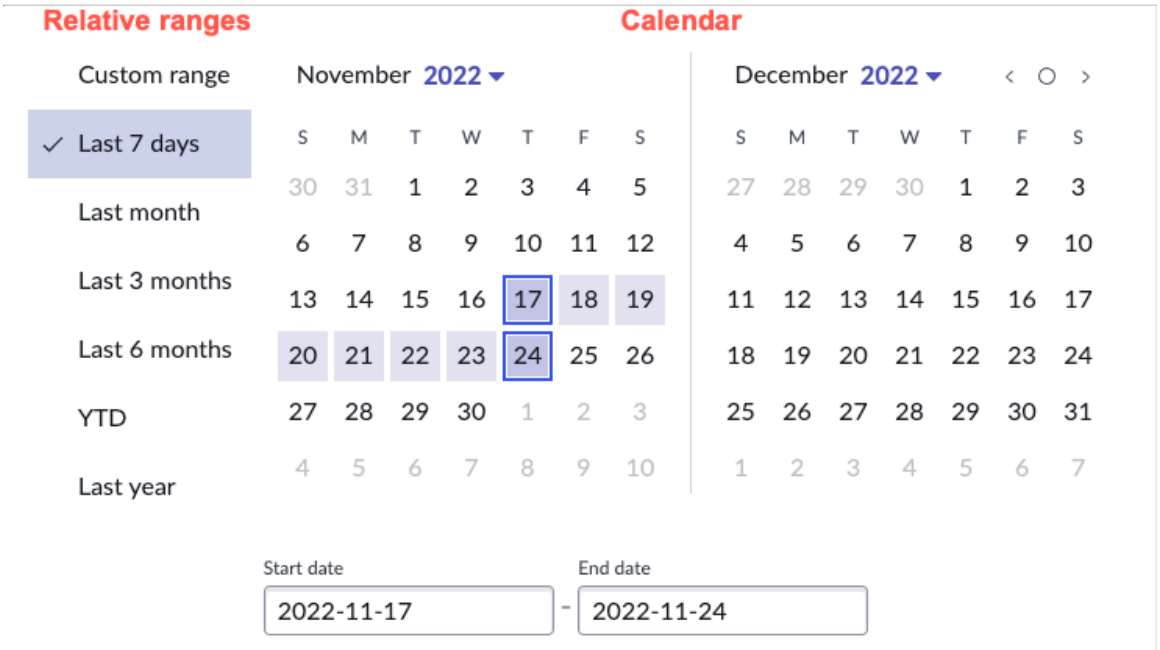


   You can add any number of date fields on tables to apply the filter to. If you add a table field, you can also choose to apply the filter to the hierarchy of related tables: Parents, children, siblings, and any database views that contain the table.

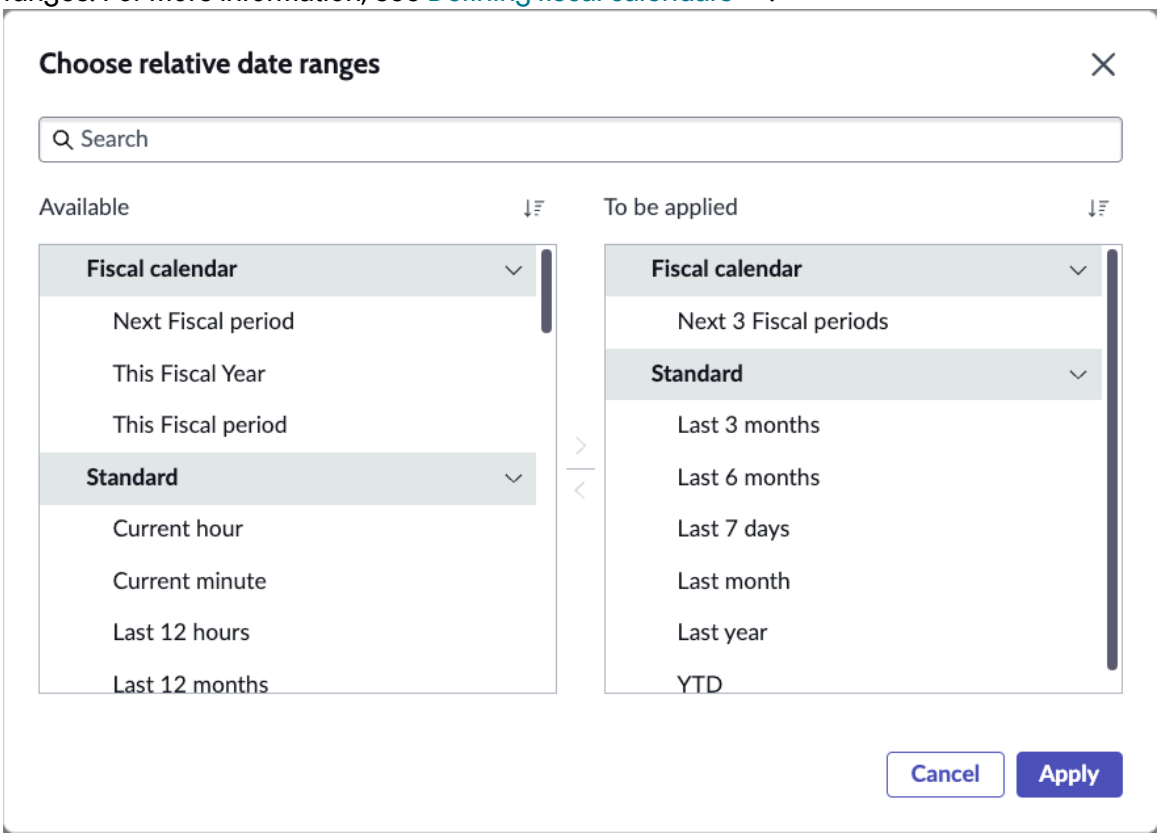
3. In **Date filter view**, select the options that the runtime user has for choosing date ranges:

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- Both calendar and relative ranges, such as seven days or Year To Date (YTD)
- Calendar only
- Relative ranges only



4. **Optional:** If you're letting the users select from relative ranges, you can select which relative ranges they can choose from in **Select predefined ranges**.
If you have Fiscal Calendars installed and configured, you can select from fiscal calendar ranges. For more information, see Defining fiscal calendars.



5. To let users filter on the time in hours and minutes instead of only the date, enable **Allow time selection**.

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6. **Optional:** In **Default values**, specify a relative range to filter on automatically when the dashboard is opened.
7. To let users clear the values they selected for the filter, enable **Allow filter clearance**.
8. Select **Save**.

Result
The filter is ready to use when you exit editing mode.

What to do next
If you have the required roles, add the filter to the filter library. You can also reconfigure, delete, or duplicate the filter. For more information, see Edit a Platform Analytics filter on a dashboard.

Related topics
Edit a Platform Analytics filter on a dashboard

Create a domain filter

Create a domain filter so that you can filter data visualizations on domains in a domain-separated instance. Domain filters enable the user to see data associated with one or more domains.

Before you begin
Domain filters are available on instances with domain separation enabled. Domain filters are not automatically enabled by default. To enable them, install these two plug-ins:

- com.glide.domain.msp_extensions.installer
- com.snc.pa.domain_support

For more information, see Domain separation for service providers. Domain filters are a different component than the Filter component.

Role required: ui_builder_admin or admin.

About this task
Domain filters support both the instance's list of domains and Performance Analytics domain configurations. Filters based on the domain list provide different results than filters based on domain configurations. For more information, see Differences between domain list and domain configuration filters.

The filter applies to all elements on the same dashboard or the same dashboard tab, depending on filter placement. Filters on dashboard tabs have higher priority than top-level filters.

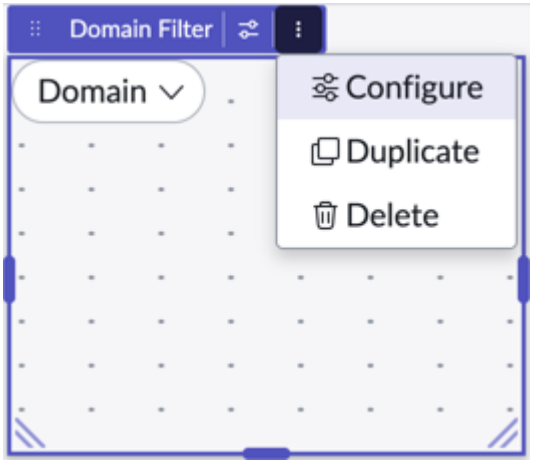
Procedure
1. Open **All** > **Platform Analytics** > **Library** > **Dashboards**.
2. Locate the dashboard in the dashboard library and open it for editing, as described in Edit Platform Analytics dashboards.

   Note:
   These instructions are for using the inline dashboard editor. If you're editing a technical dashboard in the UI Builder, see the Component reference on the Developer Site.

3. Create or open the dashboard that you want to add a domain filter to.
   For more information, see Edit Platform Analytics dashboards.
4. Select **Edit**.

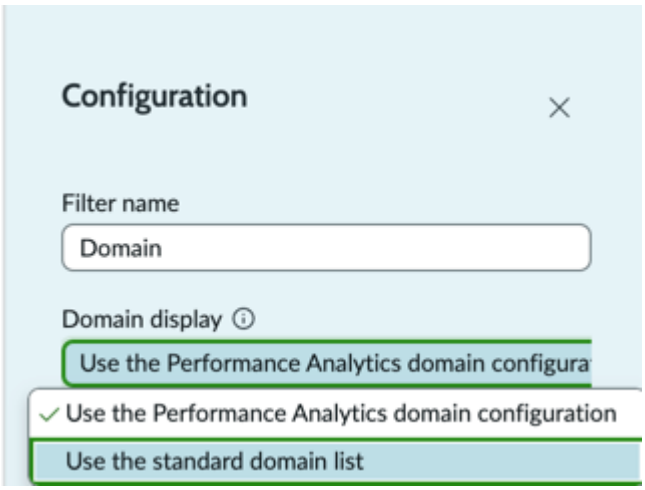
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5. From the **Add new element** menu, select **Domain filter**.
   The domain filter is added to the dashboard layout in the first available space. This location may be below existing dashboard elements.
6. Select the domain filter's three-dot menu and choose **Configure**.



7. In the **Filter label** field, type a meaningful name for the filter.
   This name is the name that the runtime user sees.
8. To determine what data to display in your filter, configure the domain display and whether to include domain data.

   a. Select the **Domain display**.
   You can filter on either a Performance Analytics domain configuration or a standard domain list.



Options	Description
Use the Performance Analytics domain configuration	Enables users to filter results based on a domain configuration. To learn more about domain configurations, see Grouping domains in Performance Analytics domain configurations.
Use the standard domain list	Enables users to filter results based on the list of domains. The list shows only active domains. Aggregations aren't included.

For a more detailed description of how these properties affect the results of the filter, see Differences between domain list and domain configuration filters.

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b. Choose whether to **Include global domain data**.
When selected, the filter includes values from records in the global domain. The global domain usually contains only configuration records.

9. Select **Save**.

Differences between domain list and domain configuration filters

Domain filters based on Performance Analytics domain configurations behave differently than domain filters based on the list of platform domains.

Overview of differences

The results of domain filtering differ based on the presence of child domains and the inclusion of the global domain. If you use domain configurations, results also depend on aggregation.

Platform domain list

Global domain included

Visualizations based on indicator data

Show only the scores for the selected domain. Child domain and global domain scores are not included. The values can come from both data collection jobs and manual input.

Visualizations based on table data or database views

Combine the values of the global and selected domains, and any child or parent domains.

Global domain not included

Visualizations based on indicator data

Show only the score for the selected domain. Child domain and global domain scores are not included.

Visualizations based on table data or database views

Combine the values of the selected domain and the values of the child domains.

Performance Analytics domain configurations

See Grouping domains in Performance Analytics domain configurations for a detailed discussion of domain configurations.

Once you group domains in a Performance Analytics domain configuration, there are two considerations when you filter on a domain in that configuration:

- Does the domain have children or is it a standalone domain?
- Is the data aggregated?

Global domain included

Visualizations based on indicator data

Show only the scores for the selected domain, and only if a data collection job collected indicator scores for that domain.

Aggregated scores come from all domains in the domain configuration, but exclude child domains. The global domain is also excluded.

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Visualizations based on table data or database views

Include values from the selected domain, any child domains of that domain, and the global domain.

Aggregated results come from all domains in the configuration, including their child domains, plus the global domain.

Global domain not included

Visualizations based on indicator data

Show only the scores for the selected domain. Child domains and the global domain are excluded.

Aggregated scores come from all domains in the domain configuration, but exclude child domains. The global domain is also excluded.

Visualizations based on table data or database views

Include the values of the selected domain and children of the selected domain, if present. Global domain values are not included.

Aggregated results come from all domains in the domain configuration plus any children of domains in that configuration. Global domain values are not included.

Related topics

Approaches to Performance Analytics with domain separation

Edit a Platform Analytics filter on a dashboard

When you highlight a filter on a dashboard that you have put into edit mode, you have several editing options depending on whether the filter is local to the dashboard or saved in the library.

Before you begin

Role required: dashboard_admin, or you must be the dashboard owner or have had editing rights shared with you.

About this task

Note:
This topic covers only those editing options you have in the component header on a filter on a dashboard that is in editing mode. It does not cover the configuration options, such as selecting the filter source and target. Those options are available in the configuration panel, which is available in either a dashboard in edit mode or in the Filter Designer. The editing options in this topic apply to all filter types, whereas the configuration options differ by filter type. For more information, see Configure a Single/Multiple select or cascading filter, Configure a True/False filter, or Configure a Date filter in the inline editor.

Procedure

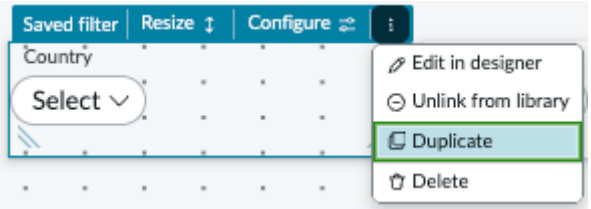
1. Navigate to the dashboard with the filter that you want to edit.
2. Select **Edit** to put the dashboard in edit mode.
3. Select the filter that you want to edit.
   A border around the filter appears with various information and options.

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Options for a filter that is local to the dashboard



Options for a saved filter from the library



- Filter | Saved filter: Shows whether the filter exists only locally in the dashboard or is a filter that is saved in the filter library. Options between the two filters differ.
- Resize: Lets you drag the corners of a filter to resize it. Also lets you add other components around the filter.
- Configure: Opens the filter in the Configuration panel, if it is not already open.

> **Warning:**
> You need the viz_admin role or higher to edit a saved filter in a dashboard. If you do not have this role, you see a warning that you cannot configure the element. If you have the analytics_filter_admin role or higher (dashboard_admin), you can open the filter for editing from the Filter library. Alternatively, you can select **Unlink from library** to convert the filter to a local version that exists only on the dashboard.

For more information about configuring the filter, see one of the following topics:

- Configure a Single/Multiple select or cascading filter
- Configure a Date filter in the inline editor
- Configure a True/False filter

4. **Optional:** Expand the **Actions** ( ) menu and select from the following actions, which are different for local and saved filters:

Actions on local filter

Action	Description
Add to library	Adds the filter to the filter library so that any user can use it on other dashboards. Requires the analytics_filter_admin role.
Duplicate	Makes a copy of the filter on the same dashboard for you to edit.
Open record	Opens a form so that you can examine and edit the filter's JSON code. Requires the admin role.
Delete	Removes the filter from the dashboard.

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Actions on saved filter

Action	Description
Edit in Designer	Opens the filter outside of the dashboard in the Filter designer for configuration. Requires the viz_admin role.
Unlink from library	Replaces the saved filter with an identical filter that exists only on this dashboard. The original filter remains in the library and on any other dashboards. Only dashboard editing rights are required to edit this local version.
Duplicate	Makes a copy of the current filter on both the same dashboard and in the library. Requires the viz_admin role.
Open record	Opens a form so that you can examine and edit the filter's JSON code. Requires the admin role.
Delete	Removes the filter from the dashboard. It remains in the library and on other dashboards.

5. Select **Save** to save your changes and continue editing or select **Exit editing mode** to finish editing.
   When you save changes to a shared filter, you have two choices:
   - Save the changes only for the current dashboard.

     This action creates a new version of the filter, like the **Unlink from library** action. The version of the filter in the library doesn't change.
   - Save changes to the library.

     When you make this selection, the new version of the filter is enabled on all dashboards that use it.

Troubleshoot breakdown filters

In Platform Analytics experience, it's not possible to do extend the functionality of a migrated breakdown filter that doesn't have an associated indicator.

Before you begin

Role required: Dashboard owner

This task describes how to address the error `This option is not available for the specified filter source` when you try to update a breakdown without an associated indicator.

Procedure

1. Navigate to **All** > **Library** > **Dashboards**.
2. Open the dashboard with the problem.
3. Select **Edit**.
4. Select the filter to view its configuration.

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5. Choose the **Data to filter** option.
   The error `This option is not available for the specified filter source` appears.
6. Identify the name of the indicator breakdown under **Filter source**.
7. Navigate to `pa_breakdowns.list` and open the breakdown.
8. On the breakdown record, open the **Indicators** tab under **Related links**.
9. Select **Edit** and choose one or more indicators that the breakdown applies to.
10. Select **Update**.

Result
You can edit the **Data to filter** section of the filter configuration.

Indicator Library in Platform Analytics

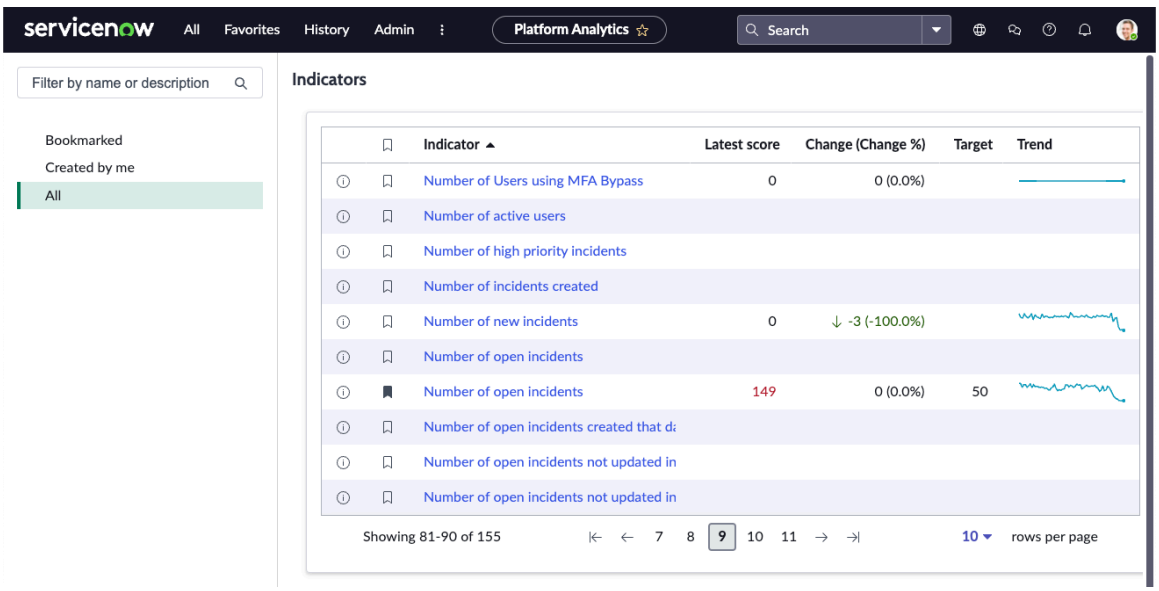
The indicator library lists all the Performance Analytics indicators/KPIs to which you have access.

Open the list of indicators at **Platform Analytics** > **Library** > **Indicators**. The list of indicators includes name, trend, score, change, and target. You can sort indicators in ascending or descending order alphabetically or by one of the numerical columns. To filter the indicators, click the three vertical dots and enter the filter terms in the dialog that opens. The filter is applied to the names and the descriptions of the indicators.

You can see any automated, formula, external, or manual indicator to which your roles grant you access. However, you do not see any benchmark indicators. Real benchmarking data is accessible only through the Compare tab on the classic Analytics Hub. You also can see only indicators that have **Show in library** enabled on their indicator records.

Click the name of an indicator to open its KPI Details.

Indicators list



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Indicator filter

- **Bookmarked** shows only your bookmarked indicators. Bookmark any KPI that you have access to so that you can find it easily here.
- **Created by me** shows only the indicators that you have created.
- **All** shows all the indicators that you have access to.

Related topics

KPI Details

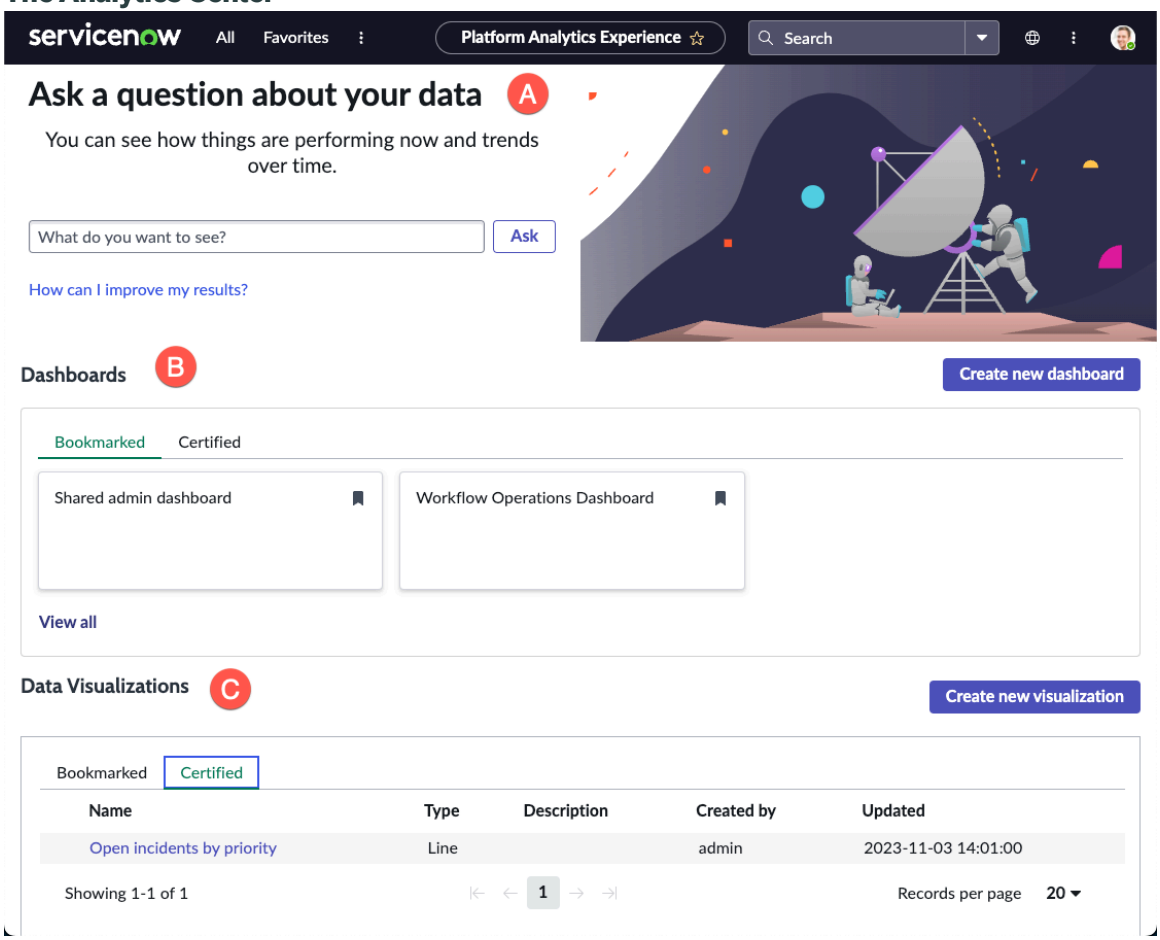
Performance Analytics indicators

Performance Analytics Essentials training

Analytics Center

The Analytics Center provides an overview of your most important dashboards and data visualizations along with a place for you to ask questions about analytics.

The Analytics Center



Access the Analytics Center by navigating to **All** > **Platform Analytics** > **Analytics Center**. It contains the following components:

A Analytics Q&A

A field where you can ask natural language questions about the trends and health of your processes. (The Natural Language Query feature is required.) For information

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about configuring and using this component, see the Analytics Q&A reference on the Developer Site.

B **Dashboards**

A set of tiles for each dashboard that you have bookmarked or that an administrator has certified. Click a tile to open that dashboard. To see all the dashboards you have access to, select **View all**. This action opens the Dashboards library. To start creating a new dashboard immediately, select **Create new dashboard**. This action opens either the inline dashboard editor or a dialog where you can select the inline editor or the technical editor, depending on your roles. For information about configuring and using this component, see Dashboards in Platform Analytics.

C **Data Visualizations**

A list of the saved visualizations that you can access based on your roles. You can select visualizations that you have bookmarked or that an administrator has certified. This action opens the Data Visualizations library. To start creating a new data visualization immediately, select **Create new visualization**. This action opens the visualization designer. For more information, see Data visualizations in Platform Analytics.

You can add an Analytics Center to another experience or configurable workspace. For more information, see Creating Platform Analytics pages in your own workspace.

Analytics Q&A

You can make natural language queries related to indicators, tables, or columns from the Analytics Q&A in the Analytics Center.

Analytics Q&A supports the following languages:

- English
- French
- Canadian French
- Spanish
- German
- Japanese

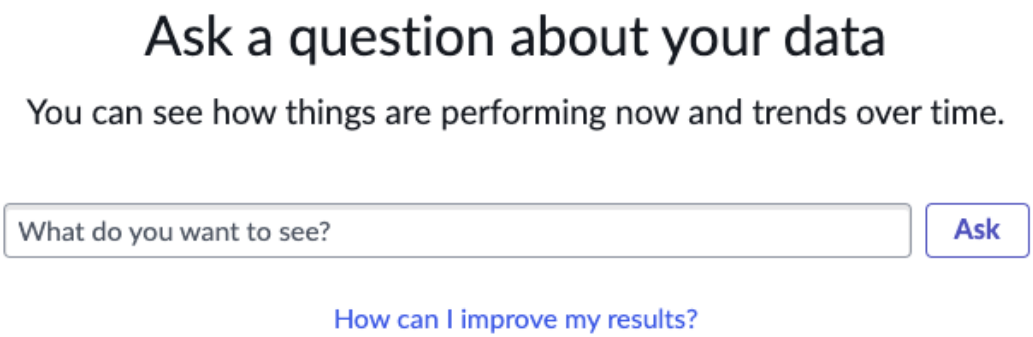
This feature is not available in sessions that use an unsupported language.

Note:
Analytics Q&A is also available in the classic environment, in Report Designer. For more information, see Create a report with Analytics Q&A

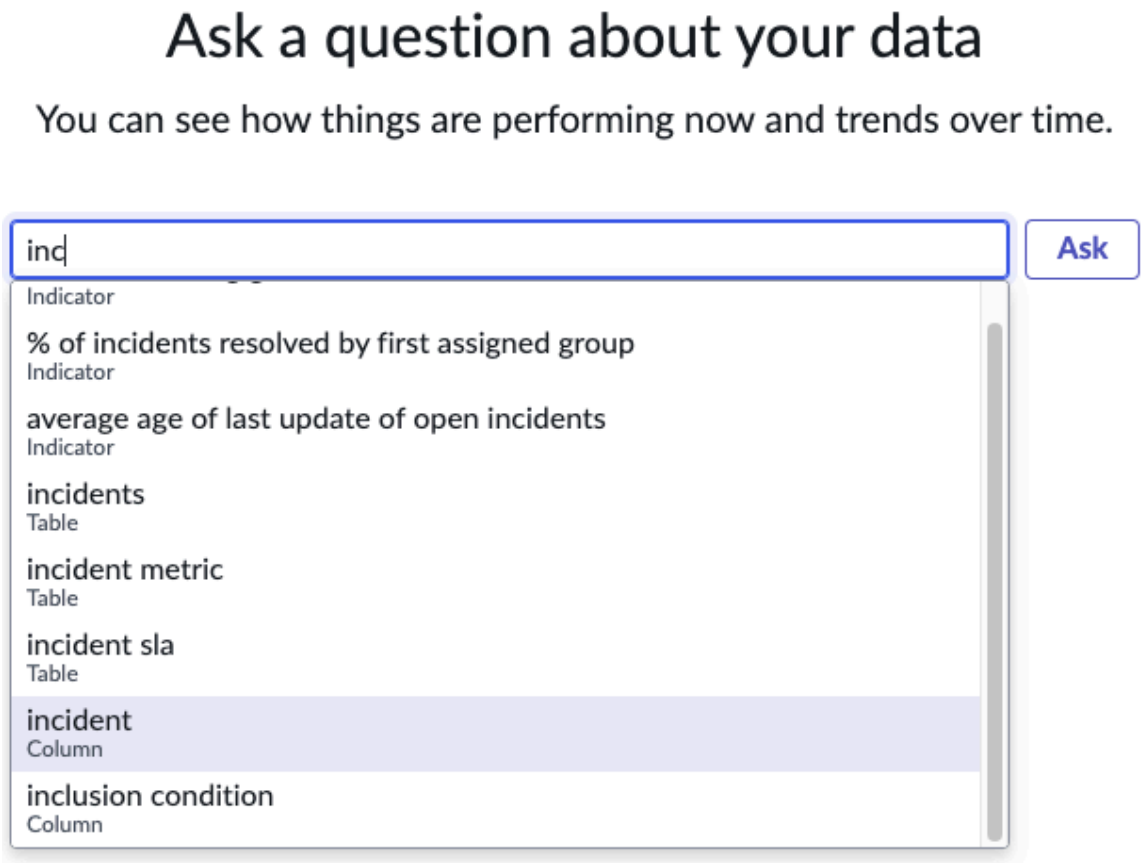
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Entering queries

Analytics Q&A before you enter a query



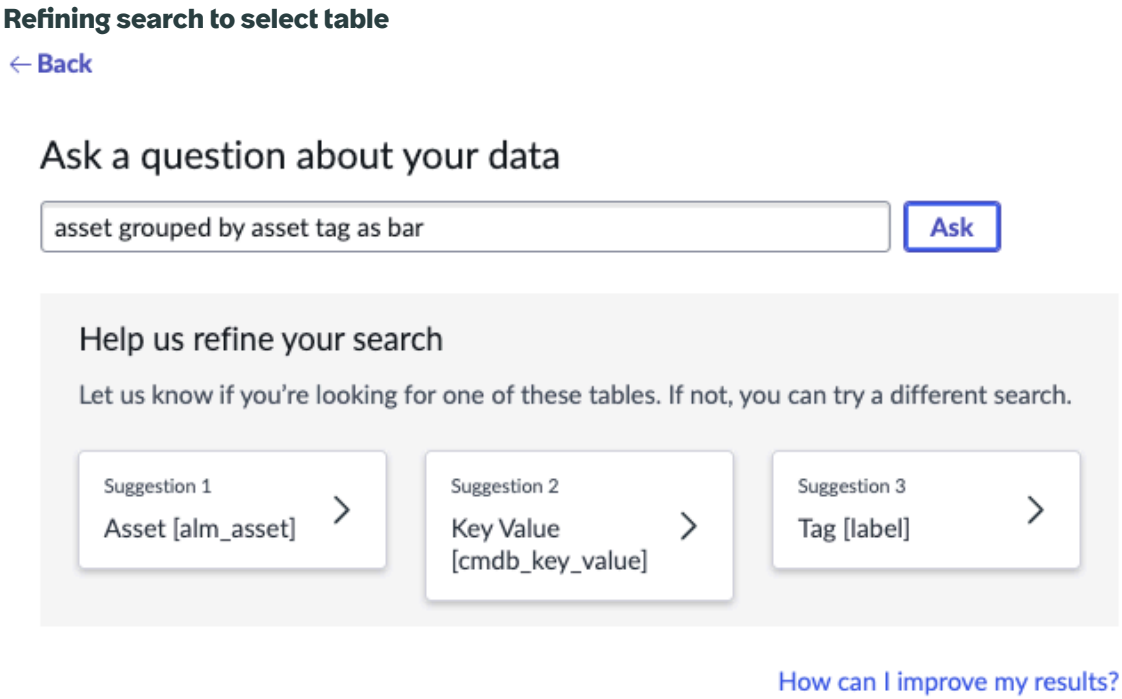
As you type in a query, Analytics Q&A suggests recent searches, indicators, tables, and columns that match what you have typed so far. Only the tables and columns to which you have access are shown.



Selecting from several likely tables

If Analytics Q&A cannot determine which table you want, it shows you up to three likely tables. In the following screenshot, the user has asked for assets grouped by asset tag and displayed as a bar chart. However, the system cannot determine whether the user is interested in the Asset [alm_asset], the Key Value [cmdb_key_value], or the Tag [label] table.

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Results

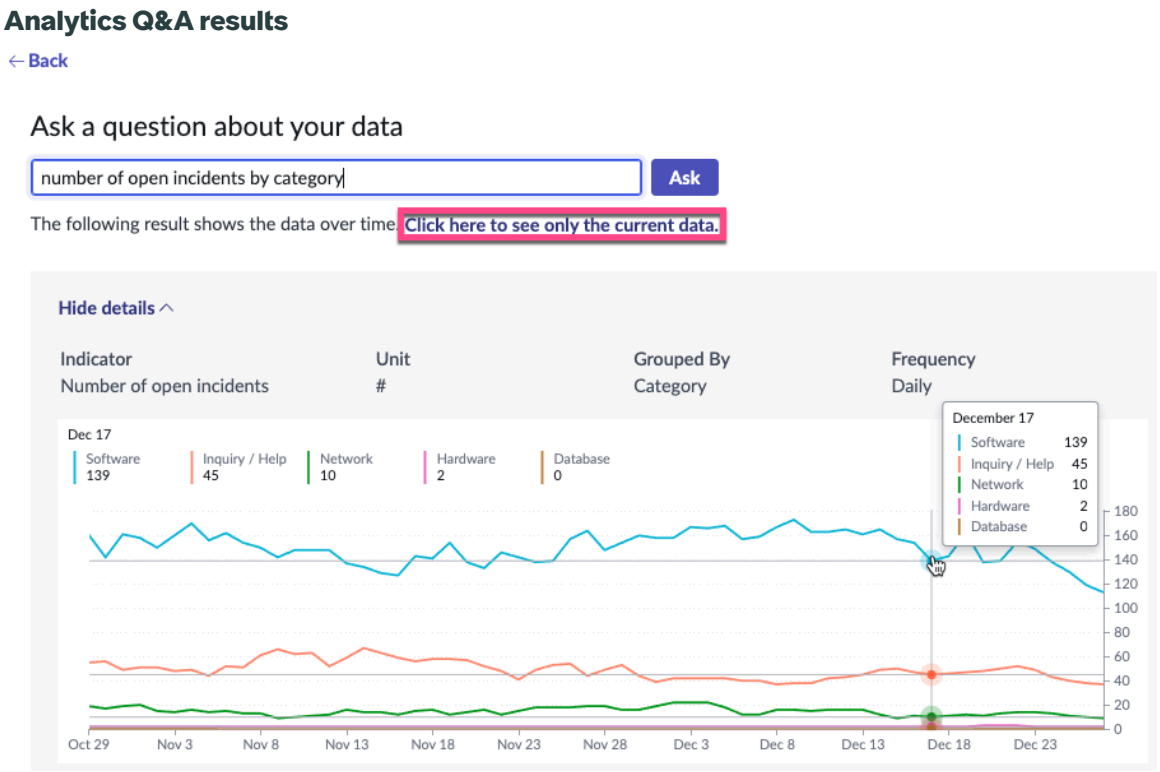
If your query is successful, Analytics Q&A shows your result as whichever of the following visualizations you specified. If you do not specify a visualization, Analytics Q&A determines which visualization is the most appropriate:

- List
- Trend
- Single score
- Bar
- Pie chart visualization

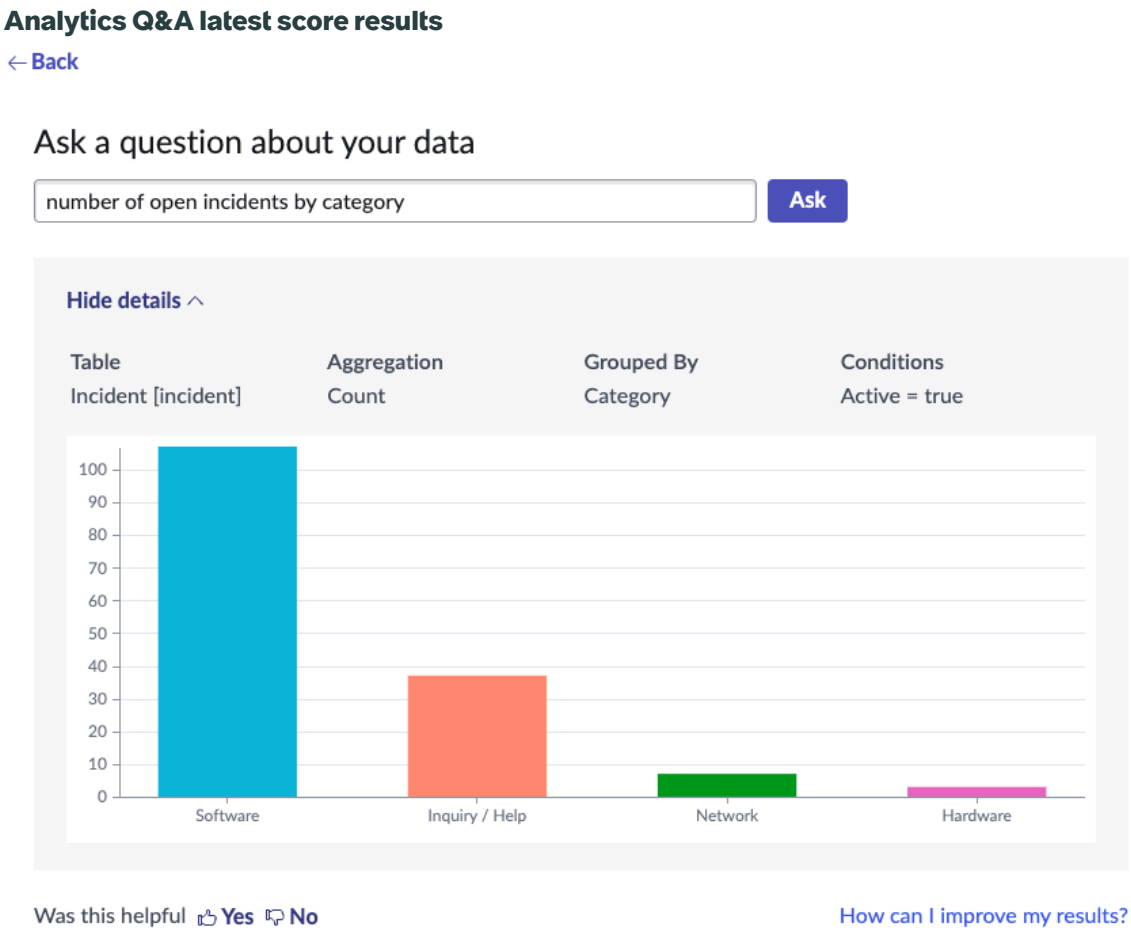
The results are subject to an ACL security check against your roles. Visualizations based on tables follow Reporting security. Visualizations based on Performance Analytics follow PA security.

The following example shows the results of a query where you specify a breakdown for grouping the results. Analytics Q&A determines that the query matches an indicator. Because indicators show trends over time, Analytics Q&A determines that a trend line is the appropriate visualization:

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If you do not want to see the change in scores over time, click **Click here to see only the current data**. Analytics Q&A returns the current values on the underlying table instead of the indicator scores.



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Hold your cursor over the chart to get more information about breakdowns. In a time series trend, you get the values for all the breakdowns on the selected day. In a column chart of the latest scores, you get the score of the breakdown you select. If the result is a visualization for an indicator, click on a value to open the indicator in KPI Details.

By default, you also see the following details if they apply:

- Which table you are querying
- The unit for the values
- The data aggregation method
- Which column you are grouping by
- What date field you are measuring the trend by, and at what frequency
- Which additional conditions you want to apply to your query

Lastly, you can send feedback on your query results by selecting thumbs up or down.

Note:
If you only select one item from the suggestion or indicator or table, the feedback option is not available. By selecting only one item, you do not use the query parser. By not using the query parser, you do not create a query log. The feedback is attached to the query log, but the log must already exist.

New queries

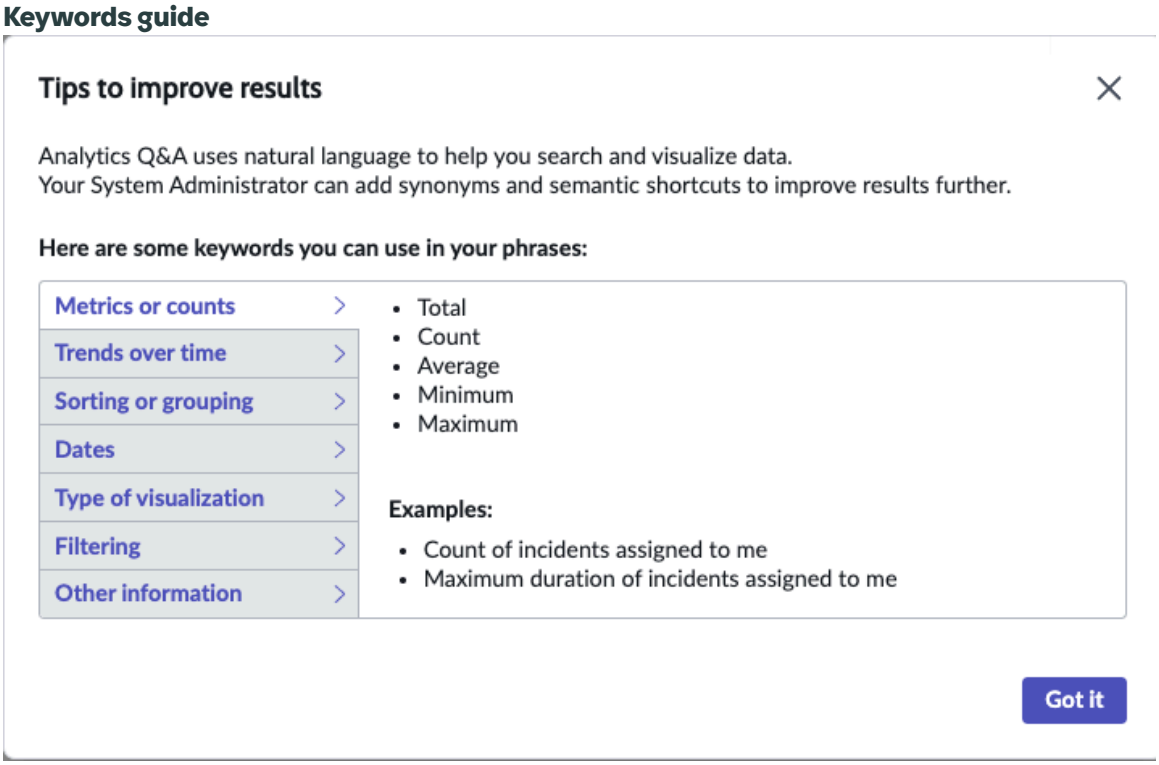
To make a new query or view a list of your KPIs, click **Back**. Returning to the Analytics Center updates your list of the last five successful queries.

How to make a valid query

When you write a query, use special keywords to denote the type and range of information you are looking for, filters you want to apply, and other parameters. To see a full list of keywords and their uses, click **How can I improve my results?**.

You can ask your ServiceNow AI Platform administrator to add synonyms and semantic shortcuts for keywords. For more information, see Create an NLQ synonym and Create an NLQ shortcut.

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Creating Platform Analytics pages in your own workspace

You can either create a new workspace with preconfigured Platform Analytics pages in App Engine Studio, or add Platform Analytics pages to your own workspace.

Choose from the following ways to add Platform Analytics to your workspace. These approaches differ in the degree of customization they provide:

- Add an entire pre-built workspace from App Engine Studio.
- Use the page templates that are provided in the UI Builder. You can re-create all of Platform Analytics experience, or you can add only selected parts.

Create a Platform Analytics workspace from App Engine Studio

The App Engine Studio includes a prebuilt workspace that you can add to an application. This workspace includes an Analytics Center page, along with the pages that the Analytics Center links to.

The event handlers for the Analytics Center components of the workspace are all preconfigured. For example, selecting an indicator in the Indicator Scorecard opens that indicator in KPI Details.

For more information about using App Engine Studio to create a workspace with an Analytics Center, see Add an application experience.

Add Platform Analytics pages to a configurable workspace

Add an Analytics Center and its related pages to your own workspace/experience through page templates.

Before you begin

Role required: ui_builder_admin

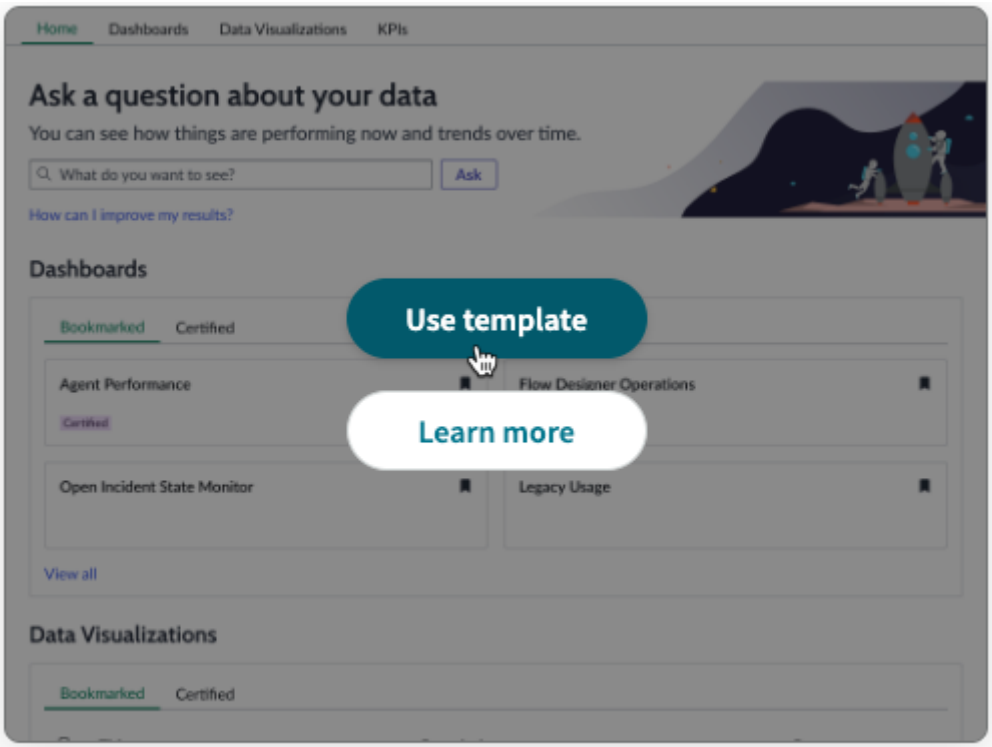
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About this task

In experiences and workspaces, the Analytics Center provides a central page with tabs for all the other pages related to Platform Analytics. You do not have to add an Analytics Center, but this procedure uses that page as example. The same procedure applies to adding the other Platform Analytics pages from templates. Details about those pages are provided at the end of this topic.

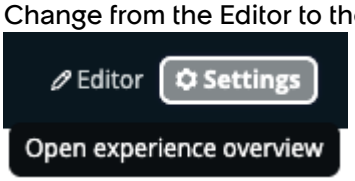
Procedure

1. Open your experience in the UI Builder.
2. Scroll to the desired template.
   This procedure shows how to set up the Analytics Center template, but the instructions apply to any template, such as Dashboards.
3. Hold your cursor over the Analytics Center template and select **Use template**.



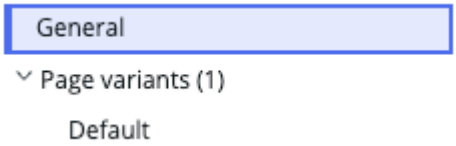
Analytics Center

4. Specify a name and a path for the page and press **Continue**.
5. In the URL parameters page, press **Looks good**.
6. **Optional:** Specify the variant name, audiences, and conditions.
7. Press **Create**.
   The page editor opens.
8. Change from the Editor to the Settings view.



9. Select the **General** variant.

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10. Under URL parameters, add the following optional parameters:
    - tab
    - filter

    These parameters ensure that on page refresh, the last open tab of the Analytics Center opens. Also, the last selected filter (such as **Bookmarked**) is enabled.
11. Press **Save**.

Result

You now have a page with a fully configured Analytics Center, including all components. However, none of the links to other pages work until those pages are added and configured.

What to do next

Create pages using the following templates. Follow the same process you used to create the Analytics Center page. Give the pages the following paths and parameters:

Note:

- The default event handlers use the paths in this table. If you specify a different path, you have to customize the event handler as described in Configure custom redirection from a dashboard component.
- Simple List and Dashboard overview are legacy page templates, like Analytics Center. You must specify the parameters manually for these pages. Newer page templates give you the parameters in the course of page creation.
- Platform Analytics is modular. You can create only some of the pages and get their standalone functions. For example, if you only want dashboard support or KPI Details, create the pages with that functionality and don't create an Analytics Center.

Template name	Function	Required parameters	Optional parameters	Path
KPI Details	Displays the details of a single indicator	uuid	scoreDate, breakdowns, domain, aggregate	ac_kpi_details
Simple List	Displays a list of table records	table	listTitle, query, disableInlineEditing, listView	simplelist
Standard record	Displays the details of a table record	table, sysId	query, extraParams, views, selectedTabIndex	record
Dashboard overview	Displays all dashboard tiles	none	none	all-dashboards

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Template name	Function	Required parameters	Optional parameters	Path
Dashboards (see Add a dashboard to a Dashboards page)	Used to create, edit, and show dashboards along with data visualizations inside those dashboards. This page template is the minimum requirement for dashboard support.	none	edit, sysId, tabSysId, filter, element	dashboards
Visualization designer	Used to create and edit data visualizations independently of dashboards, without using the Dashboards editor.	sysid	none	visualization-designer

Important:
You must use these paths, which are the same paths of the pages in the Platform Analytics experience. The preconfigured event handlers on the pages use these paths. If you do not give your pages these paths, the event handlers will not work.

Related topics

Add a dashboard to a Dashboards page

Add a dashboard to a Dashboards page

You can add either a technical dashboard or one made in the inline editor to a page you built from the Dashboards page template. Configure the dashboard component on that page.

Before you begin
Role required: ui_builder_admin

About this task
To add a dashboard to a page in UI Builder, create the page from the Dashboards page template, as described in Add Platform Analytics pages to a configurable workspace. You can then either populate the dashboard in the inline editor or expose an existing dashboard. The existing dashboard can be either a technical dashboard or one created in the inline editor. You can expose an entire dashboard or only selected tabs.

Procedure

1. If there is an existing dashboard that you want to show in your experience, add your experience or configurable workspace to the **Dashboard visibility** field in the details of that dashboard.
   Dashboard details are available through the inline editor, even for technical dashboards. For more information, see Configure Platform Analytics dashboard details.

   Note:
   Ignore this step if there is no existing dashboard that you want to show.

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2. Navigate to **All** > **Experiences** and open your workspace.
3. Create a page in the workspace using the Dashboards page template, or open an existing page created from the template.
   For more information, see Create a page from a template and Add Platform Analytics pages to a configurable workspace.

   Note:
   You cannot add a Dashboard component to a page. You can only create a page from the Dashboards template. This page will include a Dashboard component.

   You now have an inline dashboard editor that you or another user can open by navigating to this page.
4. Open the Dashboard component on the page and go to the configuration panel.
   If you want this page to display an existing dashboard, continue to the next step. If you want this page to open on an empty inline dashboard editor, skip to Step 7.
5. In **Default dashboard**, select the dashboard that you want to add to the page.
   - If there is one specific dashboard you want to show, select it from the dropdown list. If your dashboard is not listed, be sure it is visible in this workspace or experience as described in Step 1.
   - If you want different dashboards to be displayed according to choices that the viewer makes on the page, use data binding to select the dashboard according to a @state variable.
   - For other ways to select the dashboard dynamically, write a script.

   Note:
   If you select a dashboard that was created in the inline editor, filters on that dashboard retain their values across logins or page refreshes unless the filter configuration is edited.
6. If you only want to show a specific tab of the imported dashboard, specify the **Tab SysId**.
   Like with the dashboard itself, you can specify a tab or have it selected dynamically through data binding or scripting.
7. Select **Use as embedded** if you want to use the dashboard component inside your page in isolation from the page's URL parameters.
   In other words, turn on for full control over what the dashboard renders, regardless of URL parameters. The Copy URL and Copy URL with filter options are not available on such embedded dashboards.
8. Set the other configuration options as they are described in Dashboard component properties.

What to do next

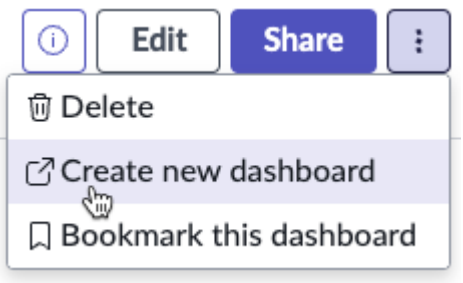
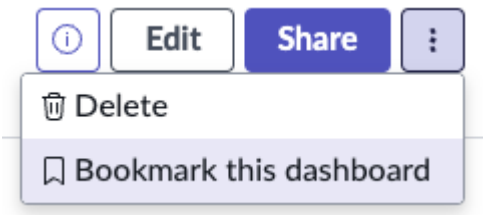
You can open the dashboard in runtime and edit it in the inline editor. Any viewer with edit rights can do the same. If the viewer has the rights to save a dashboard to the library, they have the option of saving the dashboard locally or altering the original dashboard in the library in Platform Analytics.

Dashboard component properties

Disable and enable dashboard component runtime user abilities with these properties.

Field	Description
Tab Sys Id [tabSysId]	If you want to display only one tab of an existing dashboard, specify its SysID. Also specify the dashboard in Default dashboard.

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Field	Description
	You can select a dashboard statically or dynamically, through a state variable or a script.
Use default redirections [defaultDrilldowns]	When activated, the inline editor adds default pre-configured redirections for when the chart in a data visualization is clicked. To implement a custom drilldown, set this property to false, then add and customize a Dashboard Widget Clicked event handler as described in the Events section. Default: true
Disable the whole header [hideHeader]	Viewers do not see the dashboard header, only the content.
Hide dashboard picker [hideDashboardPicker]	When true, hides the dashboard picker on all dashboards in the workspace Default: false
Disable sharing [hideShareButton]	Hides the Share button on all dashboards from all users, but applies only to the Dashboards page where this value is set. Default: false
Disable editing [hideEditButton]	Hides the Edit button on all dashboards from all users, but applies only to the Dashboards page where this value is set. Default: false
Disable dashboard creation [hideCreateNewButton]	Hides the Create New Dashboard option in the context menu of the Dashboard page. Users can still create dashboards from the Analytics Center or the dashboards library (Dashboard Overview component). When false:  When true:  Default: false

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Field	Description
Use as embedded [useAsEmbedded]	Set to true when you, as a developer, want to use the dashboard component inside your page in isolation from the page's URL parameters. Meaning, you want full control over what the dashboard renders, regardless of URL parameters. The Copy URL and Copy URL with filter options are not available on such embedded dashboards. Default: false
Default dashboard [defaultDashboard]	Select an existing dashboard to show in this dashboard component. This other dashboard is usually in the Platform Analytics Experience. For that dashboard to be shown, it must include your workspace or experience in the **Dashboard Visibility** field in its dashboard details, as described in Configure Platform Analytics dashboard details. You can select a dashboard statically or dynamically, through a state variable or a script.
Shareable Filter SysID [filterId]	The sysId of the persisted filter set up of a dashboard
Global filters [globalFilters]	Filters for the visualizations within the dashboard. These filters apply to all relevant data visualizations. The format of the value passed to globalFilter is the stringified form of {encodedQueries: 'encoded-queries-string', filters: 'PAR-Filter'}. Both encodedQueries and filters are transformed into PAR filters internally and merged with existing filters in the dashboard. Either `encodedQueries`, `filters`, or both can be specified. In the following example, equivalent `encodedQueries` and `filters` values both filter visualizations that show records from the Incident [incident] table based on a State field value of 1 or 2: `JSON.stringify({ encodedQueries: {incident: 'stateIN1,2'}, parFilters: [{ order: 0, apply_to: ['incident.state'], values: ['1', '2'] }] })`
Drilldown to Core UI [drilldownToCoreUI]	Toggle on for drill down on table data sources to redirect to the Core UI list of table records. When off, drilling down opens a Simple List component of the table records, if the workspace contains a simple list. Does not apply to technical dashboards. Data visualizations on technical dashboards have to have their Visualization Clicked event handlers configured for drilldowns. Default: off
Use data broker to fetch data [useDataBroker]	When toggled on, the dashboard prefetches static JavaScript, such as dashboard metadata, using a data broker. The Dashboard data broker preset automatically toggles this property on. Without the preset, this property is off by default. For more information, see Configure dashboard data broker.
Data broker response for the dashboard [data]	The response for the data broker when it is used. The Dashboard data broker preset automatically sets a JSON object for this property. You

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Field	Description
	can override this value or set it manually without turning the preset on, if you absolutely need to.

Dashboard component events

Select event handlers to configure the actions (events) provided with the dashboard component.

The Events tab shows the events used by the dashboard component. To view the available events, select **+ Add event mapping**. Select the event in the list to add one or more event handlers.

Event handlers

Event handlers work with data resources to link the dashboard actions to the data you want to display to your users. Select the event in the list to add one or more event handlers.

Event descriptions

Event	Description

Navigate to dashboard overview page	Dispatched when the dashboard is closed and redirects to the dashboard library. You can customize this behavior by changing the route and title in the Redirect to dashboard list client script. To open client scripts, select the <> icon in the page's side bar.
	`* @param {params} params`
	`* @param {api} params.api`
	`* @param {any} params.event`
	`* @param {any} params.imports`
	`* @param {ApiHelpers} params.helpers`
	`*/`
	`function handler({api}) {`
	`api.emit('SCREEN_STATUS_CHANGED', {status: 'closed'});`
	`api.emit('NAV_ITEM_SELECTED', {`
	`route: 'dashboard-library',`
	`title: 'Dashboard Library',`
	`});`
	`}`

Dashboard Widget Clicked	Add this event handler if you want to override the default drilldown with custom behavior when a chart on the dashboard is clicked. It uses the Dashboard Widget Clicked client script. To add a custom drilldown: **1.** Set the defaultDrilldowns property to false. **2.** Add the Dashboard Widget Clicked event handler. **3.** Open the Dashboard Widget Clicked client script. To open client scripts, select the <> icon in the page's side bar. **4.** Locate the code `api.emit('NAV_ITEM_SELECTED', payload);` and update `payload` to align with your custom redirect logic.

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Configure custom redirection from a dashboard component

If you have created a page in your workspace from the Dashboard page template, you can customize the on-click redirection from the dashboard component on that page. The inline dashboard that this component displays will follow the custom redirection.

Before you begin

You have created a workspace in UI Builder with a page generated from the Dashboard page template. You may also have set the dashboard component in that page to display a dashboard from the library as described in Add a dashboard to a Dashboards page.

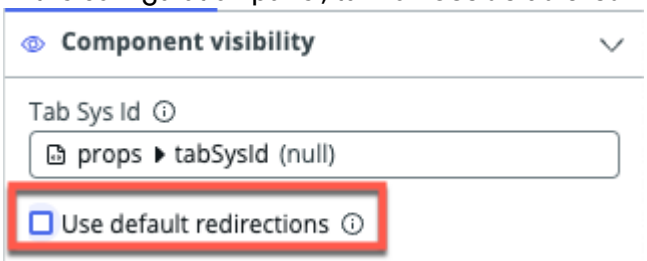
Role required: ui_builder_admin

About this task

Important:
The procedure described here applies only to dashboards created in the inline editor. For technical dashboards, you configure redirection through a drilldown event for each data visualization. For more information, see Add a drilldown event to a data visualization on a technical dashboard.

Procedure

1. Open your workspace in UI Builder.
2. Open the relevant page.
   You will have built this page using the Dashbords page template.
3. Select the dashboard component.
4. In the configuration panel, turn off **Use default redirections**.

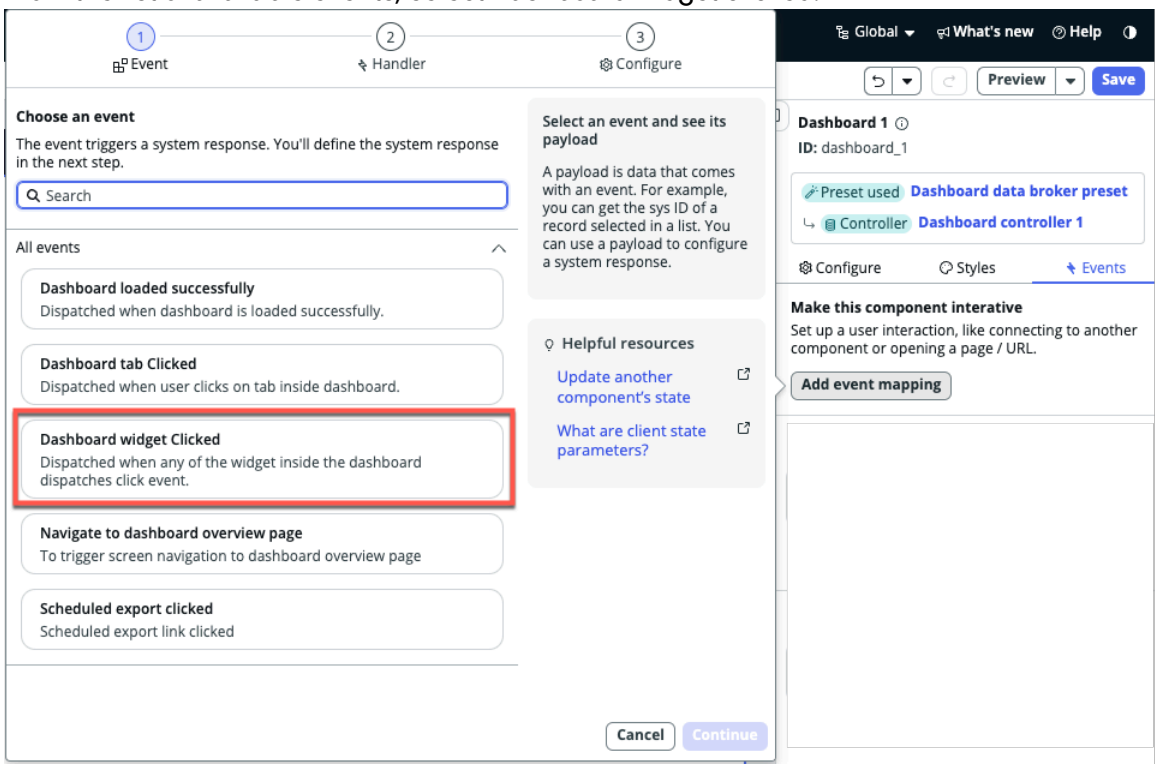


   You have turned off redirections. Clicking on a chart during runtime does not trigger any actions.
5. In the events panel, look whether there is a "Dashboard widget clicked" event handler.
6. If there is no "Dashboard widget clicked" handler, add one.

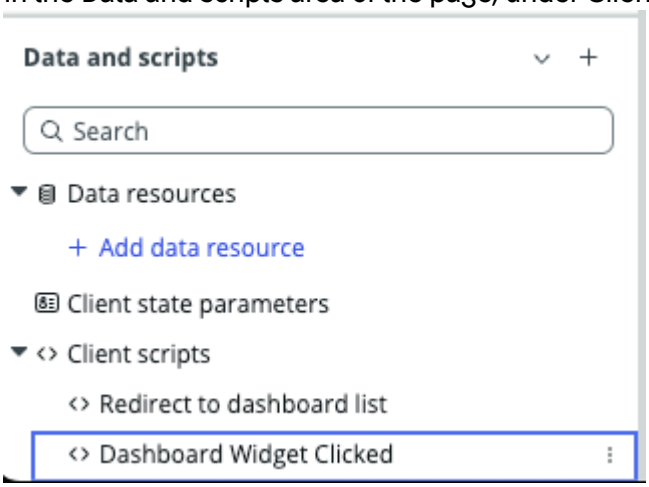
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a. Select **+ Add event mapping**.

b. From the list of available events, select Dashboard widget clicked.



7. In the Data and scripts area of the page, under Client scripts, open Dashboard Widget Clicked.



8. In the Edit client script pane, find the line `api.emit('NAV_ITEM_SELECTED', payload);`.

9. Update the payload to align with your custom redirection logic.

Result

All redirections from data visualizations on that dashboard open your specified target.

Pass global filters to the dashboard page template

Global filters are sent to the dashboard to serve as filters for the visualizations within the dashboard. These filters are merged with existing filters in the dashboard.

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About this task

Global filters are filters that apply to visualizations on the target dashboard. These filters apply to all relevant data visualizations. The format of the value passed to globalFilter is the stringified form of {encodedQueries: 'encoded-queries-string', filters: 'PAR-Filter'}. Both encodedQueries and filters are transformed into Platform Analytics filters internally and merged with the existing filters on the dashboard.

Either `encodedQueries`, `filters`, or both can be specified. In the following example, equivalent `encodedQueries` and `filters` values both filter visualizations that show records from the Incident [incident] table based on a State field value of 1 or 2:

```
JSON.stringify({
    encodedQueries: {incident: 'stateIN1,2'},
    parFilters: [{ order: 0, apply_to: ['incident.state'],
 values: ['1', '2'] }]
})
```

Configure links to dashboards on UI Builder pages to open dashboards that are already filtered.

Before you begin

Role required: admin

Procedure

1. Navigate to the UI Builder page that you want to add a global filter to.
2. Configure the behavior of the hyperlink or button (or something else) on the page to point to the dashboard with the specified sys_ID.
   In this example, the sys_ID is 1238.

   The showInfoMessage parameter, if true, shows the configured infoMessage on the linked dashboard when filters are passed.

```
api.emit('NAV_ITEM_SELECTED', {
        route: 'dashboards',
        params: {
            sysId: '1238',
            unifiedFilters: JSON.stringify({
                showInfoMessage: true, // default false
                infoMessage: 'custom info message', // if not
 passed and if showInfoMessage is true then the default message
 is displayed
                encodedQueries: {
                    incident: 'priority=1'
                },
            })
        }
    });
```

Configure dashboard data broker

Activate the Dashboard data broker preset and configure the data broker to potentially speed the loading of dashboards by prefetching some data.

Before you begin

Role required: ui_builder_admin, admin

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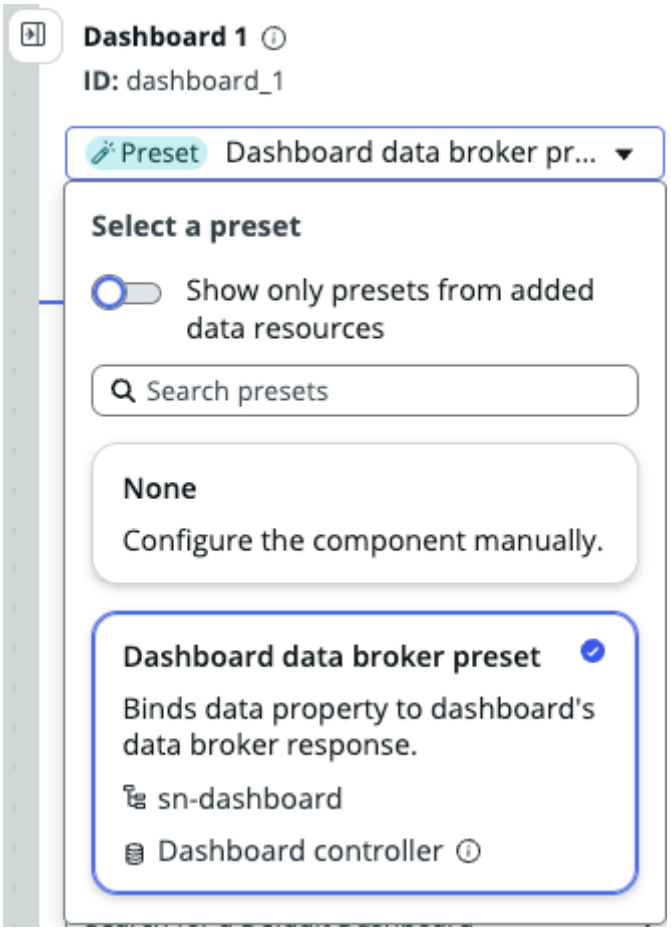
About this task

The dashboard includes a Dashboard data broker preset. This data broker prefetches all the static JavaScript assets that are required by the visualizations that are rendered in the dashboard. This prefetch could speed the loading of visualizations that include many such assets.

This data broker prefetches data only on direct page loads. It does not apply on click-through page loads, such as when the dashboard is opened by selecting a URL link from another page. It also does not function when the dashboard is used as an embedded component.

Procedure

1. Open your workspace and either create a page from the Dashboards template or navigate to an existing page from that template.
2. Open the Config tab in the configuration panel of the Dashboard component.
3. Check whether the Dashboard data broker preset is activated.
   The preset is activated by default.



4. In the **Data and scripts** section of the page, open **Data resources** > **Data controller 1**.
   You can rename the data resource if desired.
5. Check whether the properties are correct:

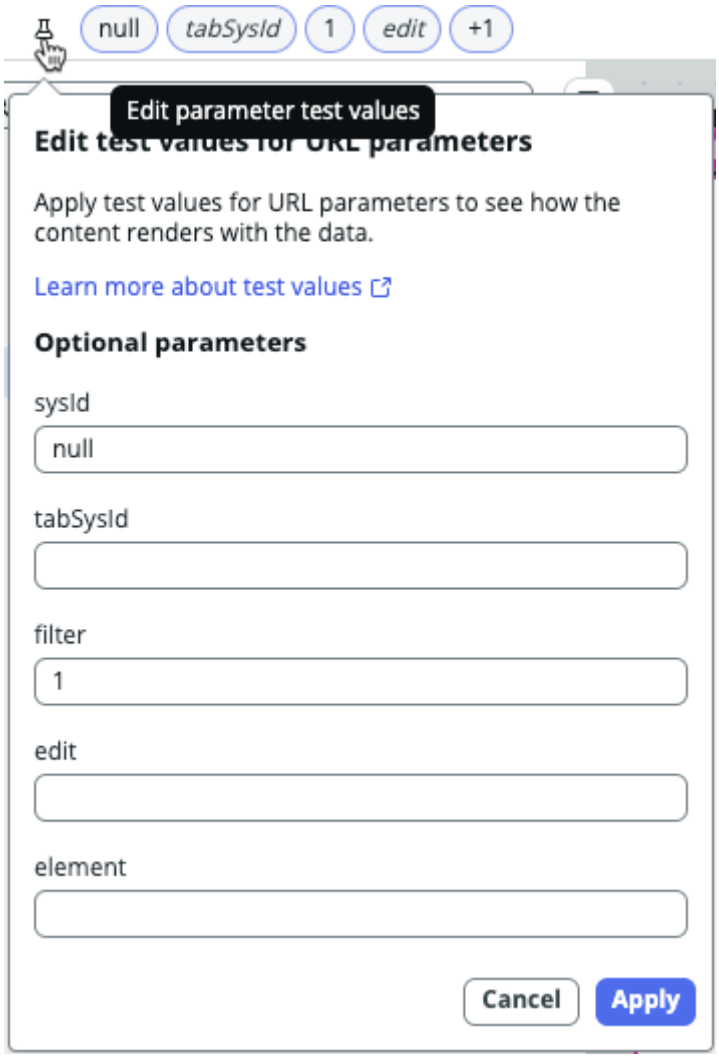
Property	Value
experienceId	app > appId

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Property	Value
dashboardSysId	props > sysId
filterId	props > filter

6. Add default values for the optional page parameters.

Parameter	Value
sysId	null
filter	1



7. In the configuration panel, check whether the following properties are correctly set:

Property	Value
Use data broker to fetch data	true
Data broker response	dashboard > data: ({"success":false})

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You can customize these values, but you probably do not have to.

8. Save the page and open it in runtime.

KPI Details

KPI Details page enables you to delve into the information inside your Performance Analytics indicators (KPIs).

Get started

Explore  Learn the purpose of KPI Details and how to open it	Investigate indicators  How to extract information from an indicator using KPI Details
Set targets and thresholds  Define indicator value goals and set limits	Reference  System properties and more

Troubleshoot and get help

- Ask questions and explore other resources for indicators, KPI Details and Platform Analytics in general in the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Related topics

Performance Analytics (Indicator data sources)

Exploring KPI Details

KPI Details is an exploratory view of indicators, used for more detailed analysis. It lets you see trends, predictions, breakdowns, and associated records for a specific indicator.

https://player.vimeo.com/video/1058665909?h=4d57780e26&badge=0&autopause=0&player_id=0&app_id=58479

KPI Details lets you answer questions such as:

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- “Are daily new critical incidents rising since the last update?”
- “Is the rise in critical incidents faster than the rise in P3 incidents?”
- “What are the top 3 groups with the highest increase in critical incidents over the past quarter?”
- “What specific incidents correspond to that spike in incidents last week?”
- “What’s my usual (median/ average/ total) number of new incidents over the past 3 weeks? Past 2 months?”

Learn how to use KPI Details to accomplish the following tasks:

- Review the overall health of an indicator.
- Explore trends for any indicator.
- Review individual records corresponding to any date.
- Manage Indicator targets and thresholds in KPI Details for your indicators.

Enhance KPI Details by configuring notifications of significant trends in KPI Signals.

Tip:
A free training for KPI Details is available from the NOW Learning Center.

Note:
Values between 10,000 and 999,999 are rounded off to the nearest thousand and abbreviated with a K, such as 11K for 11,234. Values between 1 million and 999,999,999 are rounded off to the nearest million and abbreviated with an M. Values of 1 billion and higher are rounded off to the nearest billion and abbreviated with a G.

Related topics

Performance Analytics (Indicator data sources)

View KPI Details

From a list of indicators, select an indicator to open its KPI Details page.

Before you begin

Role required: None. However, upgraded instances may require pa_viewer.

About this task

The following actions open KPI Details:

Procedure

- Select an indicator on the KPIs page in the Platform Analytics library, **Platform Analytics** > **Library** > **KPIs**.
  For an indicator to appear in that list, the **Show in library** setting in the Access Control tab of that indicator record must be selected (true).
- Select a point on the graph of an indicator in a data visualization.
  While by default this opens KPI Details, the specific data visualization might be configured not to.
- If a query in Analytics Q&A returns an indicator, click on an indicator score to open the indicator in KPI Details.
- In an application built with Next Experience Components, a component such as Indicator Scorecard may link to KPI Details.

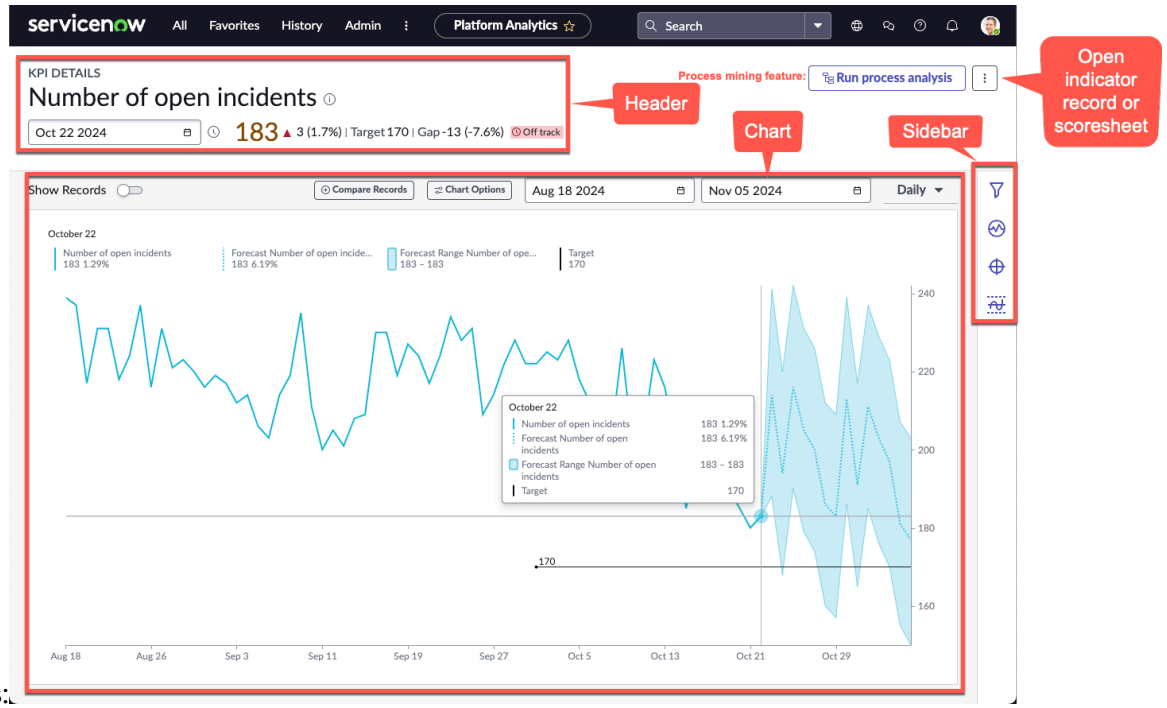
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Result
The KPI Details page on the selected indicator opens.

Examining indicators with KPI Details

The KPI Details feature enables you to delve into the information behind your key performance indicators. Apply forecasts, trends, targets, and thresholds. Filter by breakdown element or apply time series aggregations.

KPI Details has several sections:



Header

The header contains the name of the indicator, a date selector (default: last data collection), and the score on that date. The absolute and percentage differences between that score and the previously collected score are shown. If the indicator has Maximize or Minimize set, the color of the score and the score change direction arrow indicates whether the score is improving or getting worse.

The date selector uses whatever calendar the indicator uses.

If real-time scores are enabled for the indicator, select in the header whether to view them, using the clock icon. This icon is transparent when real-time scores are disabled and solid when they are enabled. For more information, see Real-time scores.

If a target is set for the selected date, the header shows the target value and the gap between the score on that date and the target, in both absolute and percentage terms. If both target and forecast are shown, as set in Chart options in KPI Details, a badge shows whether the indicator is on track or off track to meet the target by the review date.

Warning:
Real-time scores can differ per viewer and differ from collected scores. Real-time scores are taken directly from the relevant facts tables. Therefore, the Access Control Lists (ACL) of those facts tables determine the real-time scores that each logged-in user sees.

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Indicator chart

The indicator chart shows:

- The **Chart options** menu. For more information, see Chart options in KPI Details.
- A date picker to choose the date range of the information in the chart.
- A time series graphic representation of the indicator over time. Click on a point in the graph to see the details for that date.
- A time series aggregation selector. For more information, see Select time aggregation in KPI Details.
- The **Show records** toggle, which shows you the records associated with the indicator score on the selected date. For more information, see Show, compare, create, and edit records in KPI Details.

Warning:
In some cases, when you collect second-level breakdowns, the score and the number of records do not agree. When these values do not agree, the score is correct. For more details and an example, see KB0748969.

Important:
Records are not listed for the "Unmatched" breakdown element when you select it in the filter.

Sidebar

Use the sidebar controls to:

- Filter by breakdown and element .
- View KPI Signals for the indicator ( ). See KPI Signals.
- Set an indicator target or threshold( ). See Indicator targets and thresholds in KPI Details.

Process analysis

Besides these three sections, a **Run process analysis** button lets you launch a Process Mining analysis on the indicator. For more information, see Process Mining.

More actions menu

You also have a More actions menu that gives you access to the indicator record and scoresheet. For more information, see Access indicator record or scoresheet from KPI Details.

Related topics

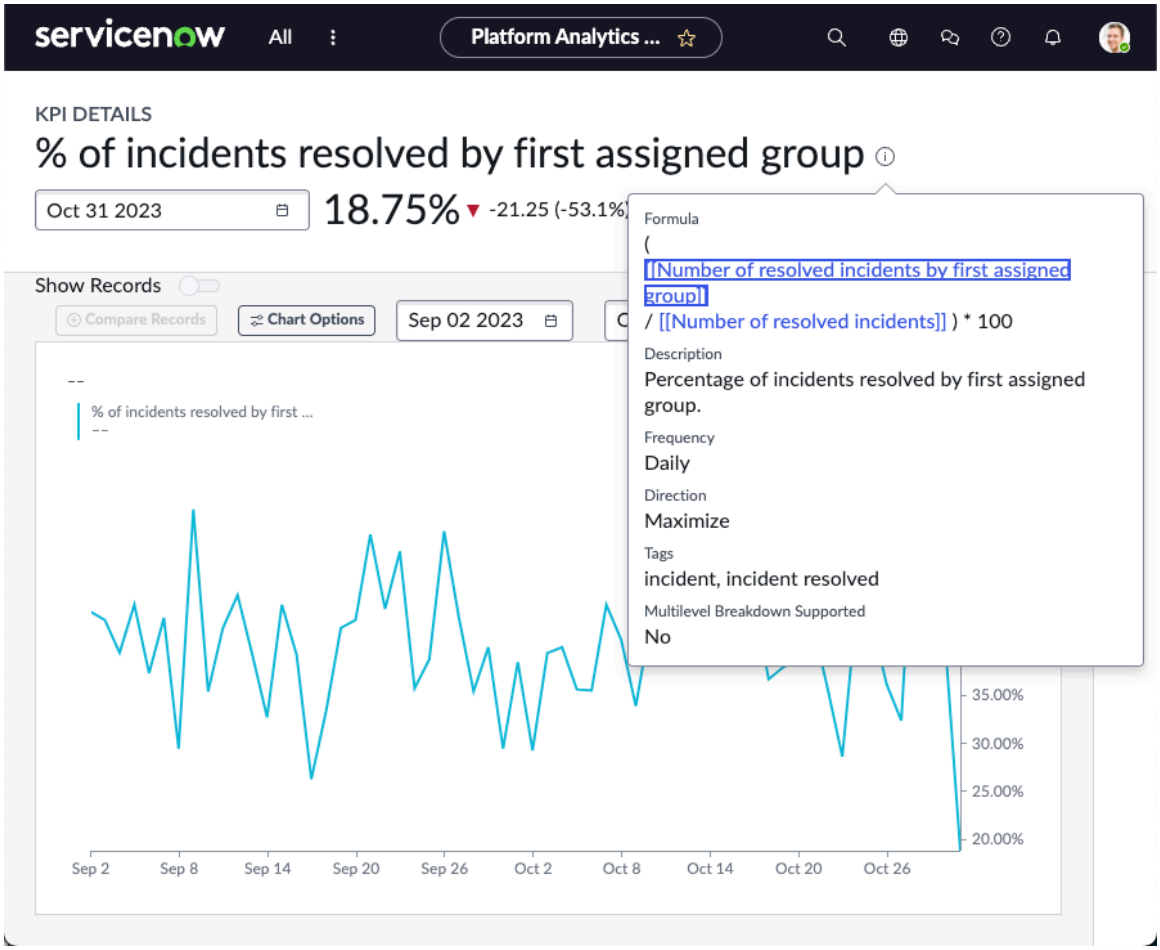
Performance Analytics (Indicator data sources)

View contributing indicators to a formula in KPI Details

If you're viewing a formula indicator in KPI Details, you can list the contributing indicators to that formula. Depending on the KPI Details configuration, you can open the contributing indicators in KPI Details.

The Information icon next to the name of the indicator opens an information pane. If the indicator is a formula indicator, the information pane includes the formula.

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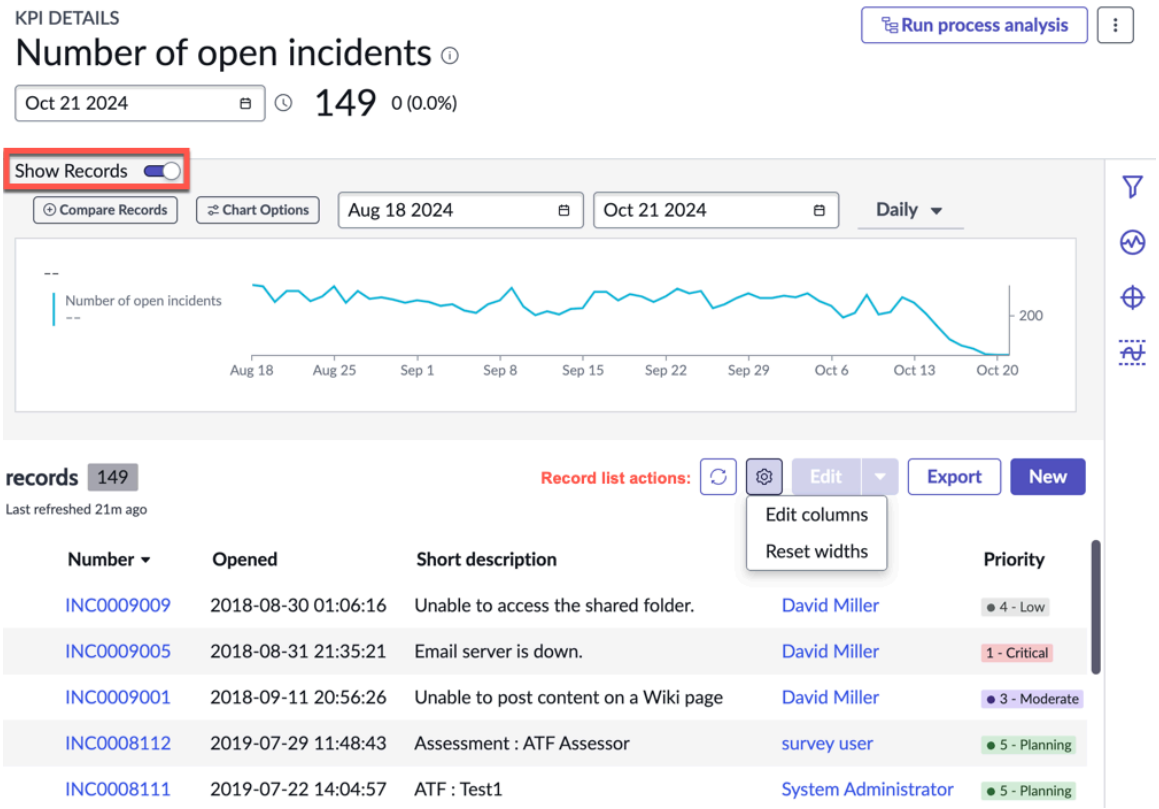
Depending on how the UI Builder admin has configured the KPI Details component you're viewing, the names of the contributing indicators can be clickable. If clickable, selecting an indicator name opens that indicator in KPI Details. Again depending on the configuration, the indicator can open either in the same KPI Details tab or a new tab in the same workspace.

Show, compare, create, and edit records in KPI Details

You can view the list of records underlying an indicator score. You can create a record, edit individual records, or compare records. You can also export the list of records.

The scores for automated indicators are based on values collected from table records. If you are looking at an automated indicator in KPI Details, toggle **Show records** to see a list of the records underlying the indicator score. You see the records behind the score for whichever date you have selected.

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Note:

- Records are not available for formula indicators, such as indicators that calculate percentages or averages.
- The list view of shown records follows one of these settings, in order of priority:
  1. The value of the **Records list view** config property in the UI Builder, if set
  2. The value in the **List View** field on the indicator source, if set
  3. The Default view

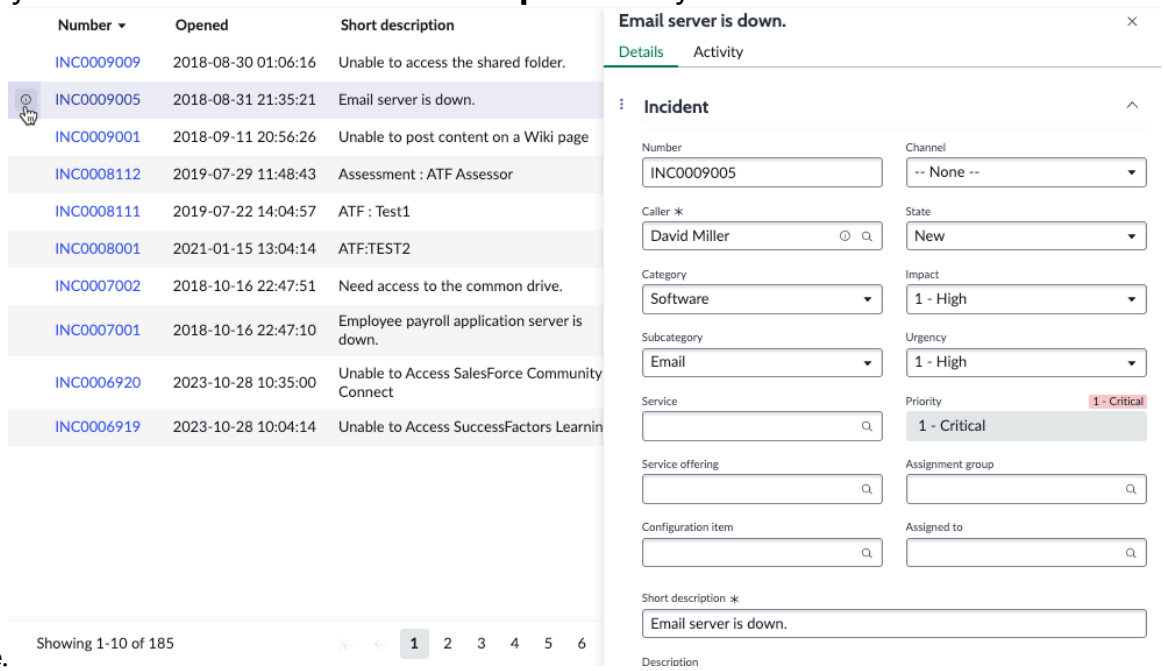
View or edit a record

If you have activated **Show records**, you can edit one of the records from inside KPI Details.

Depending on how the KPI Details component is configured, you can edit a listed record in one of the following ways:

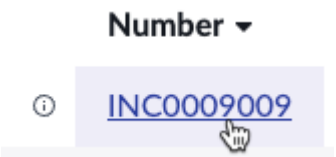
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- In the Quick view pane. To open the Quick view for a record, click the Information icon (ⓘ) next to the record's list entry. You can view the activity on the record or edit the record. Click **Update** when you are done.



  The Quick view pane is available only if it has been turned on in UI Builder.

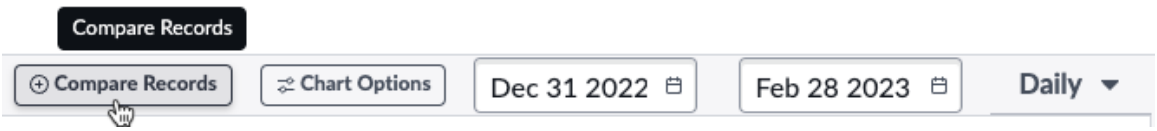
- In a separate tab for the record. To open the record in a new tab, click the value in the first column of its list entry.



Compare records

You can compare indicator scores and underlying records for any two periods. List the records that have been moved out, shared, or moved in between these periods.

Click **Compare records** above the chart to open the record comparison view.



Select the periods to compare either by typing in the dates or by using a calendar. Dates are in a [Jan-Dec] DD YYYY format. The period on the left must be the same or earlier than the period on the right. If you try to select a later period on the left or an earlier period on the right, both scores switch to the period you just selected.

Between the two scores, you see the number of records that have been moved out, shared, or moved in between these periods. Each of these values is a button. Select a value to list the corresponding records.

You can compare records filtered on up to two breakdowns, each with one element. You cannot compare records filtered on multiple level elements.

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You can compare records from a past period with real-time scores. When real-time scores are turned on, by default you compare the score from the last collected period to the real-time score.

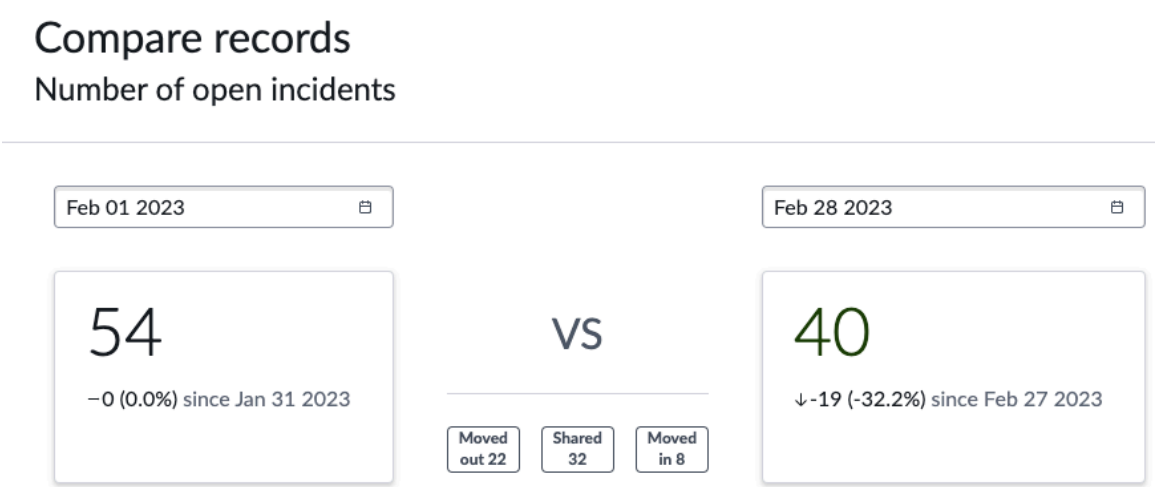
Important:
Record comparison is available only for automated indicators that have record collection turned on. Also, if you apply a time aggregation, you can compare only scores, not records.

Example: Comparing records

In this example, the number of open incident records on February 1, 2023 is compared with that on February 28. You see the following changes:

February 01	February 28
54 records	40 records
Change of 0% since January 01	19 fewer records (-32.2%) since February 27

- Moved out (Removed between the dates): 22
- Shared (Present on both dates): 32
- Moved in (Added between the dates): 8



Record list actions on KPI Details

If you show underlying records on KPI Details, you can refresh or export the list, select the columns to view, or create a new record.

The records list on KPI Details has a set of buttons and icons for actions on the list:



- The Refresh action simply refreshes the list.
- The Records - List Actions control lets you select which columns to show in the list. The Reset widths option that is also listed when you select this icon is not enabled for KPI Details.

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- The **Edit** button is not enabled for KPI Details. For technical reasons, a different mechanism is provided for editing individual records. For more information, see View or edit a record.
- The **Export** button opens a dialog where you can export the list of records either as a local file or as an email attachment, in one of the following formats:
  - Microsoft Excel
  - CSV
  - JSON
  - PDF
- The **New** button opens a blank form on the record table.

Chart options in KPI Details

The KPI Details **Chart options** menu enables you to show, hide, or change aspects of an indicator visualization. Selected chart options persist per user for each indicator. Chart options are divided into analysis, time series, and chart type options.

Analysis options

Note:
Targets, thresholds, trends, and comments are not supported in KPI Details when indicator scores are aggregated on multiple elements.

Targets

Targets are the desired scores for the indicator. Select to show indicator targets on the visualization. If no targets are configured on the indicator, this option is not available.

Thresholds

Thresholds define a normal range of scores for an indicator. Select to show indicator thresholds on the visualization. If no thresholds are configured on the indicator, this option is not available.

Forecast

Forecasts enable you to forecast future scores based on existing trends. To configure forecasts, see Performance Analytics scores forecasts. If forecasts are not configured on the indicator, this chart option is not available.

Trend

Shows the linear trend in score values over the selected time period. Trends are not available for indicators that are filtered on multiple elements.

Comments

Select to show comments added to the indicator in the Analytics Hub or generated by system calculations. System calculations include notifications for breaching thresholds.

Labels

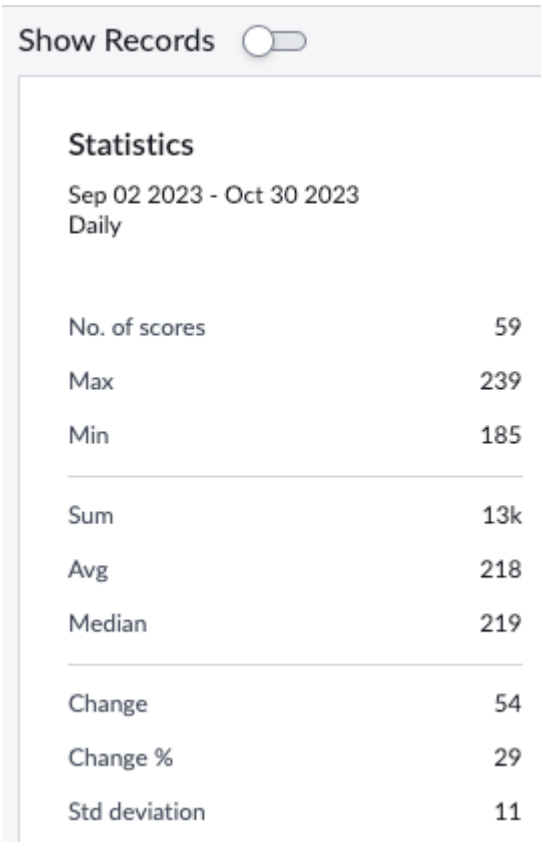
Labels show the main time series values of the indicator. Labels are not shown for derived time series lines such as targets and thresholds.

Statistics

Activate to display a set of statistics for the indicator over the selected date range. For details, see the Statistics section of this topic.

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Statistics



When the Statistics chart option is activated, KPI Details shows the following statistics, across the date range that the chart shows:

No. of scores

The number of indicator scores in the selected time range.

Max

The highest, or maximum, score value in the selected time range.

Min

The lowest, or minimum, score value in the selected time range.

Sum

The sum of scores in the selected time range.

Avg

The average score in the selected time range, calculated by dividing the sum by the number of scores. The average is preferable to the median when you have a normal distribution of scores with no or few outliers.

Median

The middle number in the distribution of scores. Half the scores are higher than this number and half the scores are lower. The median is preferable to the average when the scores include one or more outliers, such as 130 in the series 2,3,3,5,7,130. If there is a large difference between the average and the median, the median is probably the more meaningful statistic.

Change

The difference between the last score and the first score in the selected time range.

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Change %

The difference between the last score and the first score in the selected time range, as a percentage of the first score.

Standard deviation

The amount of variation from the average value among the scores in the selected time range. A low standard deviation means that the scores are close to the average. KPI Details calculates the sample standard deviation, not the population standard deviation.

Not all statistics are applicable to every indicator. On the indicator record, you can exclude those statistics that do not apply from appearing in either KPI Details or the Analytics Hub. For example, you can exclude the Change % statistic from appearing for indicators whose unit is percentage. For more information, see Advanced indicator settings.

Time series options

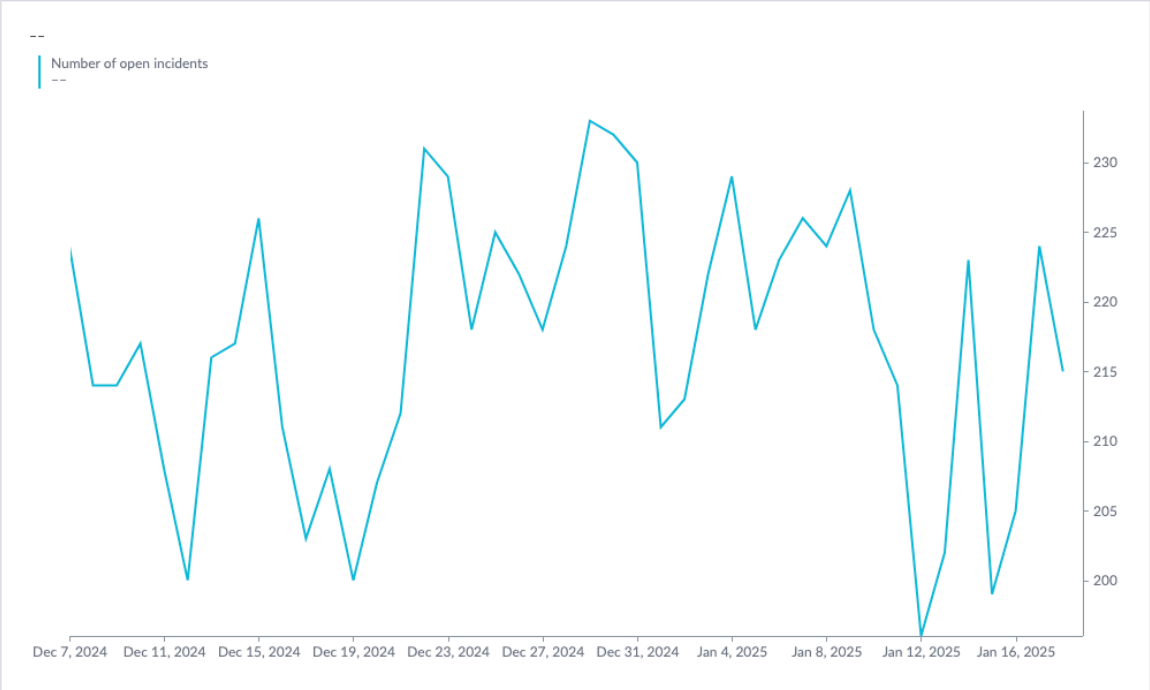
The time series options set the kind of measurements that the chart displays. All measurements can be shown together.

- Score (default)
- Change
- Change %

Chart type options

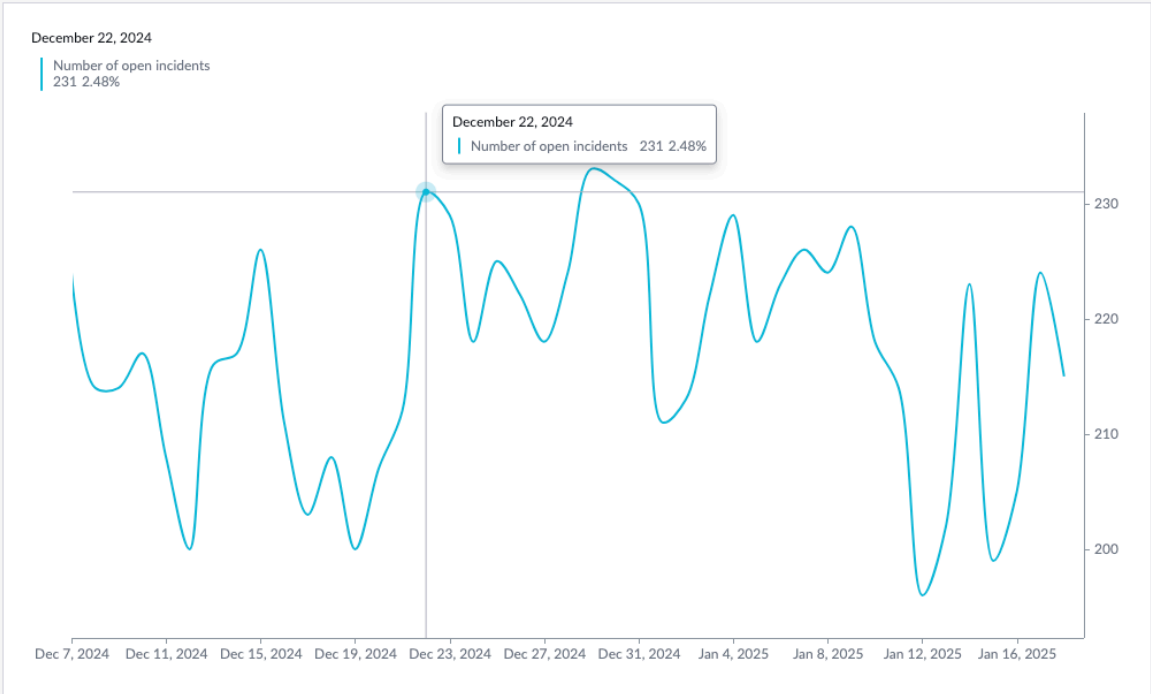
Select from the following chart visualizations:

- Line (default). Useful for tracking change over time and seeing differences in indicator scores.

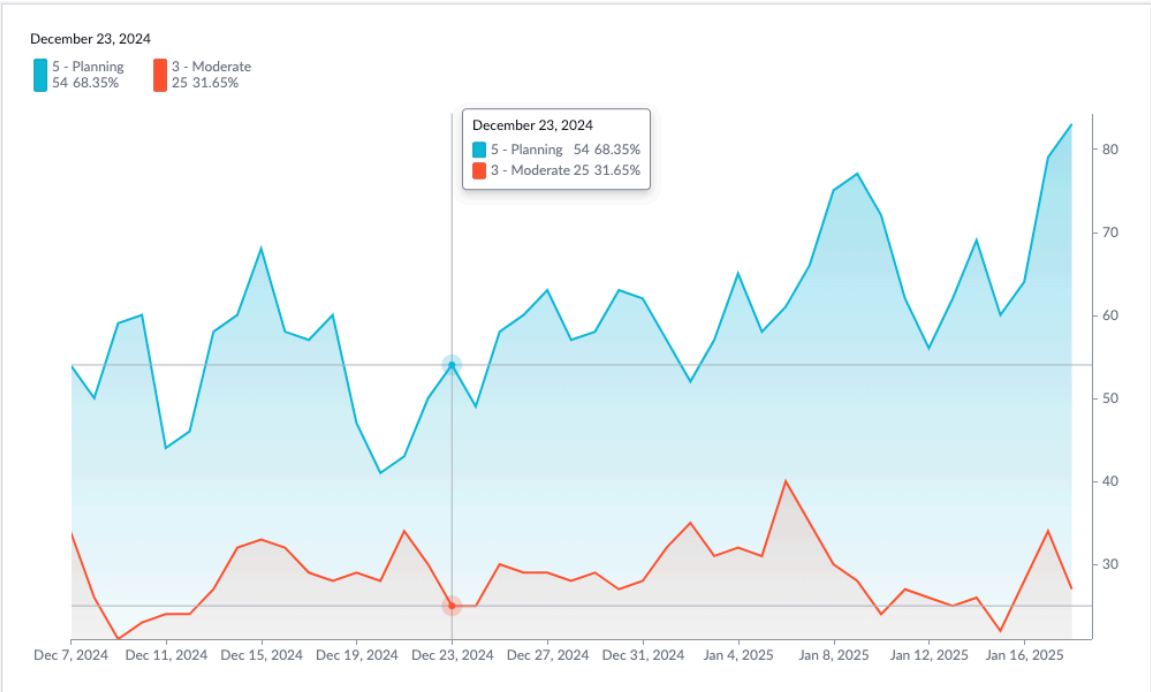


- Spline. Useful to suggest smooth, gradual changes.

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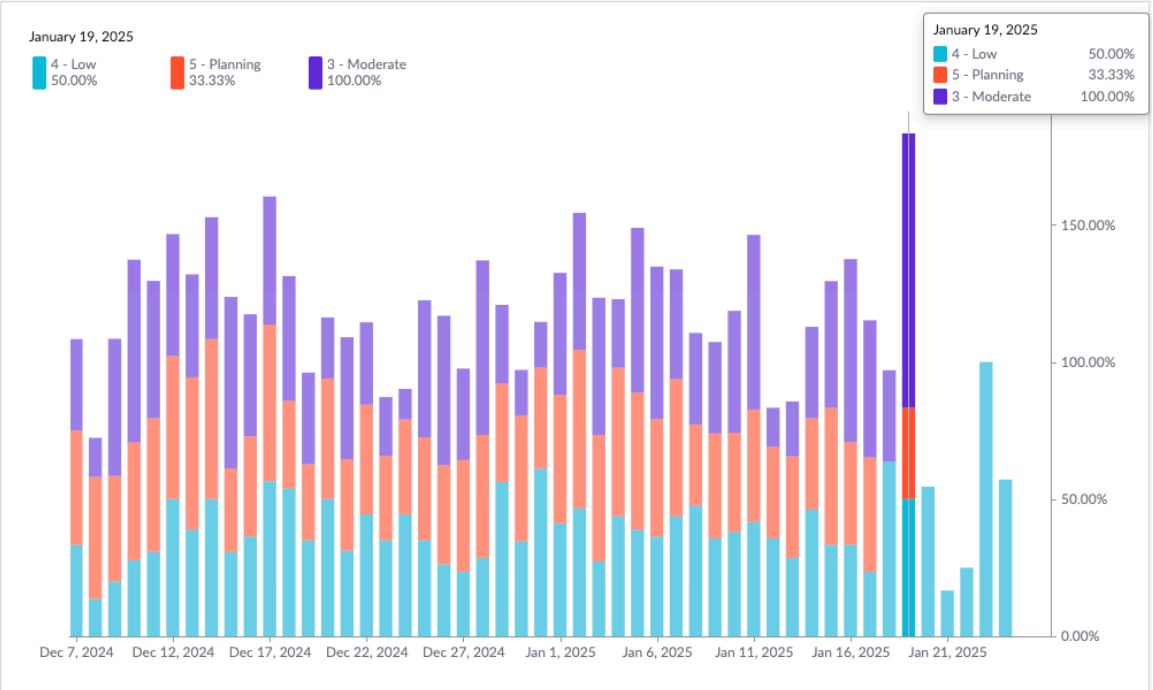


- Area. Useful to show trends over time in related breakdowns when **Display as separate time series** is selected under Filters.



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- Column. Useful for comparing multiple breakdown elements when **Display as separate time series** is selected under Filters.



Select time aggregation in KPI Details

You can aggregate changes in indicators into discrete time intervals. A time aggregation consists of an AVG or SUM function combined with a time series, such as By quarter.

Before you begin

Role required: None. However, upgraded instances may require pa_viewer.

About this task

To explore a different time aspect of the indicator, apply one of the following time aggregations:

Running

Smooth out spikes to reveal trends. For example, looking at daily incident counts may show a decrease every weekend, but a 7-day running average smooths out those drops.

Period

Aggregate data to a less frequent period. For example, you may want to track the number of P1 incidents daily, but the frequency is too high when scores are considered daily. Instead, you can set a target at the monthly level with a "By Month" time series.

To date

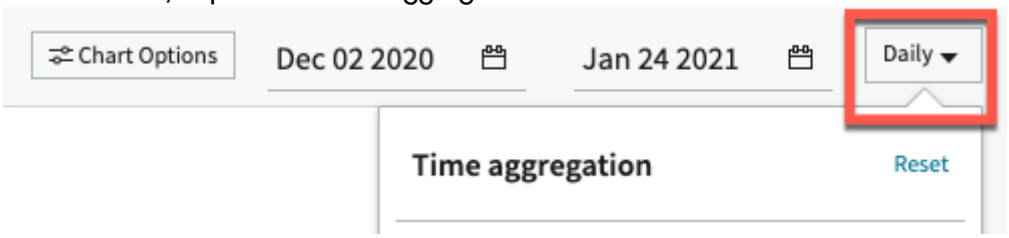
Show cumulative scores. These time aggregations are useful when you have a monthly target to hit, but you also need to see the velocity throughout the month.

For more information about the use, behavior, and limitations of time aggregations, see Applying time series aggregations. For examples and a deeper exploration of using time series aggregations with indicators, see this Performance Analytics Academy video, Leveraging Time Series with Performance Analytics.

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Procedure

1. In KPI Details, expand the time aggregation menu on the indicator visualization.



> **Note:**
> Time aggregations are not available for real-time scores. When you select a time aggregation, real-time scores are disabled. If you return to the default frequency, real-time scores are re-enabled but turned off. You can turn them on if you want.

2. Select either a **Running**, a **Period**, or a **To date** aggregation to configure.
3. Select a time period.
   Invalid and excluded time periods for the indicator frequency are not enabled. For more information about excluded time periods, see Exclude time series from an indicator.
4. Select either the average or the sum function.
5. If you have selected a **Period** aggregation, decide whether to **Include partial periods**.
   If you include partial periods, you show a score for the current period even when it has not yet completed. Use caution because including partial periods can skew averages.

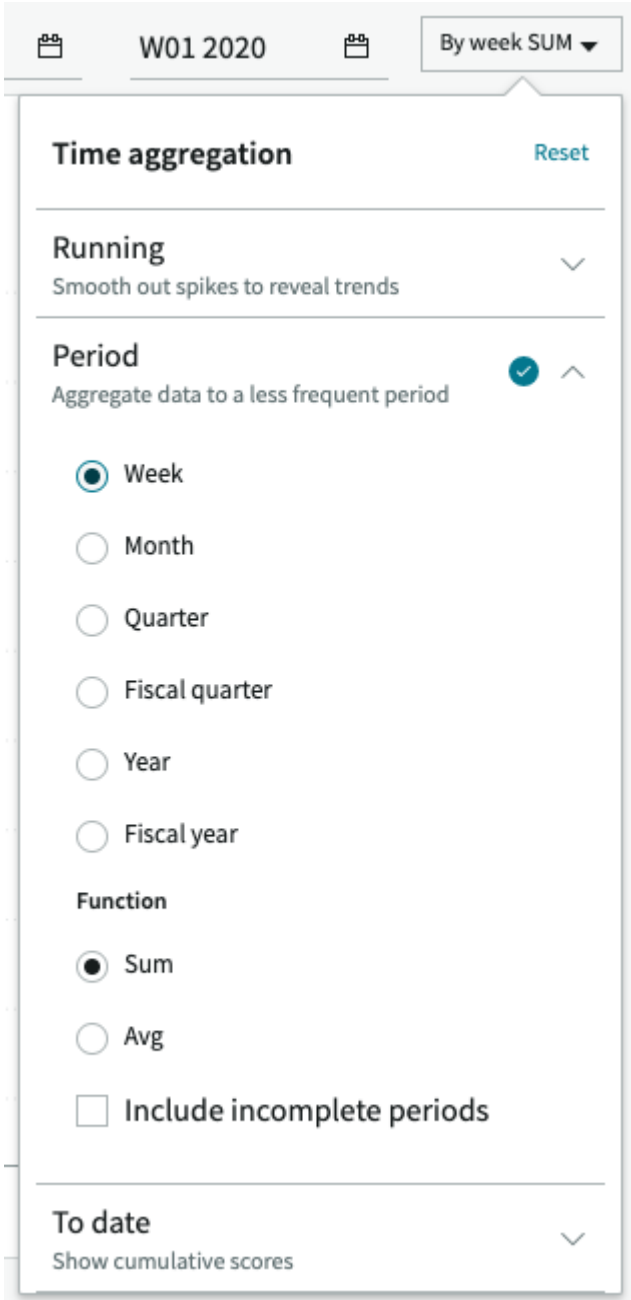
Result

The indicator visualization refreshes with each selection you make. Change your selection as much as you want. To return to the default time aggregation for the indicator, select **Reset**.

Example: Time aggregation on an daily indicator

In the following time aggregation menu, the daily indicator Number of open incidents is aggregated by period to a weekly sum. Partial weeks are not included.

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Filter KPI Details by breakdown elements

In KPI Details, you apply breakdowns and elements to the indicator in the Filters sidebar.

Before you begin

Role required: None. However, upgraded instances may require pa_viewer.

About this task

You can select as many breakdowns as the indicator supports. With breakdown matrix collection enabled on the indicator, you can select up to two levels of breakdown, and you can select multiple elements on the first breakdown. (If the indicator is a formula indicator, breakdown matrix collection must be enabled on the contributing automated indicators.) With data snapshots enabled on the indicator, you can select any number of breakdowns and elements.

Important:
Filter conditions do not persist between KPI Details page refreshes.

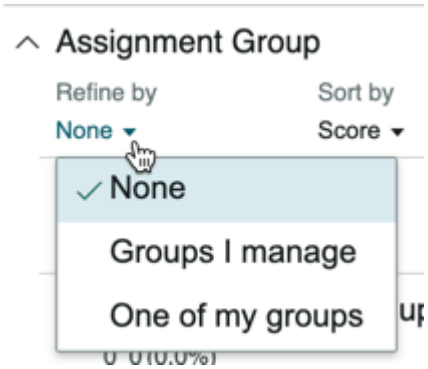
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Procedure

1. In the sidebar of KPI Details, select the Filter icon.
   You see a list of the breakdowns for this indicator.
2. Expand a breakdown.
   You see a list of the elements of the breakdown.
3. If an elements filter exists for the breakdown, you can use it to refine the list of elements.

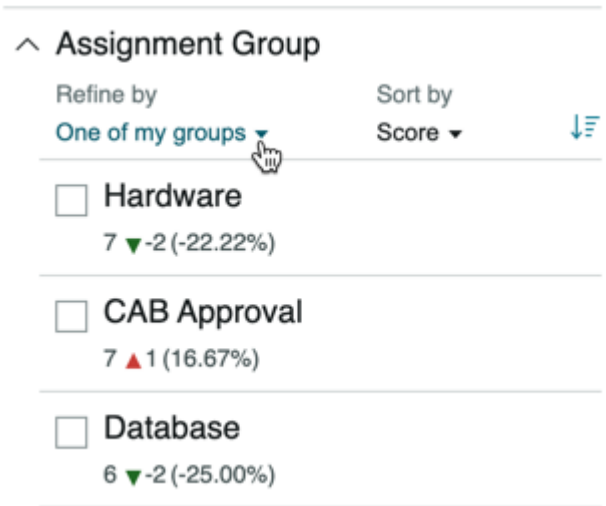
   a. Expand the **Refine by** list to see the available element filters.

   Example
   This image shows the "Groups I manage" and "One of my groups" elements filters, which are available for the Assignment Group breakdown in the base system.



   b. Select an elements filter.

   Example
   In this image, the "One of my groups" is selected. The list of elements now includes only the assignment groups to which the logged-on user belongs.



4. In the **Sort by** menu, sort the elements by name, by the score for the selected date, or by the change from the previous date.
   If real-time scores are turned on, only sorting by name is available.
5. Select one or more elements.
   If the elements are sorted by score, the filter panel shows you the score for each breakdown element for the selected date. If the elements are sorted by change, the filter panel shows you

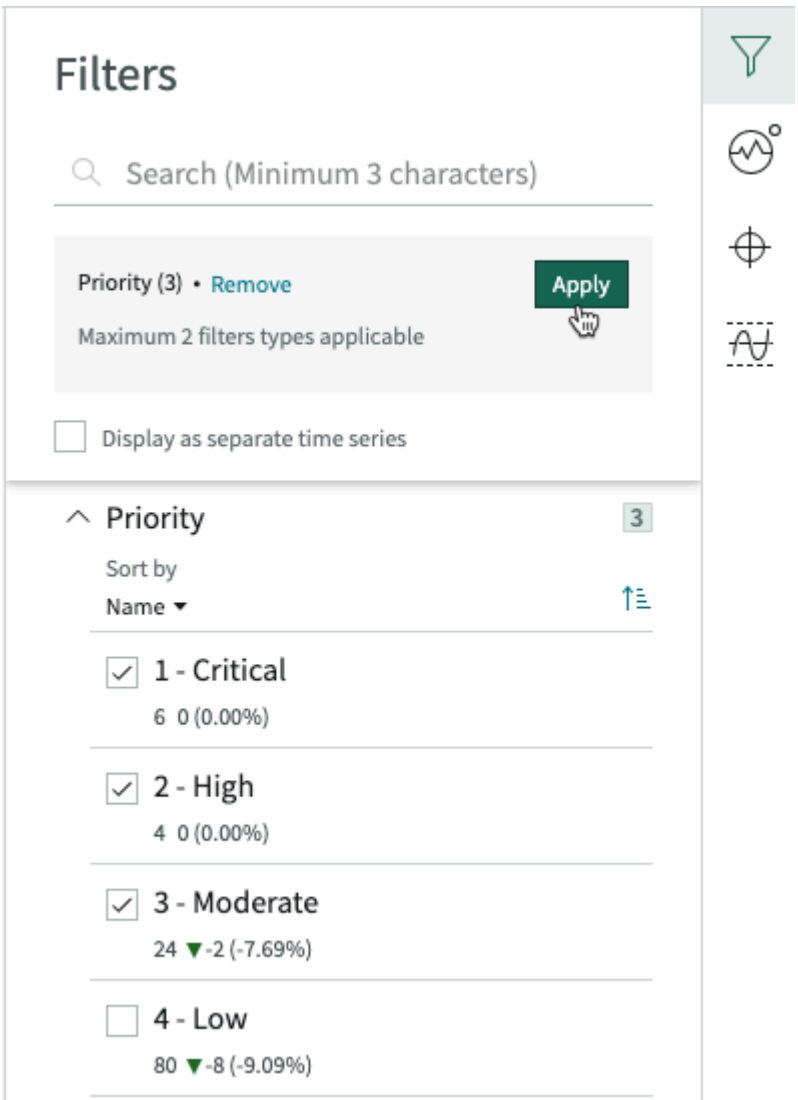
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the percent change since the previous collection period for the selected date. When real-time scores are turned on, no previews are available.

6. **Optional:** Select a second-level breakdown.
   a. Expand a second breakdown.
   b. Select only one element.
7. If you have selected multiple elements, select how to display the elements.
   By default, the aggregate score is displayed. Select **Display as separate time series** to show each element separately. You can make a selection only in cases where both aggregate and separate score displays are possible. For more information, see Aggregate score of multiple elements.
8. Click **Apply**

Example: Selecting elements to filter by

In this example, the filter sidebar has been opened. You expand the Priority breakdown and select the 1 - Critical, 2 - High, and 3 - Moderate elements. You are about to click **Apply**. You will see the values of these elements as a single aggregate, because you did not select **Display as separate time series**.



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Aggregate score of multiple elements

When you filter an indicator by multiple breakdown elements, you can either view a single aggregate score of all elements or a separate score for each element. However, not all indicators support an aggregate score of multiple elements.

The following indicators support an aggregate score of multiple elements:

- Automated indicators that aggregate data as a Count, Sum, Minimum, or Maximum value

  Note:
  The word "aggregate" is used for two different things here: the aggregate view of multiple indicator scores, and the data aggregation that is set on an indicator.

- Manual indicators
- External indicators that do not use `SQL AVG()` or `SQL COUNT(DISTINCT...)` in their SQL statement
- Formula indicators that have aggregate element views enabled on their indicator records. For more information, see the entry on the **Allow aggregation of multiple breakdown element scores** field on the Other tab in Create a formula indicator.

Note:
When you navigate to KPI Details from a Performance Analytics widget on a Workspace Experience, and this widget uses an element filter that returns more than one element, only the first element is applied.

If the indicator supports a view of multiple elements, KPI Details shows the **Display as separate time series** control in the Filters sidebar. The behavior of this control depends on which views of multiple elements are supported:

- If an indicator supports both aggregate and separate views, you see the aggregate view by default. To show a separate line for each element of a breakdown, select **Display as separate time series**.
- If an indicator supports only the view of multiple elements as separate lines, **Display as separate time series** is selected and the choice is inactive.

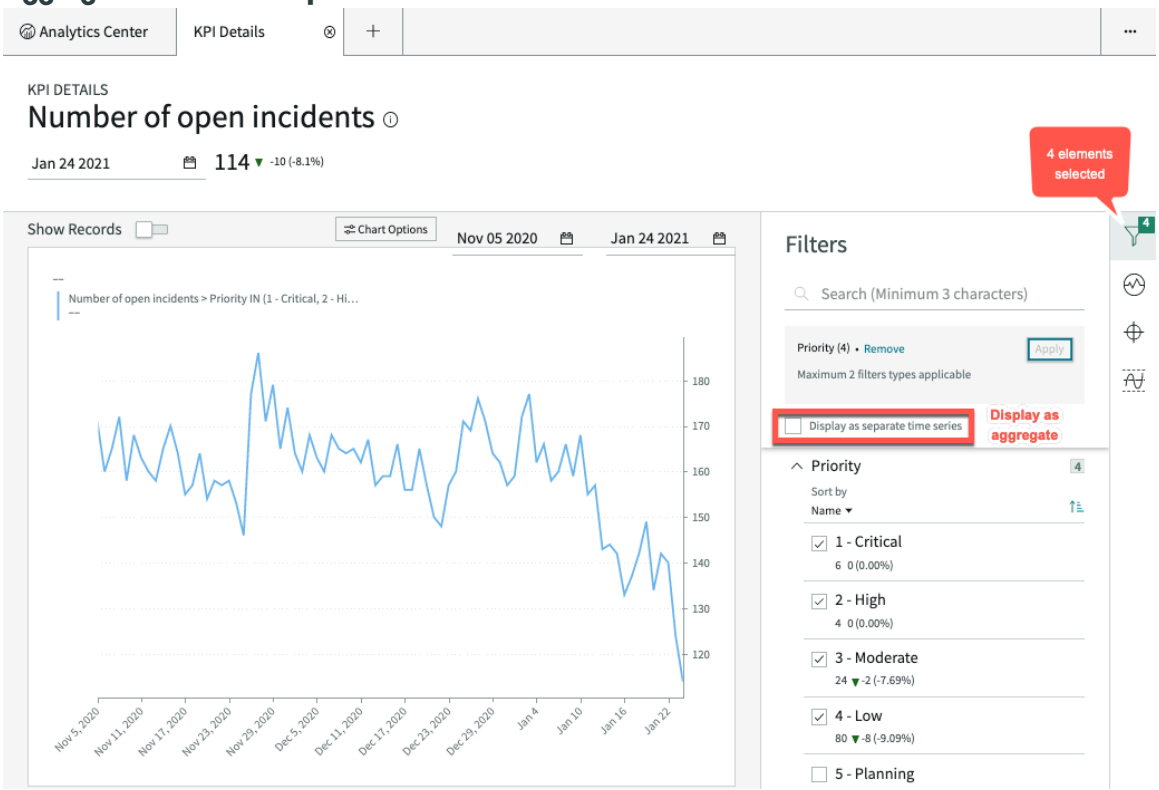
Note:
The **Display as separate time series** control is not enabled until you select multiple elements.

Example: Aggregate compared to separate view of multiple elements

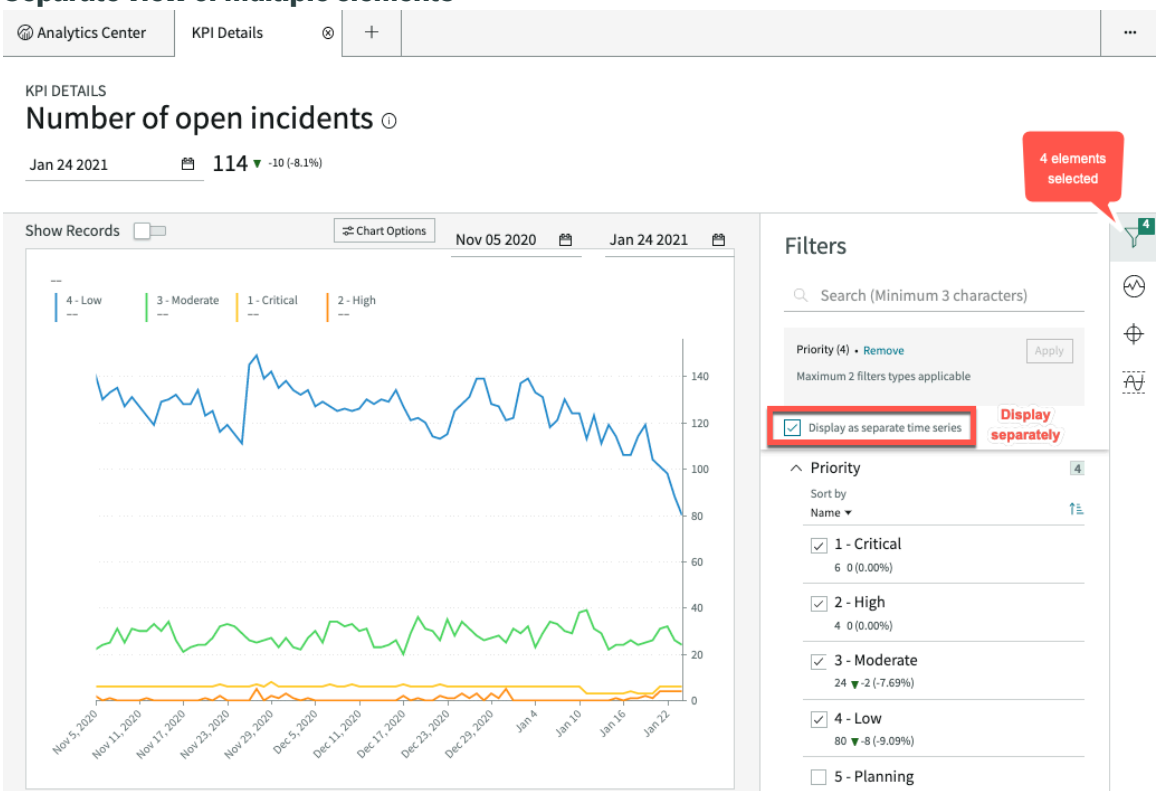
In this example, the Number of open incidents indicator aggregates by Count and therefore supports an aggregate view of multiple elements. Both aggregate and separate views are shown.

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Aggregate view of multiple elements



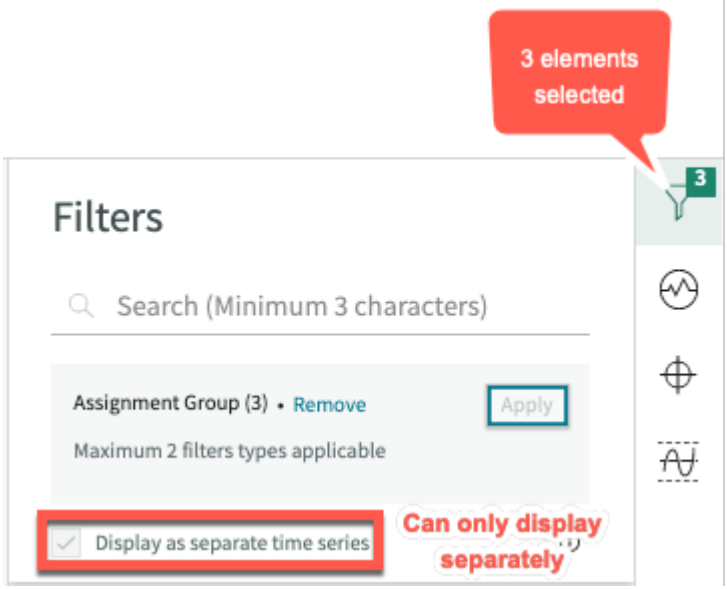
Separate view of multiple elements



The following formula indicator does not have aggregate views of multiple elements enabled. The **Display as separate time series** option is selected automatically and you cannot change it.

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Filter sidebar of indicator that does not support aggregate view



Related topics

Indicator breakdowns

Access indicator record or scoresheet from KPI Details

In KPI Details, the More actions menu lets you open the record or the scoresheet of the indicator you are viewing.

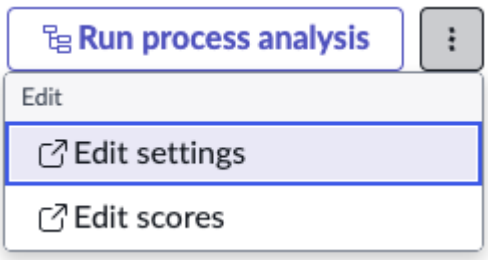
Before you begin

This procedure assumes you are already examining an indicator in KPI Details and want to view or edit the indicator record or the scoresheet. If you are not in KPI Details, you can open either of these items directly from unified navigation.

Role required: pa_power_user, pa_admin, or admin for record; pa_admin or admin for scoresheet

Procedure

1. In KPI Details, expand the **More actions** menu ⋮.
2. Select one of the following options:
   - To open the indicator record, select **Edit settings**.
   - To open the scoresheet, select **Edit scores**.



Related topics

Create an automated indicator

Create a formula indicator

Add or edit indicator scores manually

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Indicator targets and thresholds in KPI Details

Targets are goals your organization wants to achieve. They show the difference between the desired and actual scores of an indicator on a certain date. Thresholds define a normal range of scores for an indicator and alert you when certain events occurs, like when a score reaches an all-time high.

Indicator targets

A target can be personal or global. A personal target is visible only to the user that created it and appears as a light line. A global target is visible to all users and appears as a dark line. Because you cannot share a personal target, it appears only in KPI Details and the Analytics Hub. Global targets can also appear in time series and single score data visualizations. Dashboards can alert viewers to events related to targets through proactive analytics insights cards.

Indicator thresholds

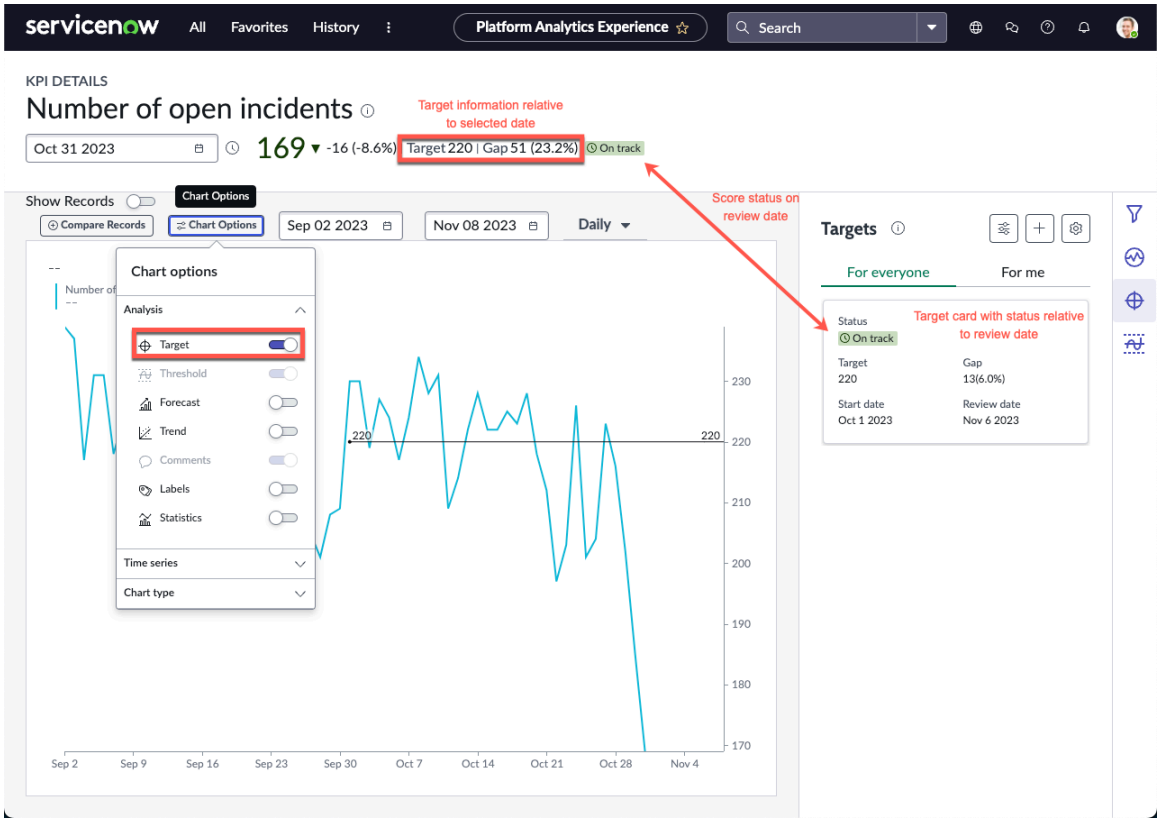
When a threshold is triggered, the instance generates an email notification. This message is associated with the indicator and the message is directly available via KPI Details.

A threshold can be personal or global. A personal threshold is visible only to the user that created it. It appears as a light grey dotted line. A global threshold is visible to all users and appears as a dark grey dotted line. Because you cannot share a personal threshold, it appears only in KPI Details. Global thresholds can also appear in time series data visualizations. Dashboards can alert viewers to events related to thresholds through proactive analytics insights cards.

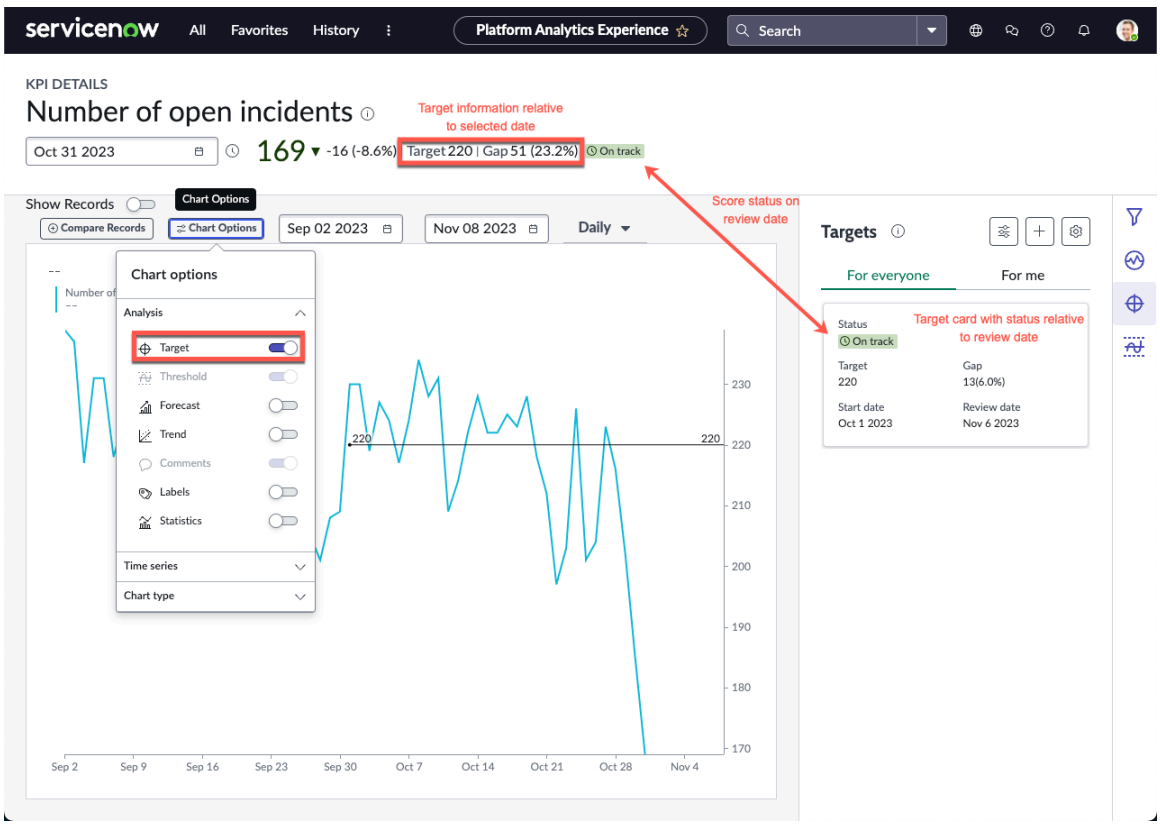
Example: KPI Details with current target

In the following example, one target has been set on the indicator. That target was set on 1 October, with a review date of 6 November. On 31 October, the score was 169. The gap on 15 March is calculated as `Target value - Score on selected date`. The gap is therefore 51, or 23.2%.

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The card for the target in the Targets panel shows a different gap value. This gap is equal to `Target value - Forecast score on the review date`. If you enable **Forecast** in the Chart Options, you can see how this gap is calculated more clearly. In the following example, you see that the forecast score for the review date is 29 and the target is 30. The gap on the tile accordingly is one.

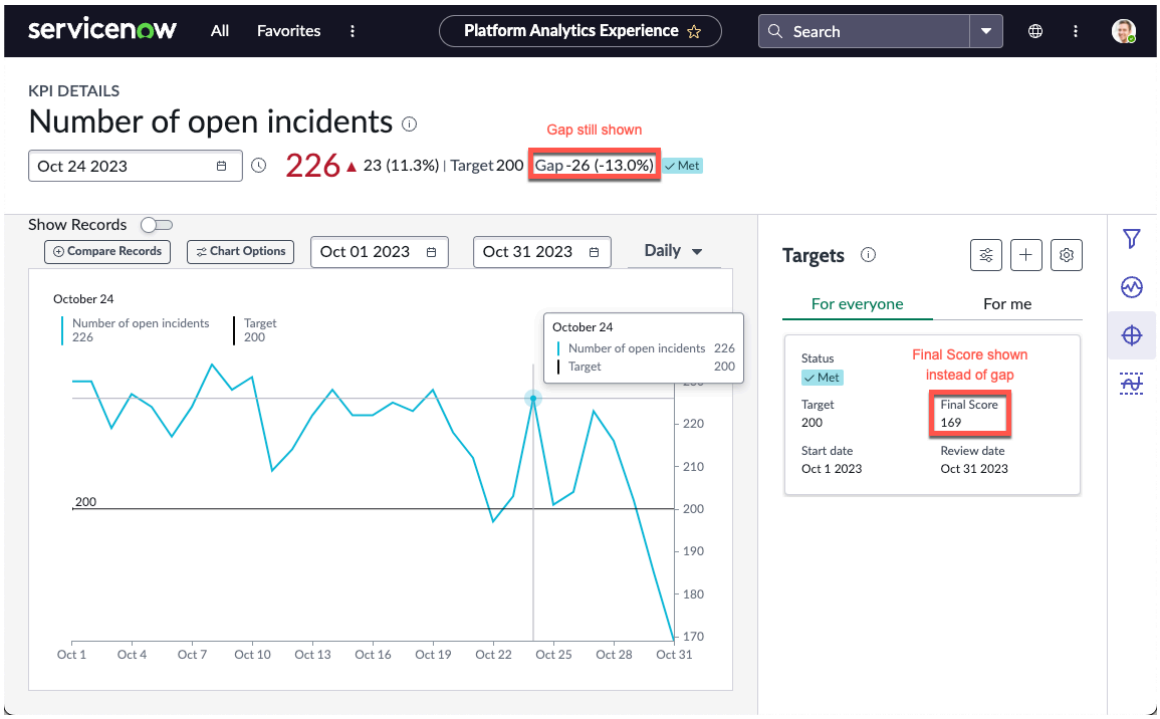


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An icon displays the status as On track, Off track, or Too early to track. This icon appears on both the chart and the Targets panel. The status is based on the predicted gap between target and score on the review date. Because the projected score is better than the target, the On track icon is displayed. Had it been worse than the target, the Off track icon would be displayed. If there hadn't been enough data to predict whether the target would be met, the Too early to track icon would be displayed.

Example: KPI Details with past target

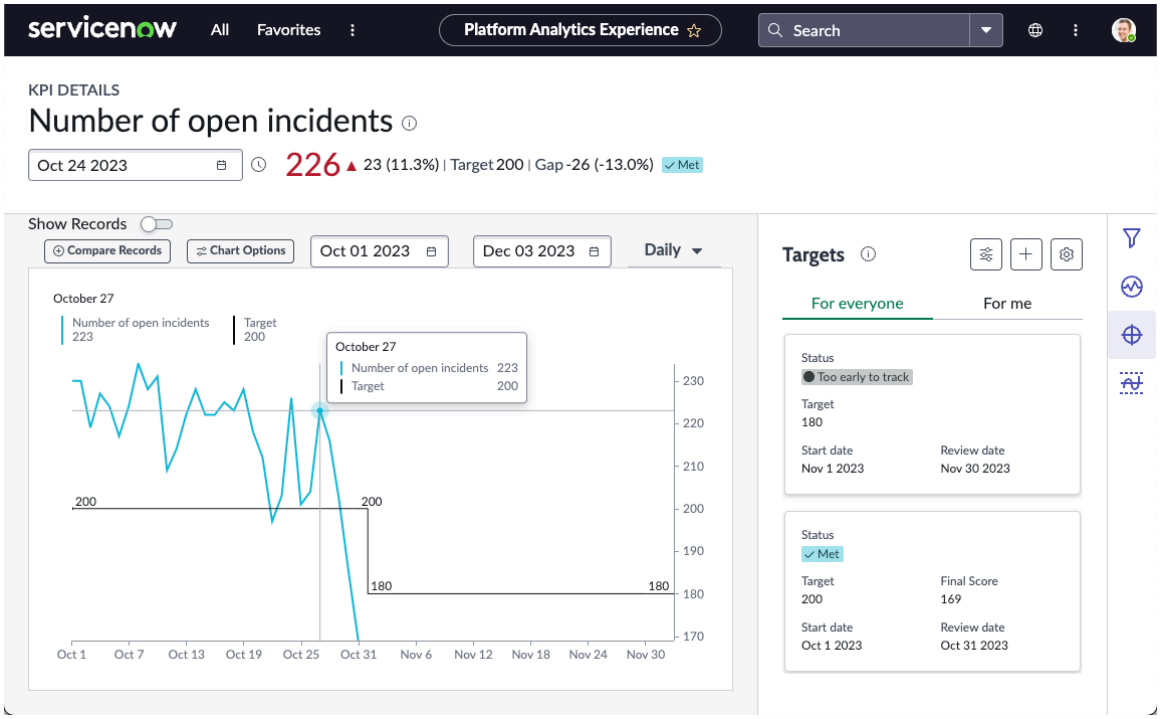
When a target reaches its review date, it becomes known whether it has been met. The On Track, Off track, and Too early to track icons no longer apply. Instead, either a Met or a Not met icon is displayed. In the following example, the indicator met its target on the review date by a margin of two. On the card, the Gap information is replaced by the final score on the review date. This score is visible regardless of which date is chosen on the chart. The chart still displays the gap between the score and the target on the selected date.



Example: Past and current targets

When a target reaches its review date, it is no longer active. Usually you want a new target to take effect. When you add a new target, the expired targets are still visible, both in the chart and on cards. Here, a new target is added to the indicator after the target from the previous example has expired. This target is based on a 10% improvement to the previous target, as described in Create a target in KPI Details. The chart shows information about whichever target is in effect on the selected date.

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Related topics

Performance Analytics (Indicator data sources)

Performance Analytics targets and thresholds

Create a target in KPI Details

You can set target values for indicators that apply only to specific breakdown elements and time series aggregations. The target starts to apply at a selected date and continues to apply until you set the next target. You can set a date on which you expect to reach the target, and set a new target then.

Before you begin

Role required: pa_target_admin to create global targets that are visible to all users. Any user who can view an indicator on KPI Details can view targets and create personal targets. Personal targets and thresholds are visible on KPI Details only to the user that created them.

A responsible user can create a global target to replace the target they are responsible for, regardless of role. For more information, see Responsibility for global indicator targets.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Indicators**.
2. Locate the indicator and interact with its name to launch KPI Details for that indicator.
3. To limit the target to a subset of the scores, open the Filter and select a breakdown and a breakdown element.
   You can also select a 2nd-level breakdown and element.

   Note:
   To add targets for multiple breakdown elements, see Add targets for multiple breakdown elements in KPI Details.

4. If you want the target to apply to a specific time series aggregation, select the time series.

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For more information about time series aggregations, see Applying time series aggregations.

5. Click the target icon ( ).
   The Targets panel opens.
6. Click the Create Target icon ( ).
7. Select either **For everyone** or **For me**.
   The **For everyone** option creates a global target. The **For me** option creates a personal target. You see all the existing global or personal targets on this indicator that apply to whichever breakdown elements or time series you selected. You can select and deselect breakdown elements or a time series interactively, and the list of targets updates.

   Note:
   Instead of creating a new target, you can edit one of these existing targets. Select the tile for a target to edit that target. You can only change the absolute value of the target and the start and review dates. For more sophisticated target editing, see Edit targets in KPI Details.

8. In the **Based on** field, select either **New value**, **Average score**, or **Previous target**.
   New value is an absolute value for the target that you enter. **Average score** selects the target as an improvement to the average score. You set the amount of the improvement. The average is calculated over the time span shown in the chart. This average is shown as a read-only value in the **Average value** field.

   Previous target is available only if a previous target exists. The new target is a calculated value based on a change from the active target. The active target appears in the read-only **Reference value** field.
9. If you selected **New value**, enter the target value in the **New value** field.
10. If you selected **Average score**, or **Previous target**complete the following options:

Option	Description
Direction	Select **Increase** or **Decrease**. **Increase** means the target will be higher than the average score or previous target, while **Decrease** means it will be lower. By default, the value corresponds to the indicator's direction.
Change	Enter the amount by which you want the target to differ from the average score or previous target. This value can be in absolute units or a percentage.
% / Unit	Set whether the change is an absolute unit or a percentage.

   When you have completed these fields, the calculated target value appears in the read-only **New value** field.
11. Select a start date.
    You can set a date in the future.
12. Select a review date.
    The target applies from the selected start date until the start date of the next target, if any. If you do not define a later target, the target applies indefinitely. Thus, the review date serves as

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a reminder to consider changing the target. Whether or not you change the target value after review, consider selecting a new, future review date.

If you select a review date, you display a status icon on the chart indicating whether on that date you are on track to meet the target.

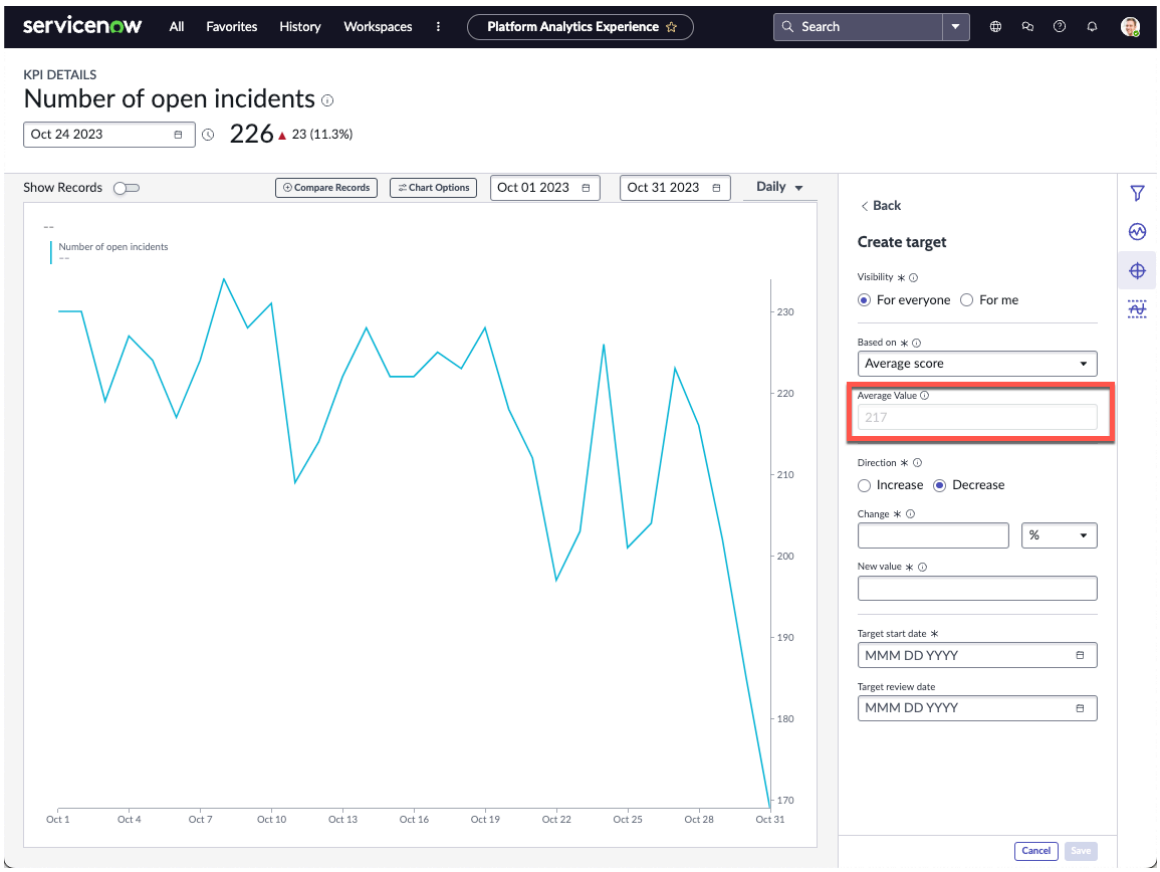
Note:
KPI Details does not support overlapping targets. Only one target at a time can be active.

13. Click **Save**.

Example: Creating a target

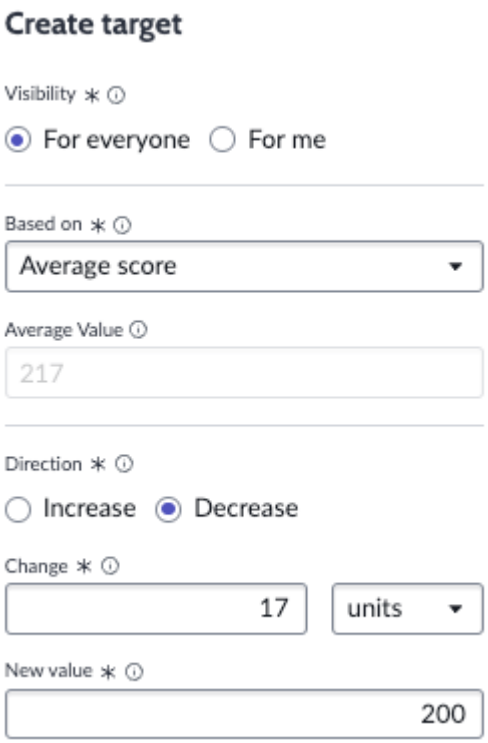
It's November 1 and your Number of Open Incidents in the Network category has varied considerably for the last month, with a recent sharp downturn.

As an incident manager, you want the number of open incidents to go down. You are not sure from your scores on a good target to set. You would be happy if it stayed below the average for October. So you start by basing the target on the average score for that month.

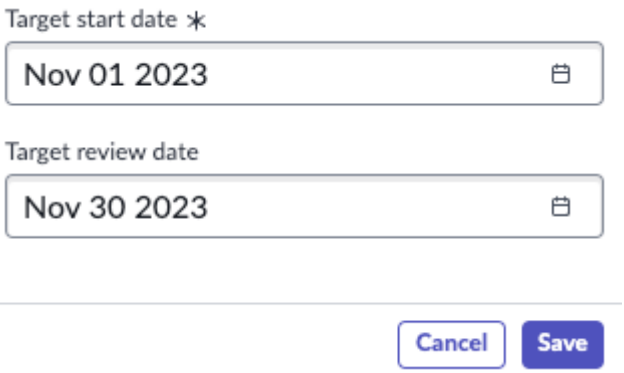


You see that the average value is 217, but you are an optimist and think your team might do a little better. So you leave **Decrease** selected, as indeed you want the number of incidents to decrease. Most of the low points on the chart were around 200, so you decide on that as the new target.

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Finally, you decide to put your target into effect on the beginning of the next month. You hope to reach the target by the end of the month, so you set the last workday of the month as the review date.



When you click **Save**, you create your target. For an example of what such a target looks like in KPI Details, see Indicator targets and thresholds in KPI Details.

What to do next

After you create a global target, make yourself or another user responsible for maintaining the target. See Responsibility for global indicator targets.

Edit targets in KPI Details

Retroactively change one or more existing targets from their start date instead of ending them and starting new targets from a later date. You can edit multiple targets to have the same value, the same change in value, or the same date.

Before you begin

Role required: pa_target_admin to edit all global targets. Any user with a personal target can edit that target.

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A responsible user can edit a global target they are responsible for, regardless of role. For more information, see Responsibility for global indicator targets.

About this task

If you have multiple targets set on the same indicator, the Target Configuration panel in KPI Details lets you set them in bulk to have the same start date, review date, or value. As a manager, you can use this feature to modify targets for a set of segments.

You can change only identical target values to new values. You can change differing start and review dates to new, identical start or review dates. However, none of the new periods when the targets would apply can overlap the periods of other targets that match the same filters.

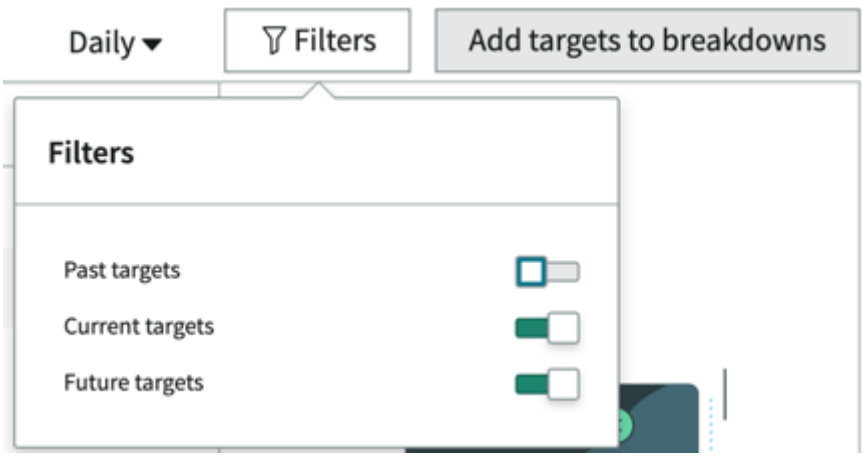
Note:
An alternative interface is available for a quick edit of a single target. Open the Targets panel and select the tile for a target. You can change the absolute value and the Start and Review dates of the target. For more options in editing a target, or to edit multiple targets, use the following procedure instead.

Procedure

1. Open KPI Details for an indicator.
2. Click the target icon .
   The **Targets** panel opens.
3. Click the cogwheel to open the **Targets Configuration** page.



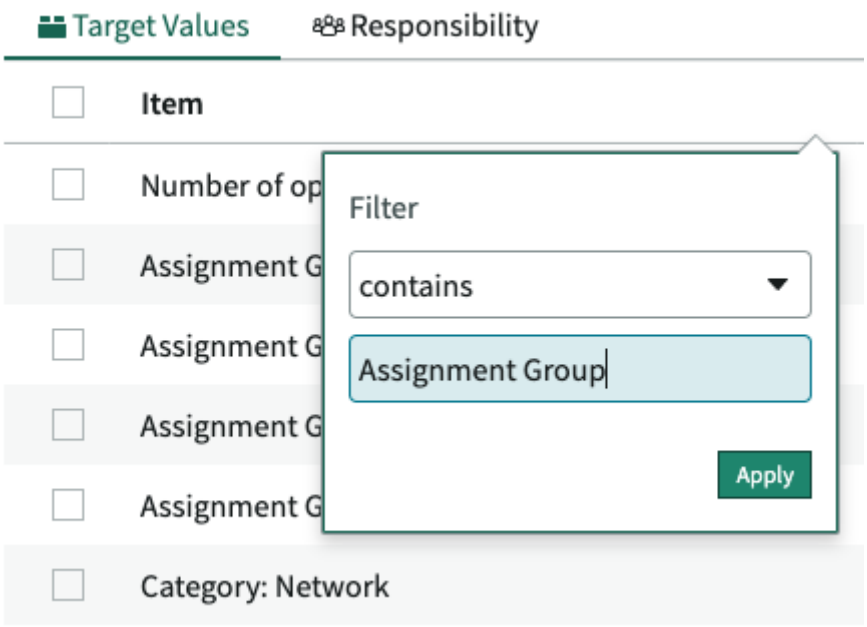
   The **Targets configuration** view opens.
4. Click **Filter** to set whether you see targets that have expired, targets that are currently in effect, or targets that will come into effect in the future.
   By default, you see targets that are currently in effect and those that will come into effect.



5. To further filter the selection of targets, select the hidden filter icon on the right side of each column header.
   You can filter or sort by item name, value, start date, or review date. In the following example, the **Item** column is about to be filtered for names containing `priority`. Only targets on the Priority breakdown will show.

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Tip:
You can filter on item name for either breakdowns or time aggregations. For example, filtering on `7d` returns only targets on weekly time aggregations.



6. Select one or more targets.
7. Set new target values, either as an absolute value or through a calculation.
   - To set an absolute value for the targets, select **None** in **Target calculation** and an absolute value in the **Value** field.
   - To select a change from the current targets, select the following:

Field	Value
Target calculation	Current target (units) or Current target (%)
Direction	Select **Increase** for the new target value to be higher than the current target or Decrease for the new value to be lower than the current target.
Change (units) or Change (%)	The value either added or subtracted to the current targets to calculate the new targets, depending on the setting in **Direction**. The value you enter is either an absolute value (units) or a percentage. For example, you have selected two targets with values of 20 and 5. You have also selected Current target (units) as the target calculation and Decrease as the direction. When you enter 2 in Change (units), the new target values are 18 and 3. If you instead select Current target (%) as the target calculation and enter 25 under Change (%), the new target values are 15 and 4.

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Field	Value
Minimum target value	The lowest value you want the target to have, regardless of calculation. You do not need to specify a value.
Maximum target value	The highest value you want the target to have, regardless of calculation. You do not need to specify a value.

- To select a change from the average score over a period of time, select the following:

Field	Value
Target calculation	Average score (units) or Average score (%)
First score	The opening date of the time period over which to calculate the average score
Last score	The closing date of the time period over which to calculate the average score
Direction	Select **Increase** for the target to be higher than the average score or **Decrease** for the target to be lower than the average score.
Change (units) or Change (%)	The value either added or subtracted to the average score to calculate the new targets, depending on the setting in **Direction**. The value you enter is either an absolute value (units) or a percentage.
Minimum target value	The lowest value you want the target to have, regardless of calculation. You do not need to specify a value.
Maximum target value	The highest value you want the target to have, regardless of calculation. You do not need to specify a value.

8. Select the start date, when the targets come into effect, and a review date.
   You expect to meet the target by the review date, or at least to review progress then.

Create, modify, or delete a threshold in KPI Details

Add, modify, or delete personal thresholds. With the required roles, you can also add, modify, and delete thresholds for all users.

Before you begin

Role required: Any role for your own personal thresholds. The pa_threshold_admin role or a role containing it (pa_power_user, pa_admin, or admin) for global thresholds and for personal thresholds created by other users.

About this task

Note:
Thresholds are not available when multiple breakdown elements are selected.

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Procedure

1. Navigate to the workspace with the indicator you want to work with.
2. Click the Analytics Center icon ( ) and navigate to the KPIs tab.
3. Click the threshold icon ( ).
4. Select either Global or Personal thresholds.
   You see all the existing Global or Personal thresholds on this indicator.
5. Click the Create Threshold icon ( ) or select an existing target to edit it.
6. Choose the visibility of the threshold, either **Global** or **Personal**.
7. Select or change the **Threshold Type**:
   - All time high
   - All time low
   - Less than

     Enter a threshold value to trigger a message if the value of the indicator drops below the threshold.
   - More than

     Enter a threshold value to trigger a message if the value of the indicator exceeds the threshold.
8. Click **Save** if you are creating a threshold or **Update** if you are modifying a threshold.

Add targets for multiple breakdown elements in KPI Details

Select multiple breakdown elements in the KPI Details target configuration panel. Add a target to each element. This target can be an improvement on a baseline instead of an absolute value.

Before you begin

Role required: pa_admin, pa_target_admin, pa_power_user, or admin

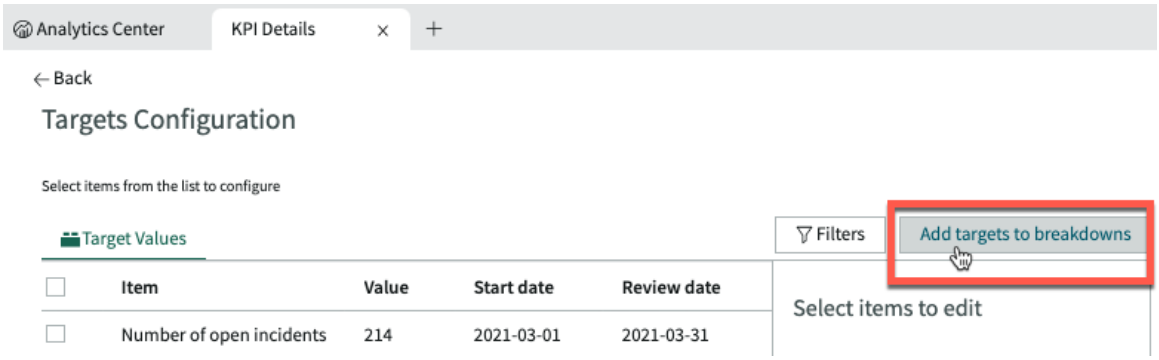
Procedure

1. Open KPI Details for an indicator.
2. Click the target icon ( ).
   The **Targets** panel opens.
3. Click the cogwheel to open the **Targets Configuration** page.



   The **Targets configuration** view opens.
4. Select **Add targets to breakdowns**.

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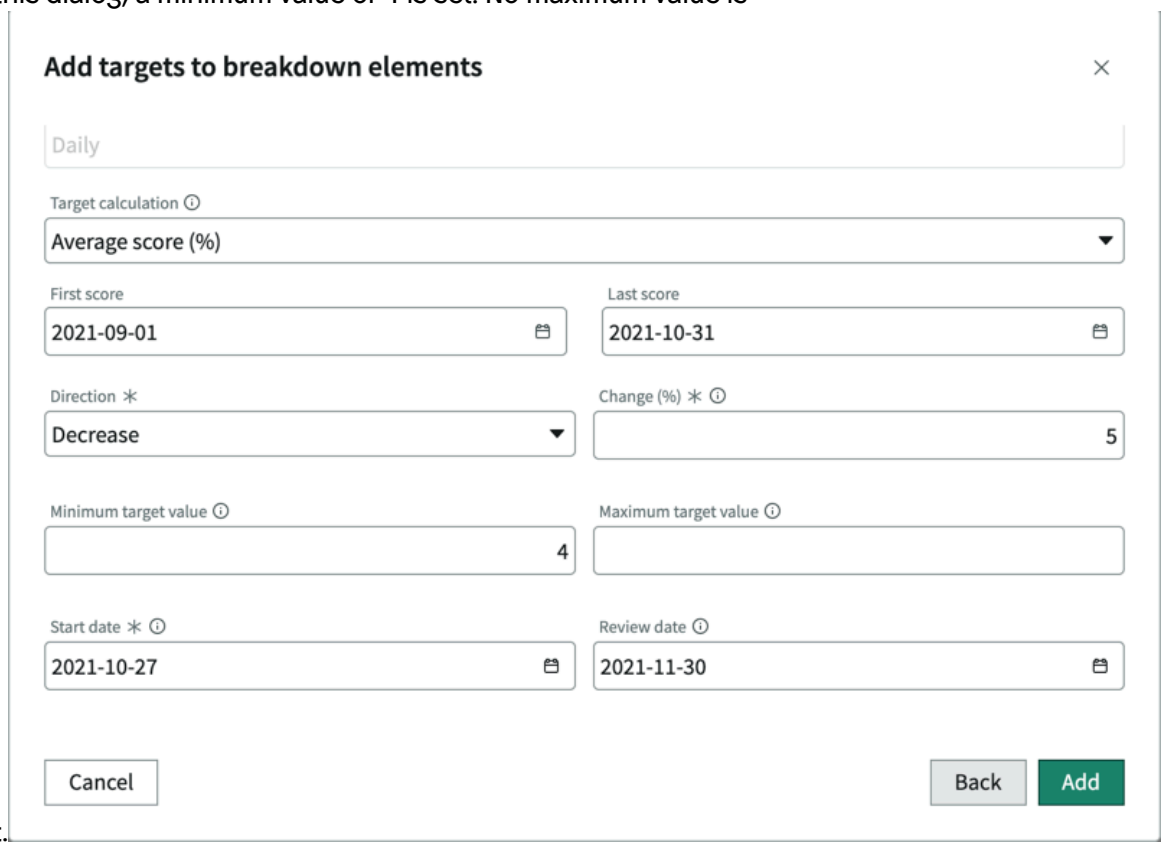
The **Add targets to breakdown elements** dialog opens.

5. Select one breakdown from the list of breakdowns for the indicator.
6. Select any number of elements for the breakdown and click **Next**.

> **Tip:**
> If you have many elements to scroll through, sort or filter on a value in any of the columns. You can also click **Filter** and use the condition builder to narrow down the selection.

7. Set targets for the elements as described in Step 7 in Edit targets in KPI Details.
8. Set a start date, when the targets come into effect, and a review date.
9. **Optional:** If you are calculating the targets from an average or a previous score, and you don't want the new targets to be above or below certain values, set minimum and maximum values.

   Example
   In this dialog, a minimum value of 4 is set. No maximum value is set.



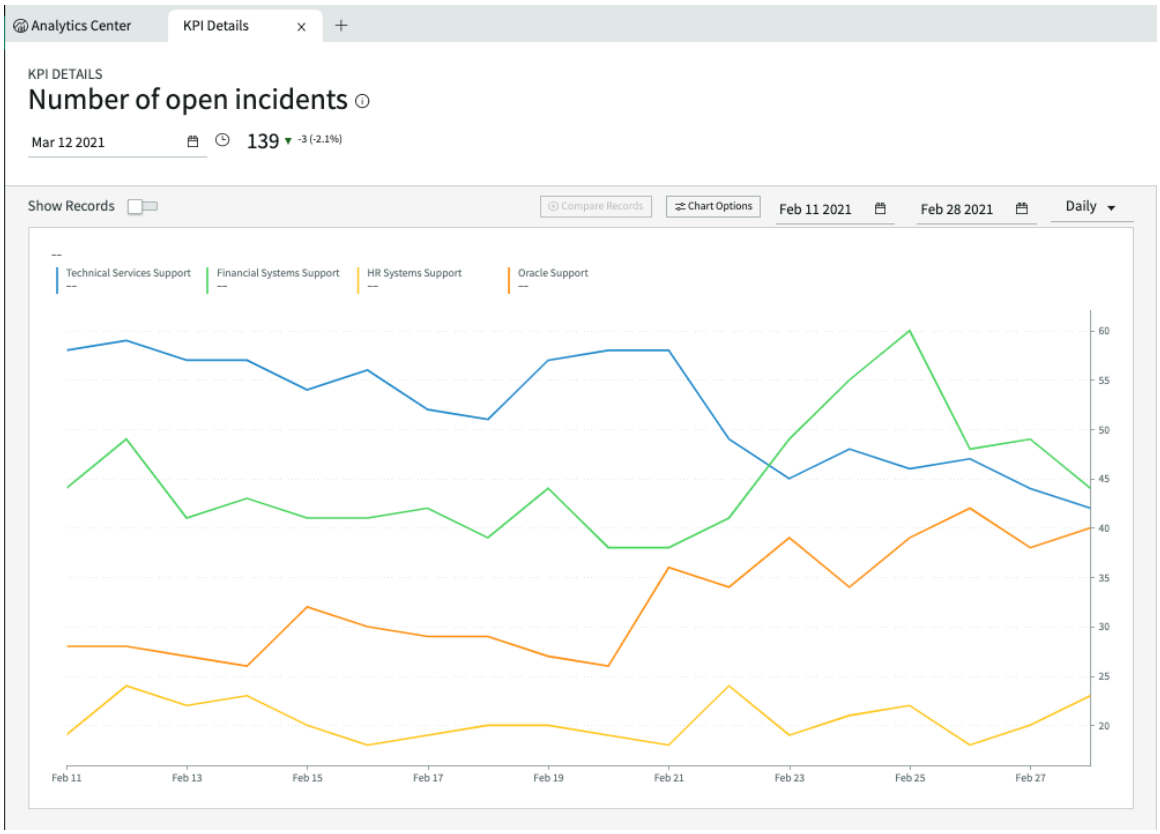
10. Select **Add**.

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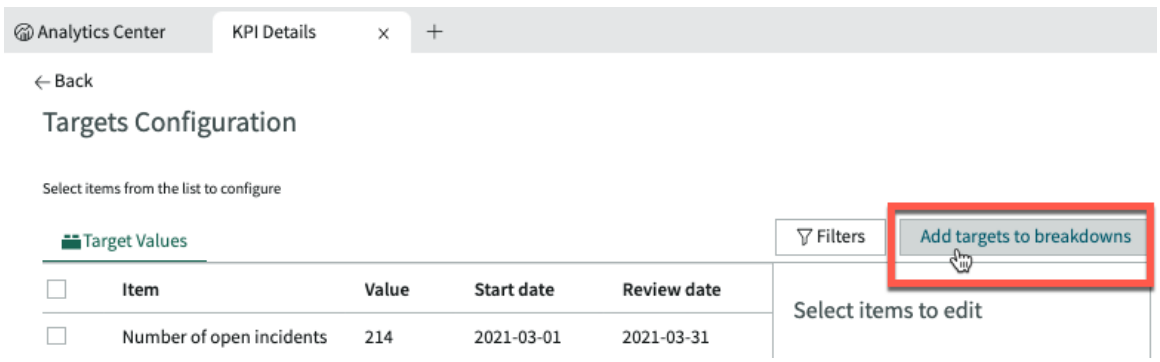
Result
Batch target creation happens asynchronously. You might see a progress bar.

Example: Configuring targets for multiple elements

Starting February 11, your company began tracking open incidents for each assignment group. By the end of the month, the number of open incidents assigned to your top 4 groups had varied from 18 to 60. The trends also were highly variable.

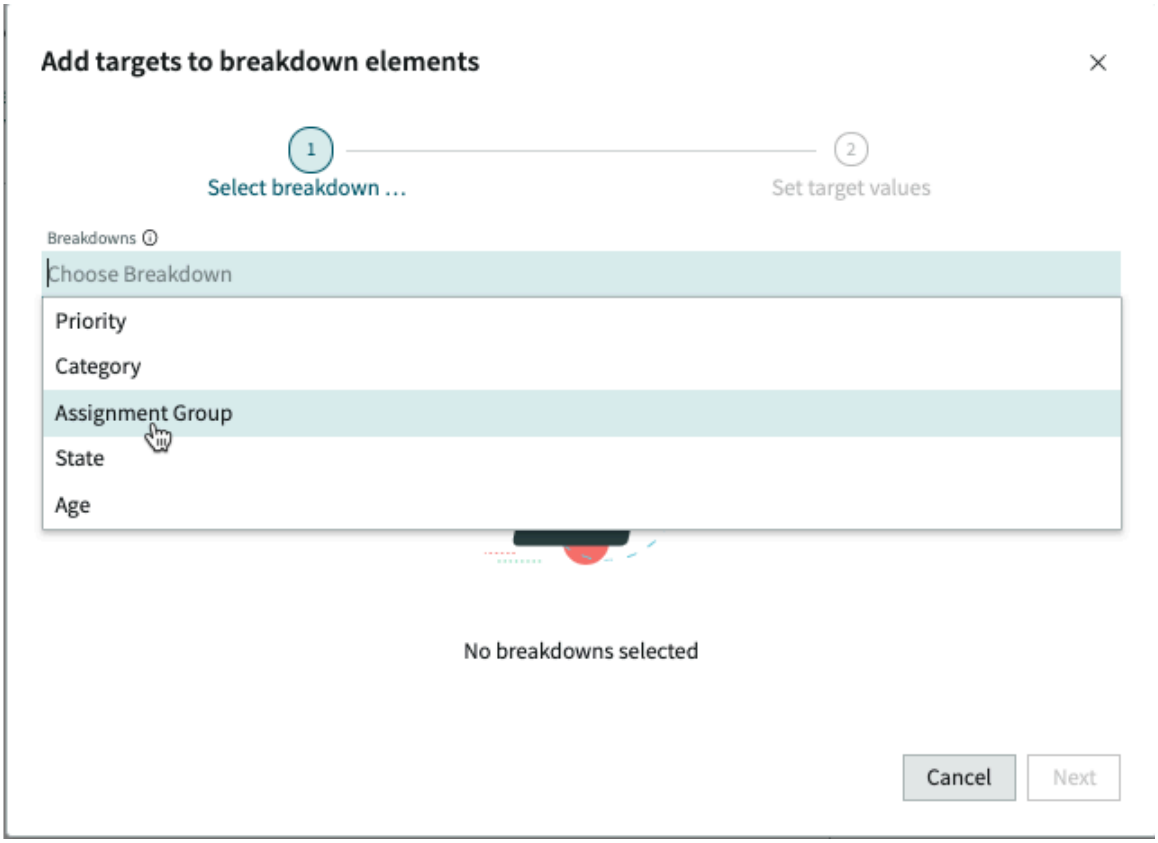


You would like consistent improvement across these four groups. Therefore, you want to set them targets that are equivalent despite the differences in absolute values. You also want to set the targets together. To achieve this aim, you open the **Targets configuration** view and click **Add targets to breakdowns**.

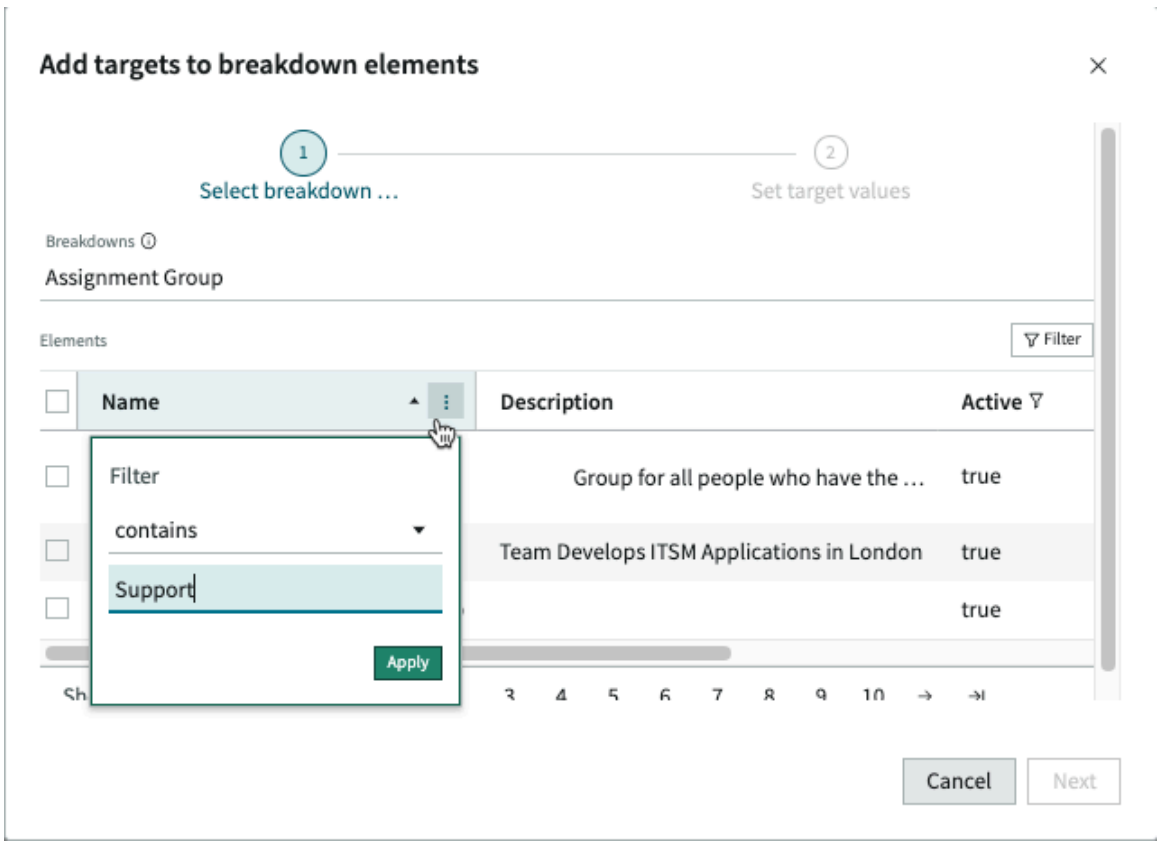


You select the Assignment group breakdown.

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You get a list of the elements of the Assignment Group breakdown. There are many elements. The four elements you are looking for all have "Support" in the name, so you filter the **Name** column on "Support."



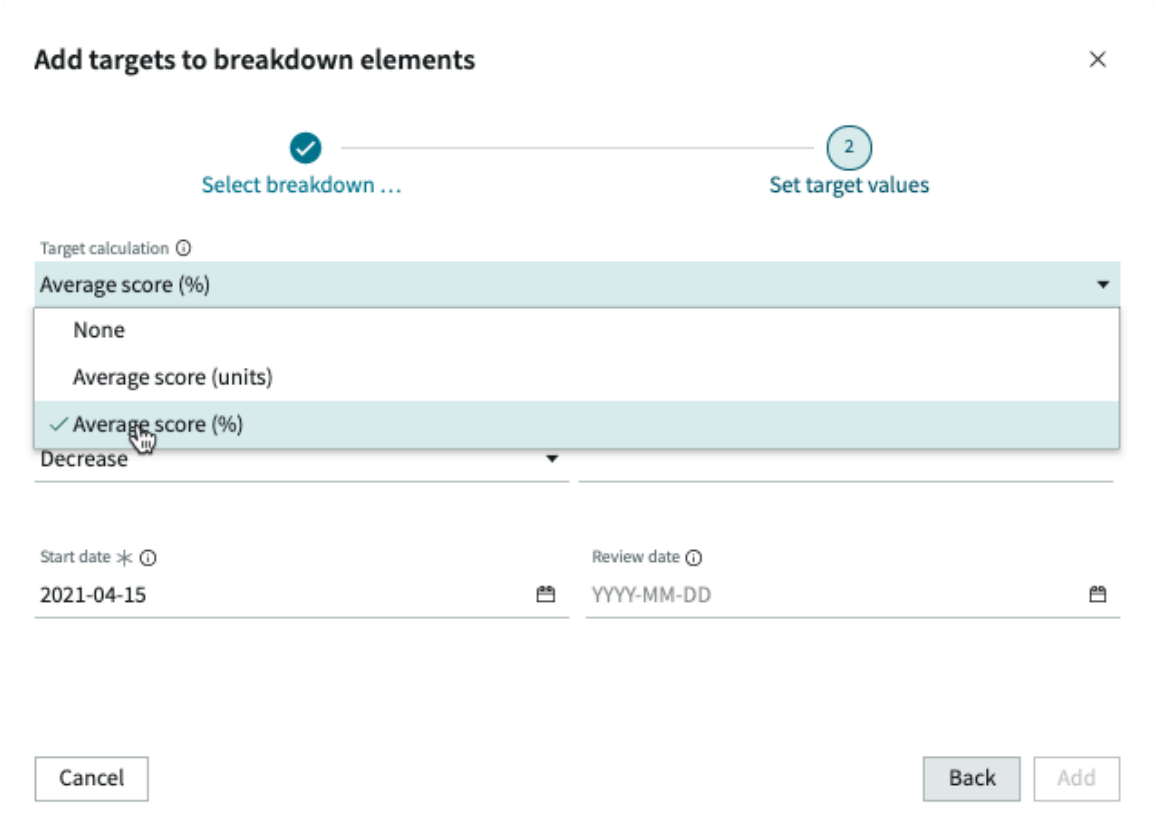
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The filter reduces the number of elements to browse to 9, from which you easily select the 4 that you want and click **Next**.

You can either specify a target value or base it on a calculation. The difference between HR Systems Support and the other three elements is too much to give all four elements the same target value. Therefore, you base the target on a calculation applied to each element.

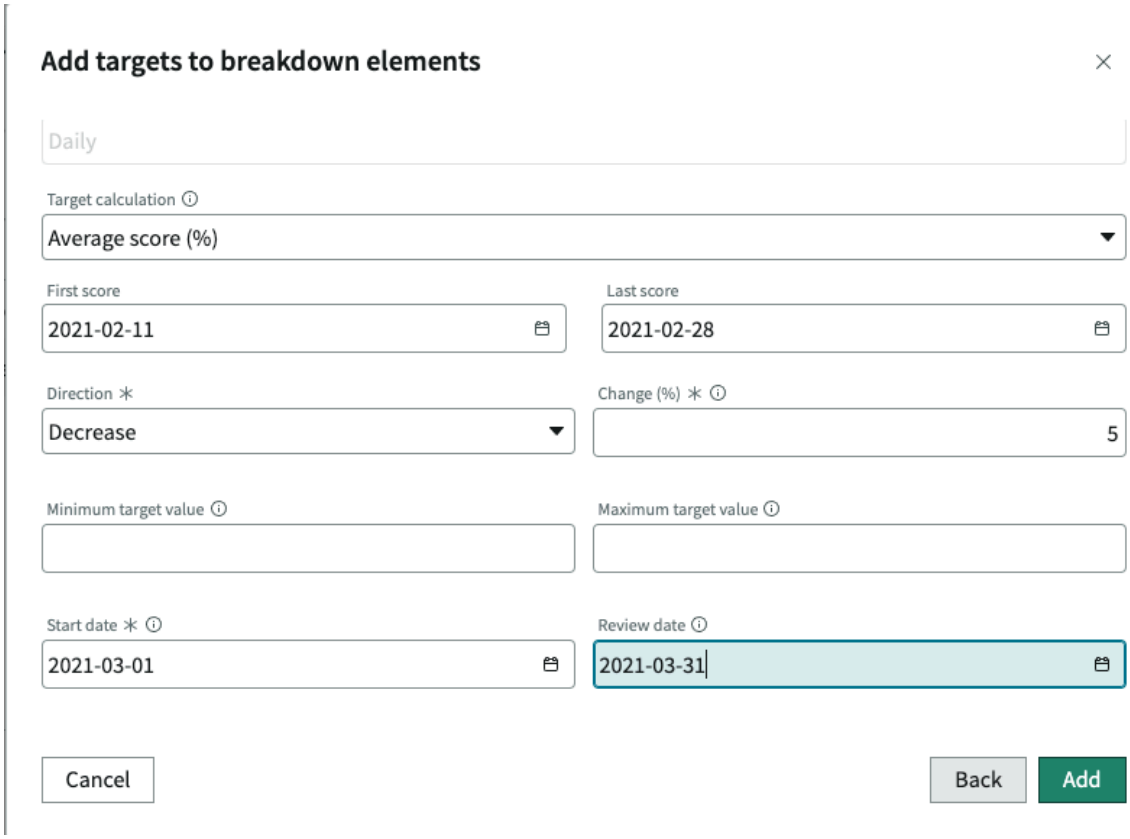
Calculations can be made on the existing target or on an average score over a time period. There are no existing targets for these elements, so you must select an average score.

You can set the target either as a unit number improvement on the average score, such as 3 or 4.5, or as a percentage improvement. The scores are close enough that you could probably use a unit number. However, you decide to set the target as a percentage improvement on the average score.

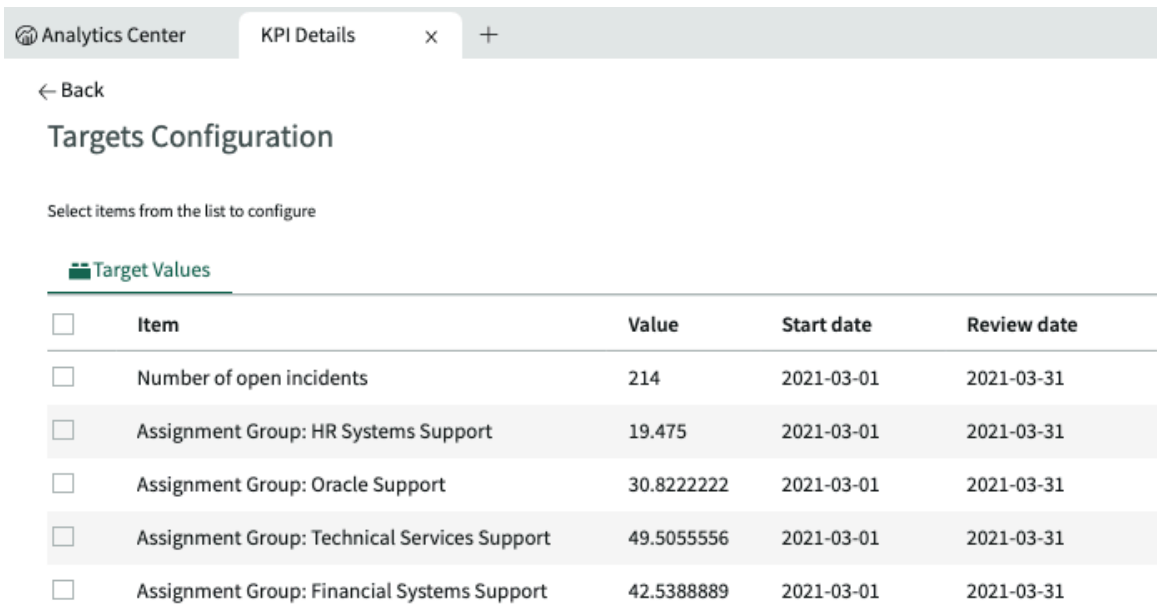


You take the average score from February 11 until February 28. You think 5% is a good improvement target for the next month, so you set the targets to begin March 1 and to review them March 31. You don't think you want to constrain the target values within a range, so you don't set maximum or minimum values.

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After you click **Add** and dismiss the success message, you see the four targets that you created.



Here is a table with the targets you created and their values. All targets take effect on 1 March and are scheduled for review on 31 March.

Target	Value (rounded to integer)
Assignment Group: HR Systems Support	20
Assignment Group: Oracle Support	31

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Target	Value (rounded to integer)
Assignment Group: Technical Services Support	50
Assignment Group: Financial Systems Support	43

Responsibility for global indicator targets

A user can be responsible for targets on one or more Performance Analytics indicator/breakdown combinations (KPIs). Responsible users are expected to track progress towards the targets and can change the targets on their KPIs.

Responsibility is separate from access control list (ACL)-based roles. A target admin role, such as pa_target_admin, allows a user to create and edit global targets on any unique indicator/breakdown element combination (referred to here as a KPI). Such a role is normally restricted to a few Performance Analytics experts. However, a business-area expert, such as a manager, is likely to know more about the appropriate target to set for a specific KPI. Conversely, a Performance Analytics expert is unlikely to be able to maintain appropriate targets for all the KPIs in their organization.

Here the concept of responsibility comes in. A user with any role can be responsible for managing a KPI's global targets, which everyone can see. They can create a new target or edit the target for any KPI they are responsible for. Responsible users can create or edit their targets either in KPI Details or the classic Analytics Hub. However, they have this right only for KPIs that they were explicitly made responsible for. Also, if ACLs prohibit a user from viewing a KPI, they cannot be responsible for that KPI.

Only users, not groups, can have responsibility. Responsible users can assign responsibility for their KPIs to other users or remove responsibility from other users or themselves. A user can be responsible for the targets of multiple KPIs, and a KPI can have multiple users responsible for its targets.

Note:
Responsibility for targets is independent of any other responsibility for a KPI, such as responsibility for signals.

A user with a target admin role has to create the initial global target for a KPI. After they create that target, they can assign responsibility to any user with any role, if the user can view the KPI. The responsible users maintain the targets for that KPI thereafter. The expected workflow follows:

1. A target admin creates an initial global target on a KPI. This target can be a meaningful value, or it can be a placeholder that a responsible user is expected to change.
2. The target admin makes themselves or a different user responsible for targets on the KPI.
3. At any point, the responsible users make other users responsible or remove responsibility from users.
4. The responsible users replace or edit targets for which they are responsible.

Note:
You can assign responsibility to targets only in KPI Details. You cannot assign responsibility from a KPI Targets component.

Assign responsibility for targets

After an admin creates a target, assign responsibility for reviewing and editing the target to a subject matter expert (SME) in the business area.

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Before you begin

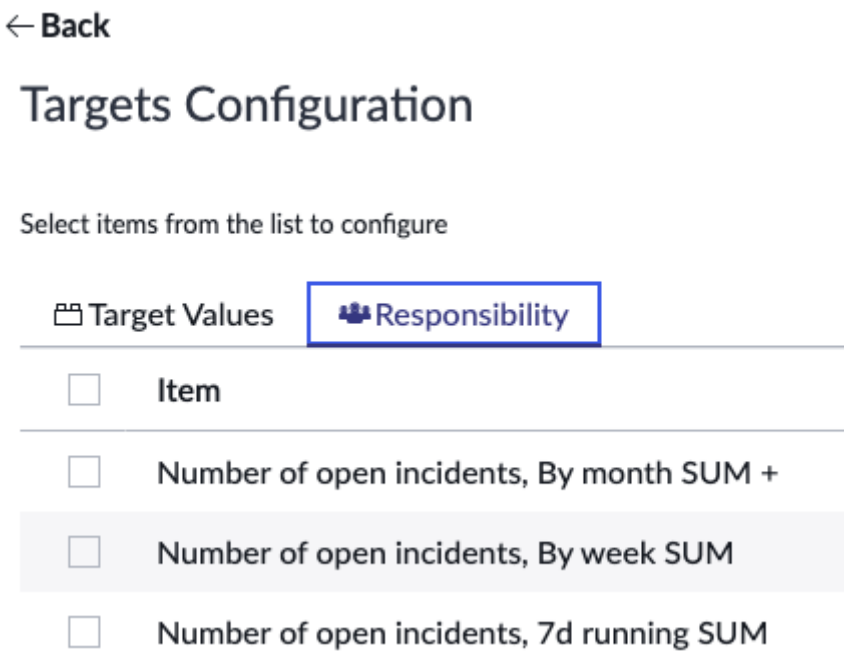
Role required: pa_admin, pa_target_admin, pa_power_user, or admin.

Procedure

1. Open KPI Details in a Workspace.
2. Either:
   - Create a target, as described in Create a target in KPI Details.
   - Open an existing target, as described in Edit targets in KPI Details.
3. Click the cogwheel to open the **Targets Configuration** page.

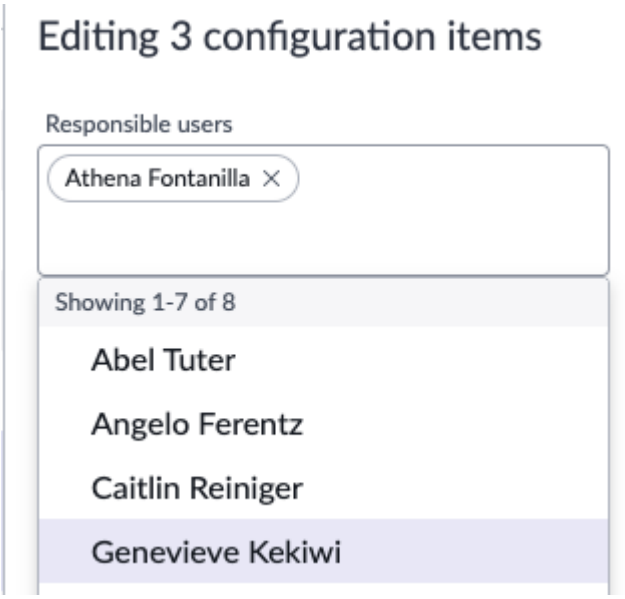


   The **Targets configuration** view opens.
4. Open the Responsibility tab.



5. Select one or more unique indicator/breakdown element combinations (KPIs).
6. In the **Editing configuration items** panel, select one or more users to be responsible.
   You can select only one user at a time, but you can repeat the selection process as often as you want. Only users who can view all selected KPIs are available.

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7. Click **Update**.

Result

The users you selected appear in the **Responsible users** column for the KPIs you selected.

KPI Details reference

View system properties associated with KPI Details. See also how UUIDs are formed.

KPI Details Performance Analytics properties

KPI Details supports several Performance Analytics properties. These system properties control the behavior of Performance Analytics elements in the context of KPI Details.

To configure properties, navigate to **Performance Analytics** > **System** > **Properties** or to **sys_properties.list**.

Property	Description
com.snc.pa.indicator_target_default_color_schema	Default indicator target color scheme
com.snc.pa.chart_default_color_schema	Default visualization color scheme
com.snc.pa.scorecards.max_breakdown_elements	Maximum number of breakdown elements in KPI Details lists.
com.snc.pa.target_batch_operation_limit	Maximum number of targets that can be inserted or updated in one bulk action on the KPI Details Targets Configuration page. If you face timeouts while inserting or updating targets in bulk, consider reducing this limit. Default: 100
com.snc.pa.default_chart_line_color	Color of the scores in a KPI Details page and widgets, including the trend line and bullet chart.
com.snc.pa.defaut_chart_target_color	Color of the target in a chart.

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Property	Description
com.snc.pa.default_chart_personal_target_color	The line color for personal targets displayed on KPI Details pages.
com.snc.pa.default_chart_threshold_color	Color of the threshold in a chart.
com.snc.pa.default_chart_personal_threshold_color	The line color for personal thresholds displayed on a KPI Details page.

KPI Details UUIDs

Every combination of breakdowns, elements, a time series aggregation, and a domain that you specify for an indicator has a unique identifier (UUID). To understand how the KPI Details and KPI Signals applications work, you should understand how these UUIDs are constructed.

In the Analytics Hub and the workspace KPI Details, you select an indicator and can specify it further by the following:

- Up to two levels of breakdown
- Element filter
- Up to two levels of breakdown element, including multiple elements per level (aggregate score)
- A time series aggregation
- Domain separation

Each combination is represented by a so-called UUID. The UUID is concatenated from the sys_IDs of the indicator and any of these specifiers, in the following order (note the semicolon before the domain id):

<indicator_sys_id>:<breakdown_sys_id>:<elements_filter_sys_id or element_sys_ids>:<lvl-2 breakdown_sys_id>:<lvl-2 elements_filter_sys_id or element_sys_ids>:<aggregate_sys_id>;<domain_sys_id>

All specifiers other than *indicator_sys_id* are optional, with one exception: If a *breakdown_sys_id* is specified, so must be at least one *element_sys_id*. To specify a breakdown and not specify elements, for example to get a list of all elements, the breakdown sys_id goes in a separate parameter. For an example, see this GET/now/pa/scorecards REST API example. To refer to those scores that do not match any elements of the specified breakdown, the string `unmatched` goes in place of an *element_sys_id*.

Targets, thresholds, and other Analytics Hub and KPI Details functions apply per UUID. In other words, they apply separately to each unique combination of indicator, breakdowns, elements and element filters, time series aggregation, and domain. The KPI Signals application also monitors each fully specified indicator separately, per UUID.

KPI Signals

KPI Signals notifies you when the behavior of a process changes significantly. This feature applies standard statistical Process Behavior Charts to Performance Analytics indicators.

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Get started

Explore  Explanation of signals, anti-signals, and when there is no signal.	Configure  Activate KPI Signals for an indicator and configure signal detection and notification. Add responsible users.
Use  Respond to KPI Signals notifications by fixing the issue and dismissing the signal or resetting the baseline	Role reference  Roles relevant to KPI Signals

Troubleshoot and get help

- Ask questions and explore other resources for indicators, KPI Signals, and Platform Analytics in general in the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Exploring KPI Signals

KPI Signals notifies you when the behavior of a process changes significantly. This feature applies standard statistical Process Behavior Charts to Performance Analytics indicators.

KPI Signals overview

Tip:
A free training for KPI Signals is available from the NOW Learning Center.

Every process undergoes variation. Most of this variation is normal, or 'common cause' variation, such as the small differences between each time you sign your name. What you need to know about is abnormal, or 'special cause' variation, such as when you sign with your off hand. KPI Signals lets you know when abnormal variation is occurring. KPI Signals incorporates Process Behavior Charts. These charts use standard statistical methods to pick out the signal of special cause variation from the noise of common cause variation.

KPI Signals uses standard 3-sigma parameters. "Three-sigma" means that the indicator scores for the process are expected almost always to remain within three standard deviations of the norm. The charts require at least five consecutive scores to calculate parameters.

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KPI Signals users

Users

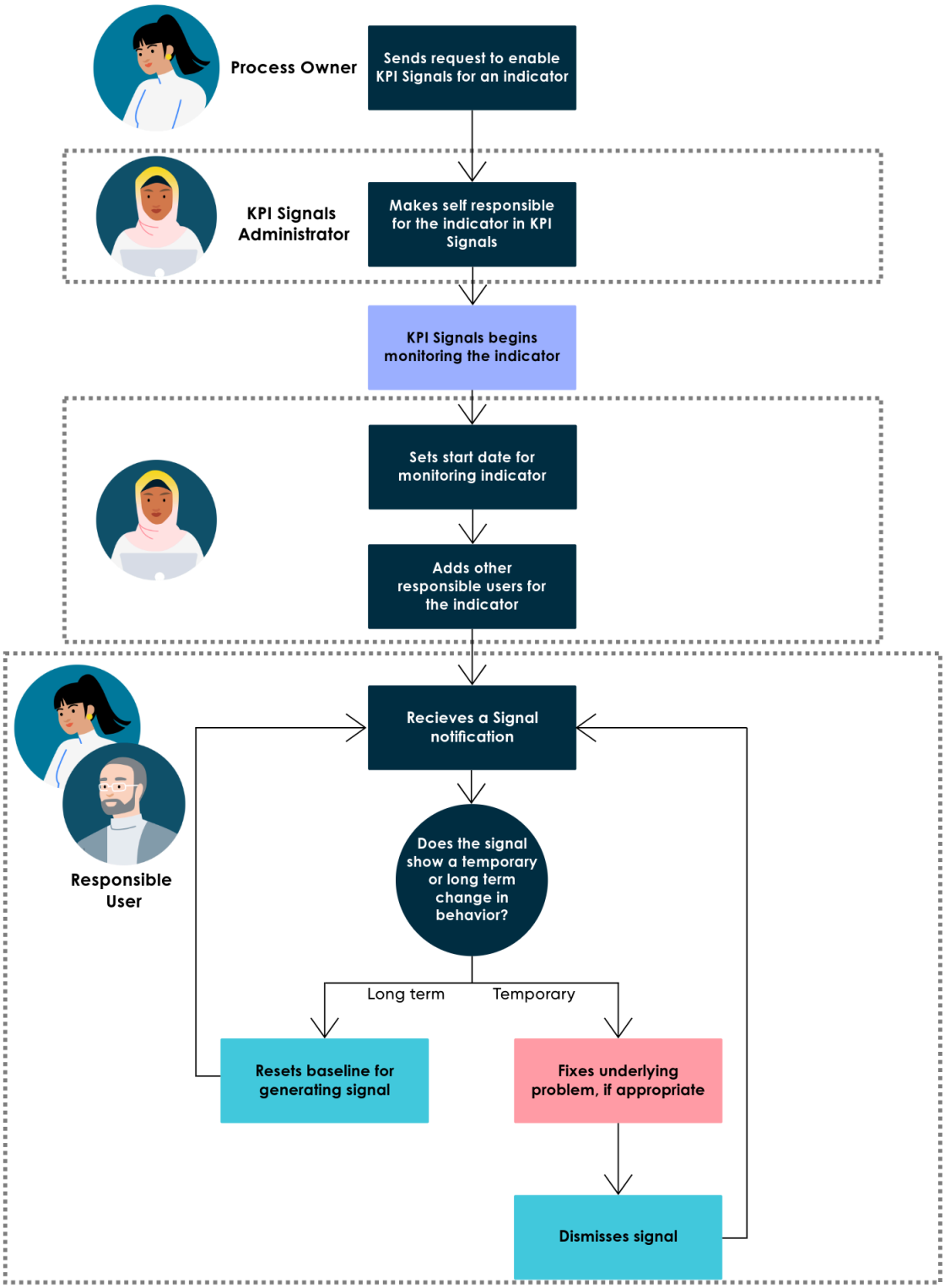
User	Description
Process owner	Requests signals monitoring on an indicator in the following circumstances: The indicator is important enough that the process owner wants to know if the trends deteriorate significantly and wants to be notified of this off-platform. However, the process owner does not want to track the trends continuously. Instead, they want the system to inform them when they need to look more closely. Alternatively, the process owner wants to catch the trend early in the process, before it is bad enough to be obvious to the human eye.
KPI Signals administrator	Sets up KPI Signals for an indicator at the request of the process owner. Also assigns responsible users for the indicator, generally also at the request of the process owner.
Responsible user	Receives signal notifications and acts upon them. The process owner is usually the key responsible user, but they can delegate this responsibility to other users as well.

KPI Signals workflow

The following diagram shows the workflow for setting up KPI Signals for a Performance Analytics indicator, and the workflow for responding to a signal notification.

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Setting up and using KPI Signals



1. Process owner requests an administrator to enable KPI Signals for an indicator.
2. Administator makes themselves a responsible user for the indicator. Doing so activates KPI Signals monitoring for the indicator.
3. Administrator sets start date for monitoring indicator.
4. Administrator adds other responsible users.

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5. Responsible user receives a notification from KPI Signals that an indicator should be examined.
6. Responsible user decides whether the signal is showing a temporary change, possibly due to a problem that can be corrected, or the signal is showing a long-term change in process behavior.
7. If the change is temporary, the responsible user addresses the underlying problem, if appropriate, then dismisses the signal.
8. If the change is long-term, the responsible user resets the baseline for generating the signal appropriately.

Other exploration topics

Signal, no signal, and anti-signal

When KPI Signals detects abnormal variation in the scores of a KPI, it generates a signal. When KPI Signals does not detect abnormal variation for a significant amount of time, it generates an "anti-signal." The anti-signal lets you know that your workflow is under control.

Both the presence and absence of signals conveys information:

- The presence of signals lets you know that a workflow has changed, or at least is not statistically stable.
- The long-term absence of signals indicates that a workflow is statistically stable. With this information you can decide to launch a process improvement initiative, for example.

Note:
By default, dashboards that show indicators with KPI Signals enabled have insight cards for signals that get generated. For more information, see Proactive analytics insights on dashboards.

Signals

The KPI Signals application considers the following behaviors to 'signal' special cause variation:

Outlier

Every score beyond a three standard deviation (3-sigma) upper or lower limit.

Short run

Four consecutive scores on the same side of the central line, with three of the scores close to the upper or lower limit. "Close to the limit" is defined as outside two standard deviations.

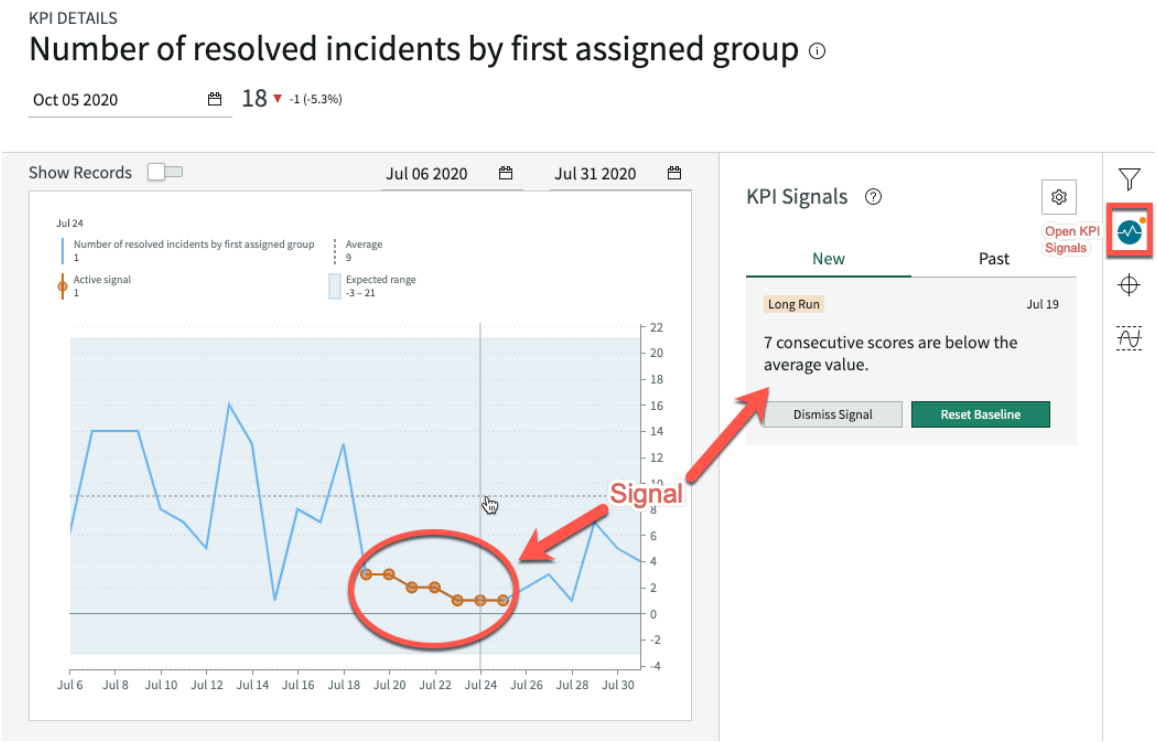
Long run

Seven consecutive scores on the same side of the central line. That is, seven scores in a row all greater than or all less than the average value.

Note:
The KPI Signals app counts outliers (dismissed or not) when calculating whether a short or long run has occurred.

In the following example, you see a "Long run" signal: seven consecutive scores above or below the central line.

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Note:
The KPI Signals application can detect signals for an indicator with no more than one first-level breakdown element. The application does not support multiple breakdown elements or a second-level breakdown.

Anti-signals

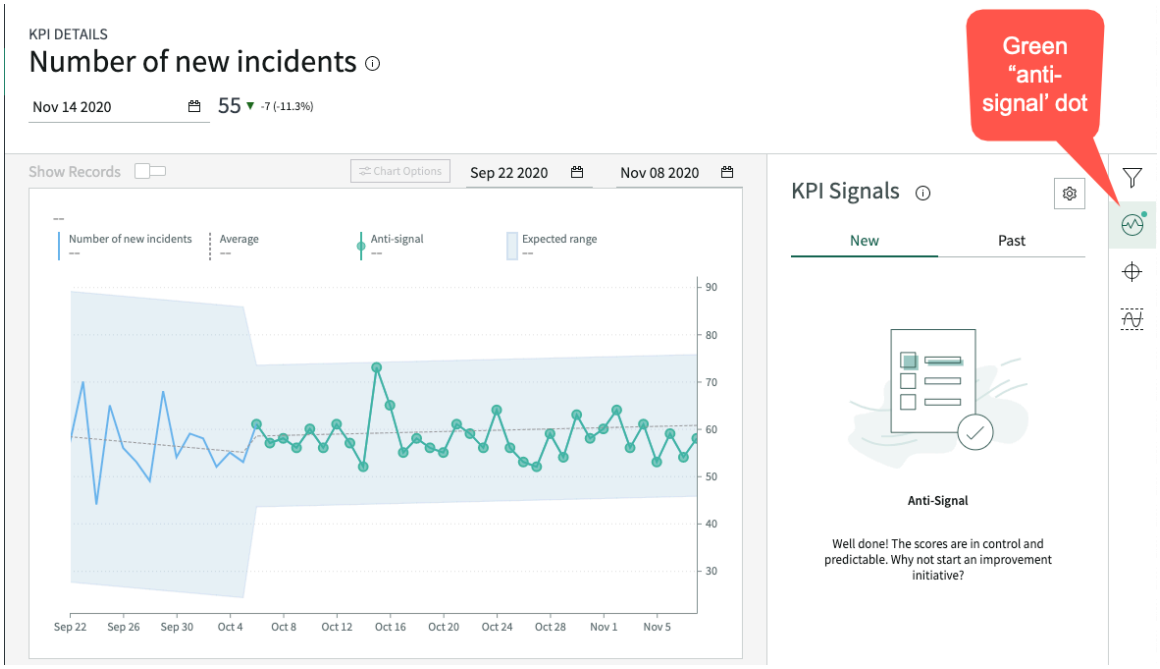
The application issues an anti-signal when it has not detected a signal for a length of time equal to the following formula:

```
Length of time to calculate the baseline for the KPI *
 Anti-signal factor
```

The application takes 14 days by default to calculate the baseline for a daily indicator. The default anti-signal factor is two. Thus, the default length of time to detect an anti-signal on a daily indicator is 28 days. For more information about setting the time to calculate a baseline, see Configure signal detection. For more information about setting the anti-signal factor, see Configure signal notifications.

In this example, the default configuration values apply to a daily indicator. The application has not detected a signal for 28 days, so it shows a 28-day anti-signal.

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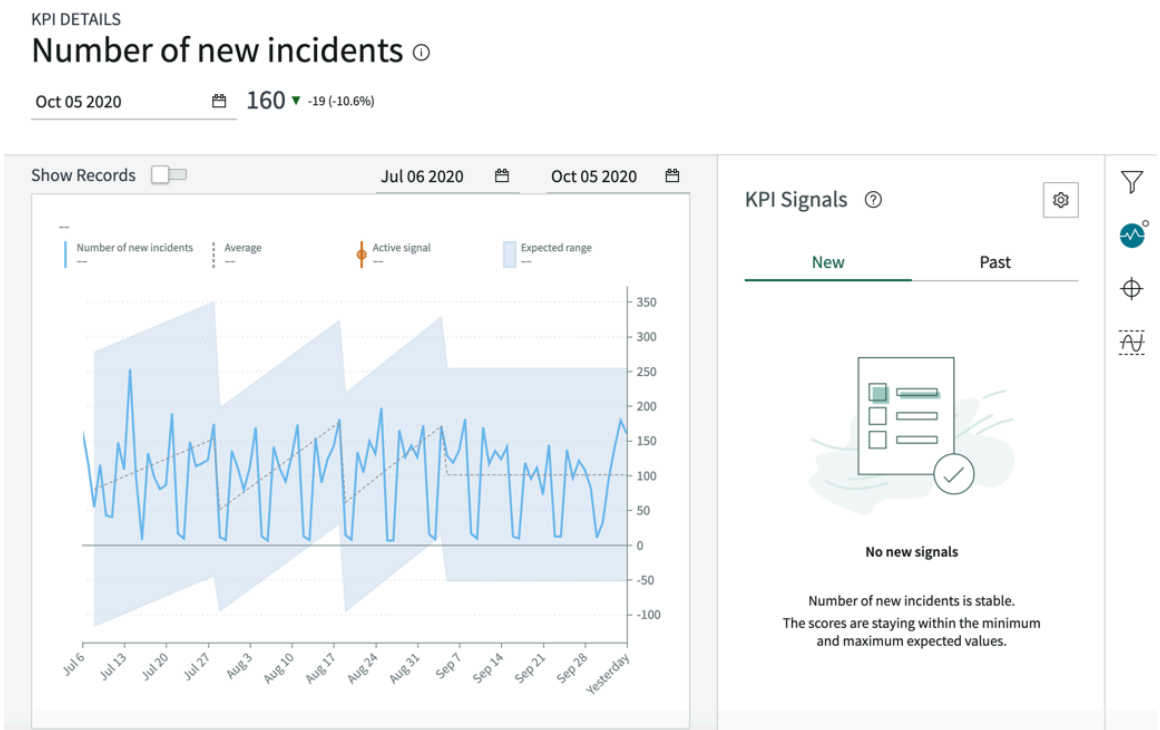


Although responsible users are notified when an anti-signal is generated, no action is required.

No signal

Usually no signal is detected for a shorter amount of time than it takes to detect an anti-signal. In this case, the application shows a simple "No signal" message. No notifications are sent and no action is necessary.

In the following example, no signal is detected for five days after the baseline was most recently reset. The baseline has been reset three times in the period being shown.



View KPI Signals

Access KPI Signals from the KPI Details page.

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Before you begin

Role required: Any roles necessary to access the workspace. The access control lists (ACLs) for indicators and breakdowns are also respected.

Procedure

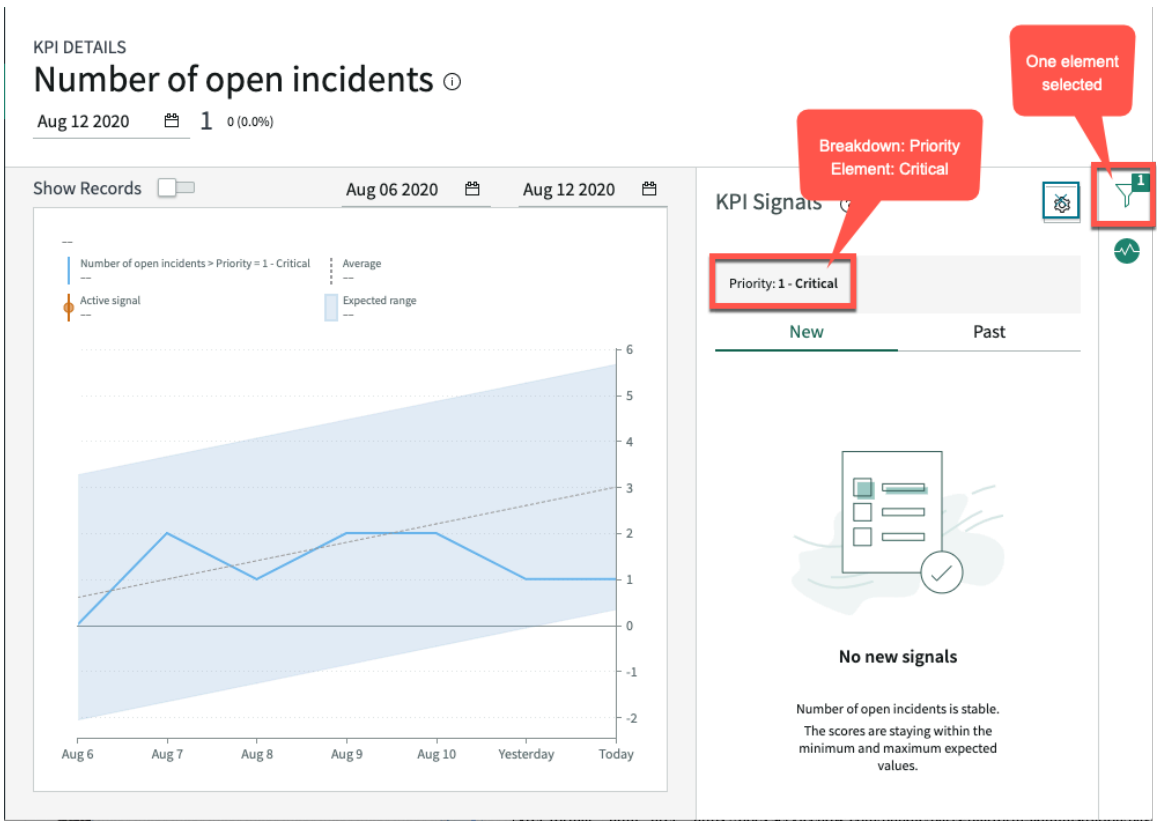
1. Open KPI Details for an indicator as described in View KPI Details.
2. **Optional:** Open the **Filters** ( ) panel and select one breakdown and one element.
   KPI Signals can monitor each first-level breakdown and element applied to an indicator. It cannot monitor second-level breakdowns.

   Note:
   In the context of KPI Signals, the term KPI refers to an indicator with optionally a first-level breakdown and element.

3. Select the Open KPI Signals icon.
   The KPI Signals panel opens.
4. If KPI Signals monitoring is not active for this KPI, you can follow the instructions in Activate KPI Signals monitoring for an indicator (KPI).
   If you do not have a role that allows you to activate KPI Signals monitoring for a KPI, contact an administrator instead.

Example: KPI Signals with a breakdown element

In the following example, you see the KPI Signals panel for the Number of open incidents indicator. This indicator is filtered on the Priority: 1 - Critical breakdown element. No signals have been detected.



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Configuring KPI Signals for an indicator

Activate KPI Signals for an indicator and set up signal detection and notifications. Assign responsibility for receiving and handling KPI Signals notifications for an indicator.

Activate KPI Signals monitoring for an indicator (KPI)

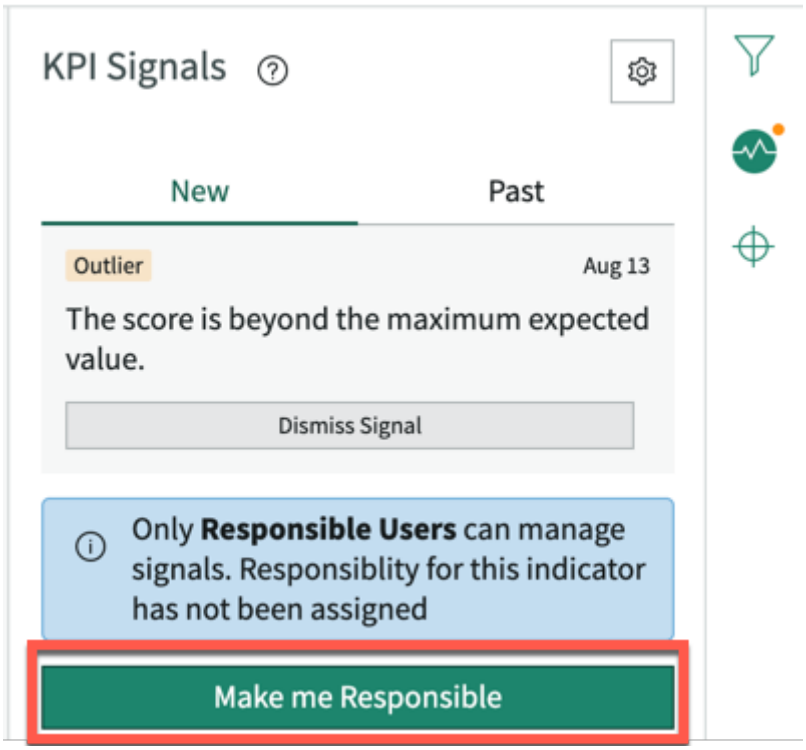
KPI Signals does not monitor indicators by default. You activate monitoring for individual indicators. When you activate KPI Signals for an indicator, you make yourself a responsible user for that indicator.

Before you begin

Role required: pa_kpi_signal_admin, pa_admin, or admin

Procedure

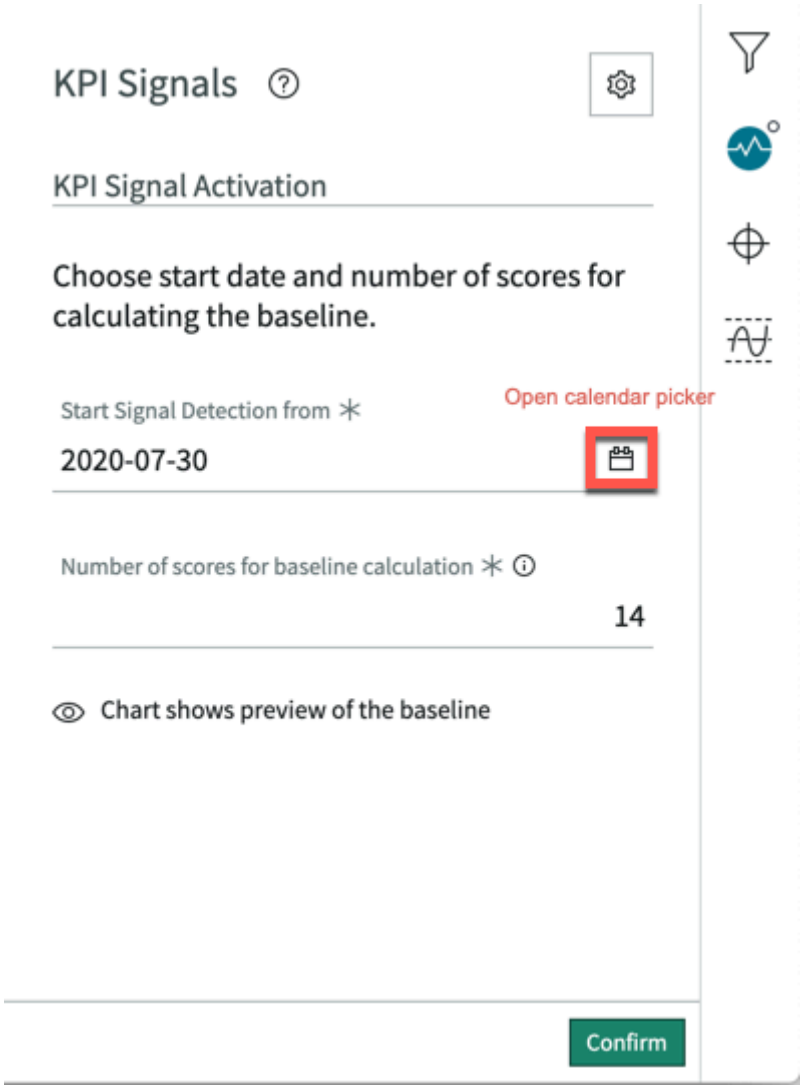
1. Open KPI Signals for an indicator, as described in View KPI Signals.
2. If KPI Signals monitoring for the indicator has not been activated, click **Make me responsible** in the KPI Signals panel.



   KPI Signals monitoring cannot be active for a indicator unless there is at least one responsible user. Therefore, when you activate monitoring, you automatically make yourself a responsible user. You can then reassign responsibility. For more information, see Configure responsibility for KPI Signals.

3. Select a start date from which to evaluate the indicator for signals.
   By default, signals are calculated starting three months before you activate KPI Signals for the indicator. If meaningful data for calculating a baseline begins earlier or later than this date, change the date.

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4. Set the number of indicator scores that are used to calculate the baseline.
   The default number of scores for calculating the baseline depends on the indicator frequency. Do not change this number unless you are confident you have good reasons. The minimum number is five.
5. Click **Confirm**.

What to do next

After you activate KPI Signals monitoring for an indicator, you can:

- Deactivate monitoring on the indicator
- Reactivate monitoring if it was deactivated
- Reconfigure the number of points for calculating the baseline
- Change the start date for calculating the baseline
- Change the type of trend calculation for the baseline

For more information, see Configure signal detection.

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Configure signal detection

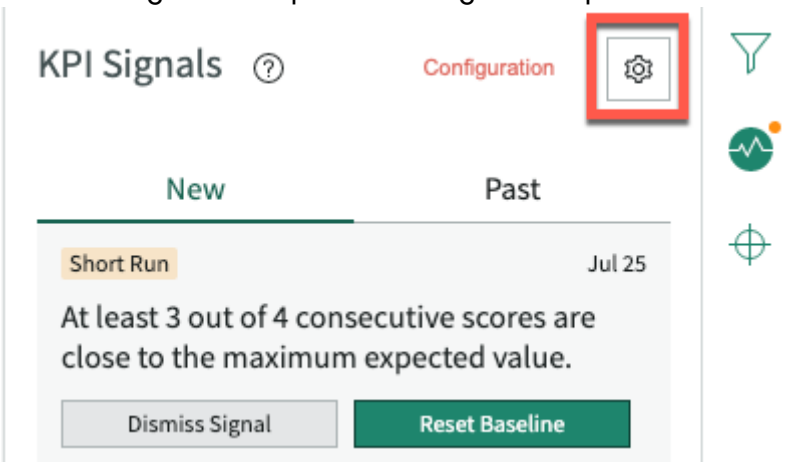
You can set the start date of the current baseline calculation, the number of scores used to calculate the baseline, and the trend method. You also can deactivate or reactivate KPI Signals monitoring for a KPI.

Before you begin

Role required: admin, or must be a responsible user.

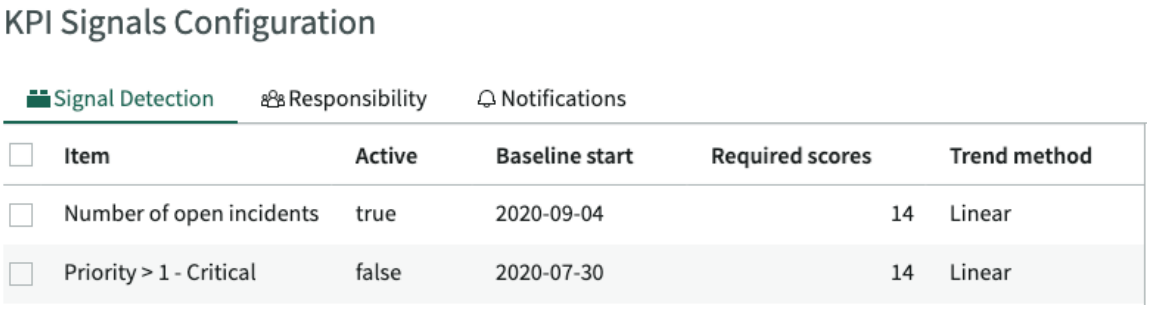
Procedure

1. Open KPI Signals for a KPI.
2. Click the cogwheel to open the Configuration options.



3. Open the Signal Detection tab.

   In this image, you see the Number of open incidents indicator with no breakdowns, and the same indicator with the Priority = 1-Critical breakdown and element. The KPI with the Priority = 1-Critical breakdown has been deactivated. Only KPIs that had been activated at some point appear in this list.



Item	Active	Baseline start	Required scores	Trend method
Number of open incidents	true	2020-09-04	14	Linear
Priority > 1 - Critical	false	2020-07-30	14	Linear

4. Select the KPIs that you want to edit.
5. Fill in the following fields:

Field	Description
Active (check box)	Deselect to deactivate KPI Signals monitoring of the KPI. The KPI remains in the list afterwards. Select**Active** later to reactivate monitoring on the KPI. If you reactivate monitoring on a KPI, it begins from the date

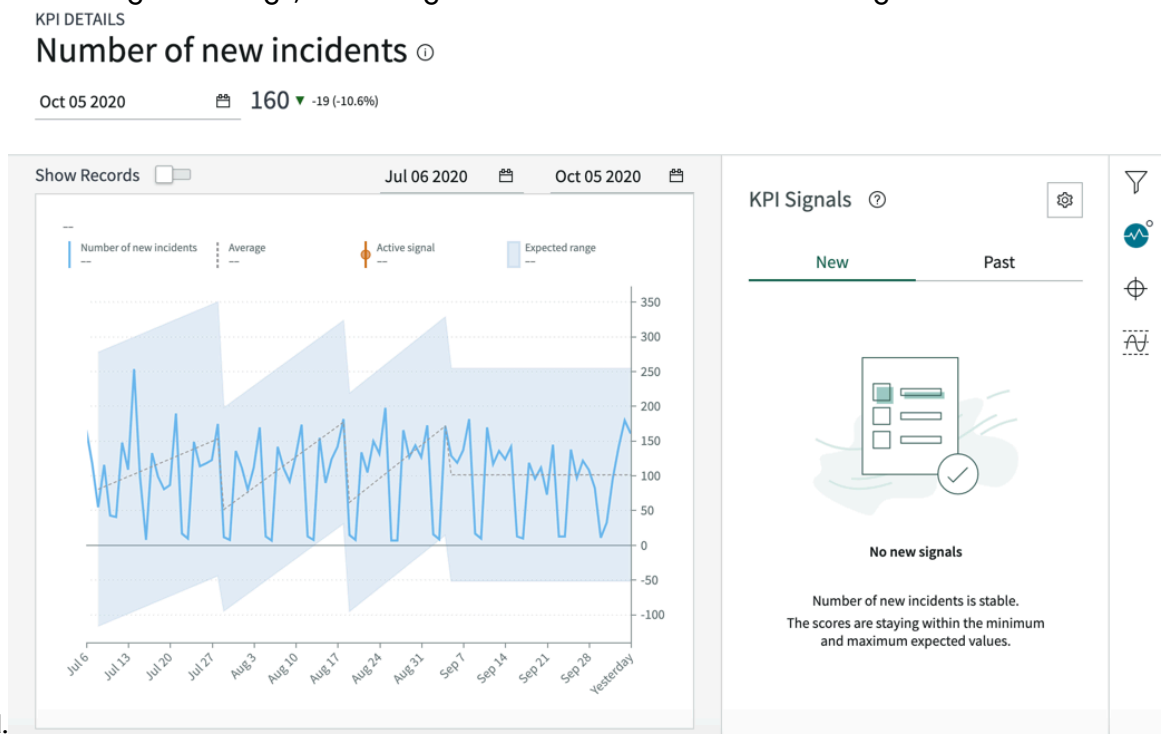
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Field	Description
	you deactivated monitoring, not the date you reactivated it.
Baseline start	The beginning date of the data points used to calculate the baseline. This date is based on the most recent resolved signal. If there never was a resolved signal, the date was set when monitoring on the KPI was first activated.
Number of scores for baseline calculation	The number of scores, or data points, that the application uses to calculate the baseline. The default number of scores for calculating the baseline depends on the indicator frequency. Do not change this number unless you are confident you have good reasons. The minimum number is five.
Trend method	The statistical method for calculating the baseline. Options are: ○ Linear trend, calculated by linear regression ○ No trend, just the average score

6. Click **Save**.

Example: Linear trend versus no trend

In the following example, the initial linear trend kept resulting in signals despite the average remaining stable. Following the signal in early September, signal detection was changed to "no trend." Following this change, the average remained stable and no further signals were detected.



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Configure responsibility for KPI Signals

Besides security access, a user needs a level of responsibility to act on a signal. Responsibility is granted for individual indicator/breakdown element combinations (KPIs) that the KPI Signals application monitors.

A KPI can have multiple responsible users.

Users with the admin, pa_admin, or pa_kpi_signal_admin role can reset a baseline or dismiss a signal without explicitly being a responsible user. Users with other roles must become responsible users to take such actions. These users also need a role that gives them access to a relevant workspace.

Responsible users get email notifications about the following:

- New signals
- Unresolved signals
- Actions to resolve signals
- "Anti-signals," which indicate that a KPI is long-term stable

Even responsible users without workspace access get these email notifications.

Related topics

Configure signal notifications

Assign responsibility for signals

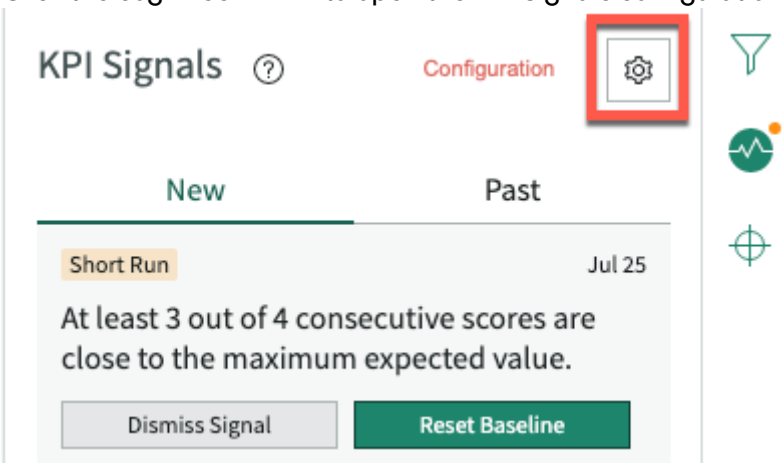
You can assign responsibility for KPI Signals for a KPI to yourself or someone else. You can also unassign responsibility.

Before you begin

Role required: Any role if a responsible user, or pa_admin or admin

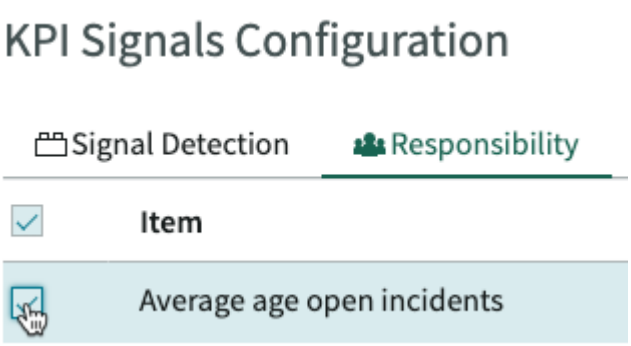
Procedure

1. Open KPI Signals for an indicator, as described in View KPI Signals.
2. Click the cogwheel  to open the KPI Signals configuration.



3. In the KPI Signal Configuration screen, open the **Responsibility** tab.
4. Select the KPI that you want to assign responsibility for.

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The user needs relevant workspace roles to view or act on signals. However, a responsible user without these roles still gets email notifications about unresolved signals or actions on signals.

5. In the **Editing configuration items** panel, open a list of users and select whom to assign responsibility to.
6. To unassign responsibility, click the x next to a user's name.
7. Click **Save**.

Configure signal notifications

As a responsible user, you receive email reminders about signals that have not been resolved. You can configure how frequently you get these reminders and the maximum number of reminders to get for a signal.

Before you begin

Role required: admin, or must be a responsible user

About this task

As a responsible user, you receive email notifications in the following circumstances:

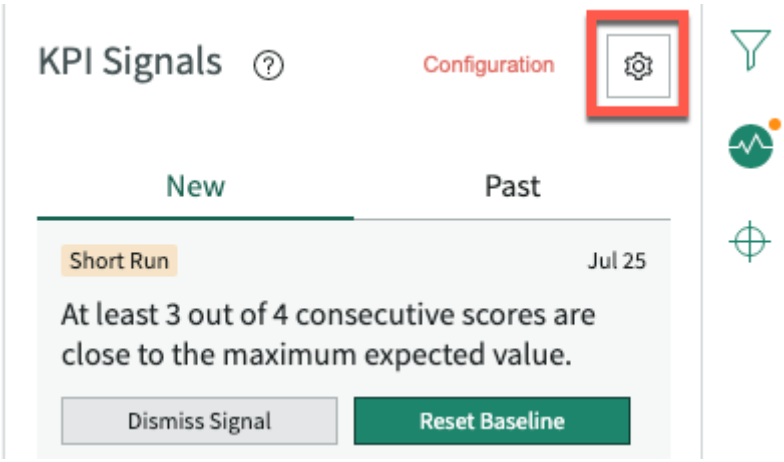
- A new signal is detected on a KPI that you are responsible for.
- No signal has been detected on a KPI long enough for it to be considered long-term stable (an "anti-signal").
- A signal for a KPI you are responsible for is resolved (baseline reset or dismissal).
- A signal for a KPI you are responsible for has not been resolved, according to subsequent signal collection jobs.

In this last case, you can set how frequently a KPI is checked for resolution. You can also set the maximum number of reminders you get.

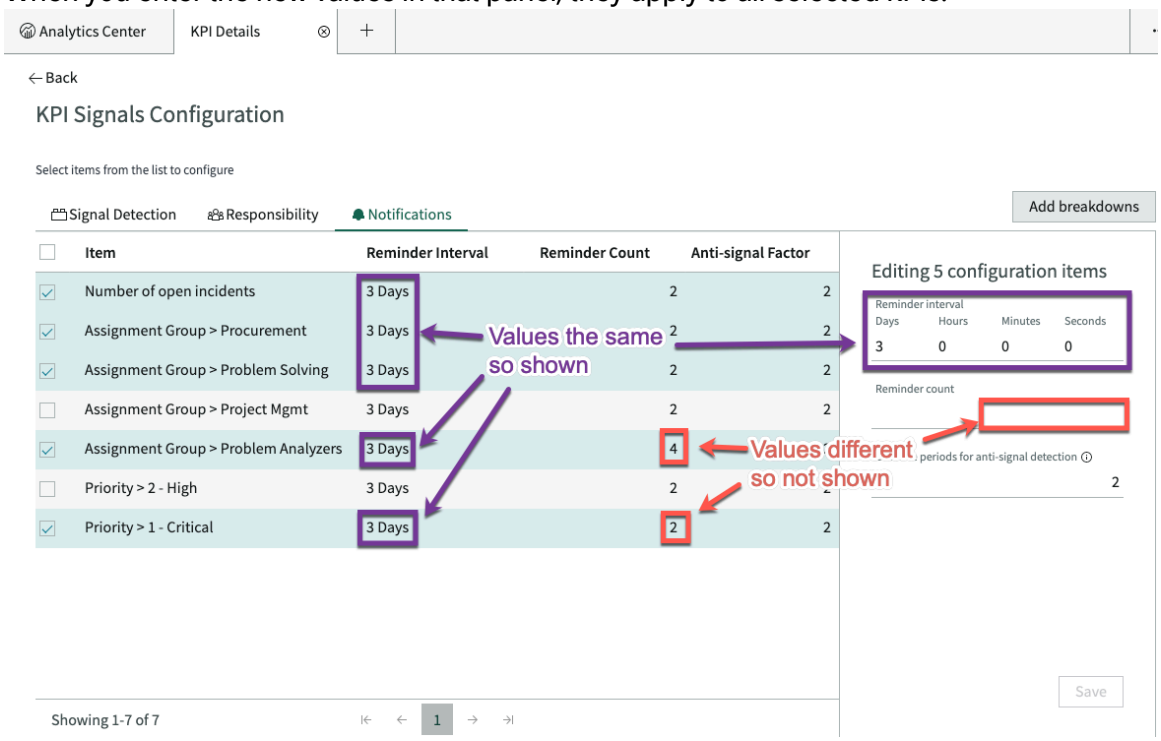
Procedure

1. Open KPI Signals for a KPI.
2. Click the cogwheel to open the Configuration options.

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3. Open the Notifications tab.
   You see a list of all the KPIs that you are responsible for on this indicator. KPI refers to the combination of the indicator with any breakdown elements.
4. Select the KPIs that you want to edit.
   If you select one KPI, its settings appear in the **Editing configuration items** panel. If you select more than one KPI, only the values that are the same for all these KPIs appear in the panel. When you enter the new values in that panel, they apply to all selected KPIs.



5. Set the interval between getting reminders about unresolved signals.
6. Set the count of the maximum number of reminders you want to receive about an unresolved signal.
7. Set the anti-signal factor.
   This factor helps determine when a KPI is stable enough to generate an "anti-signal," according to the following formula:

```
Length of time to calculate the baseline for the KPI *
 Anti-signal factor
```

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The default anti-signal factor is two. Set this factor if you decide it needs to be changed. For more information, see Signal, no signal, and anti-signal.

8. Click **Save**.

Configure signals for breakdown elements

Configure signal detection and assign responsibility for multiple breakdowns and breakdown elements on one indicator.

Before you begin

An administrator must activate KPI Signals for the indicator. For more information, see Activate KPI Signals monitoring for an indicator (KPI).

Role required: responsible user for the indicator or admin.

About this task

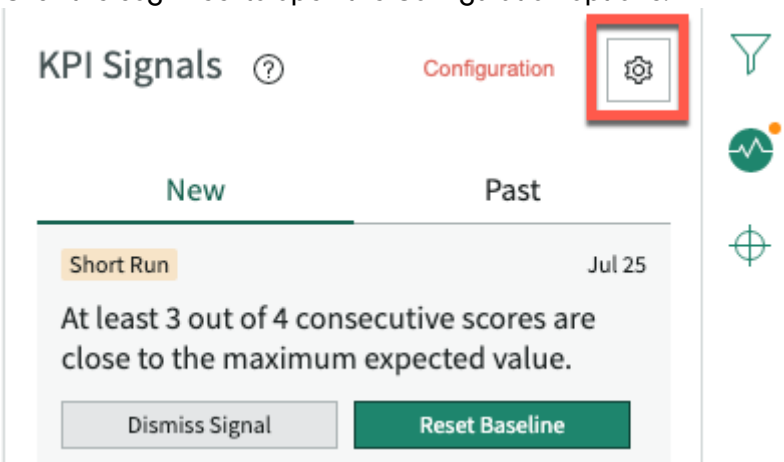
For example, KPI Signals could simultaneously monitor the following indicators and breakdowns:

- Number of open incidents (no breakdown)
- Number of open incidents, Priority = 1-Critical
- Number of open incidents, Priority = 2-High
- Number of open incidents, Category = Software

However, KPI Signals could not monitor "Number of open incidents, Priority = 1-Critical, Category = Software."

Procedure

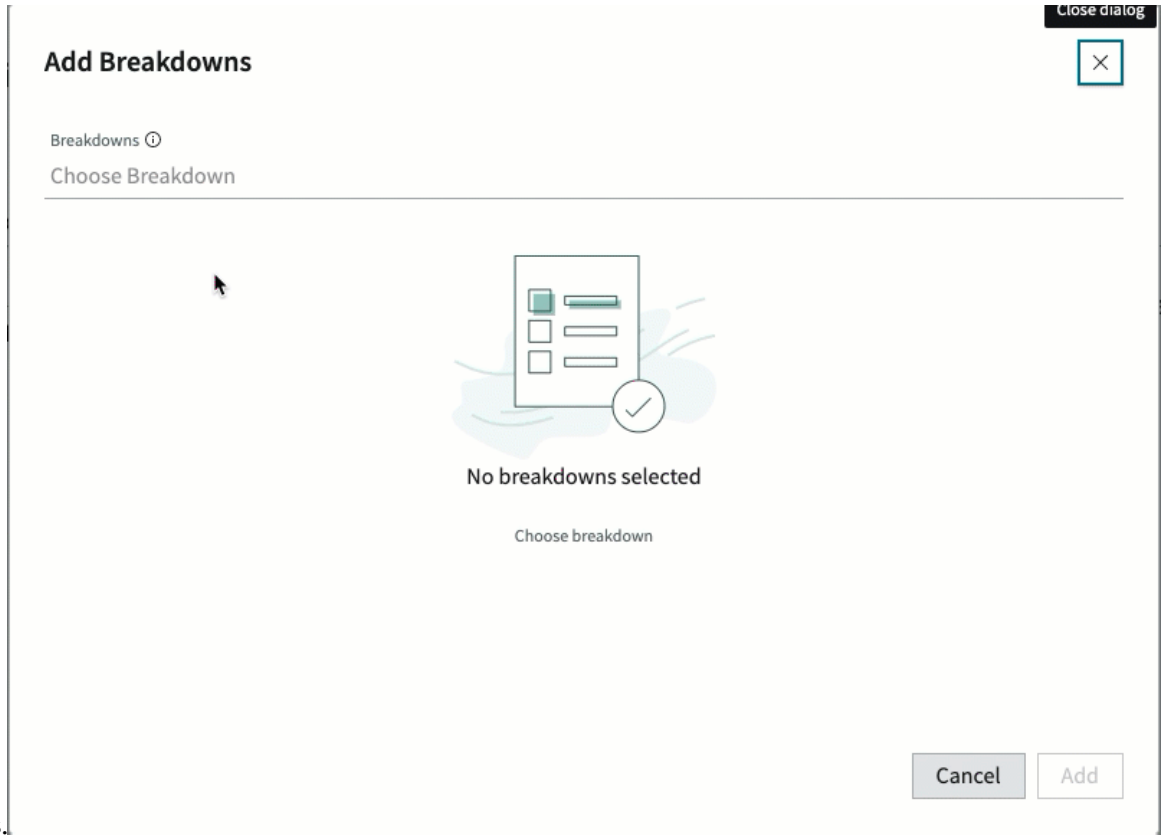
1. Open KPI Signals for the indicator, without first selecting a filtering breakdown in KPI Details.
2. Click the cogwheel to open the Configuration options.



3. Click **Add breakdowns**.
   The **Add Breakdowns** dialog opens.
4. Click in the Breakdowns field and select a breakdown.

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A list of elements for the breakdown



appears.

5. **Optional:** Click **Filter** and use the condition builder to build a filter for the elements.
6. Select at least one element and click **Add**
7. To monitor signals on elements of another breakdown, click **Add breakdowns** again and repeat the steps.
8. In the Signal Detection tab, activate monitoring for the KPIs and set the baseline start and number of scores required to calculate the baseline.
   For more information about the settings on the Signal Detection tab, see Configure signal detection.
9. Open the Responsibility tab and assign a responsible user to each KPI.
   For more information about responsible users and the settings on the Responsibility tab, see Configure responsibility for KPI Signals.
10. Open the Notifications tab and set how often the responsible user should get an email notification for an unresolved signal.
    You can also set the total number of reminders the responsible user gets for an unresolved signal. Also set the anti-signal factor, which is used to calculate how many scores without a signal result in an anti-signal. For more information about anti-signals, see Signal, no signal, and anti-signal. For more information about the settings on the Notifications tab, see Configure signal notifications.

KPI Signals automated detection jobs

The KPI Signals application includes jobs that detect signals automatically. These jobs run so responsible users can be notified of new signals without opening the application. The job for signals on formula indicators requires scheduling.

When you view an indicator in KPI Details and open the KPI Signals panel, that indicator is checked for signals. You therefore always have the most up-to-date signals. However, the KPI

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Signals application also has automated signal detection jobs. These jobs send notifications about signals to subscribed users without them having the application open.

For automated indicators, these jobs run whenever a data collection job runs. The KPI Signals application checks all indicator and breakdown element combinations that it is active for. The data collection jobs are domain specific, so the signals are also domain specific.

The situation is different for formula indicators. The formula in a formula indicator uses the scores of other indicators. These other indicators are referred to as contributing indicators. The scores of these indicators can be collected in different data collection jobs. Bear in mind the KPI Signals calculation uses the most recently detected contributing indicator scores. The KPI Signals job should run after the scores of all the contributing indicators have been detected.

To help you ensure that formula indicators are checked for signals at the right time, the KPI Signals application comes with a scheduled job: PA - KPI Signals - Formula Indicator Signals Calculation Job. This job has a default setting to run every 8 hours, but you have the possibility to optimize this timing.

Schedule the job to detect signals for formula indicators

Set the PA - KPI Signals - Formula Indicator Signals Calculation Job to run after all data detection jobs have run.

Before you begin

Review the Performance Analytics data detection jobs. Determine a time after these jobs have run that signals should be detected for formula indicators.

Note:
This procedure is optional. Modifying the job schedule can prevent lags between new scores and new signals on formula indicators. However, the default signal detection every 8 hours should not produce errors and may be sufficient for you.

Role required: admin.

Procedure

1. Navigate to **All** > **System Definition** > **Scheduled Jobs**.
2. Filter the list for jobs whose name contains `KPI Signals`.
3. Open the PA - KPI Signals - Formula Indicator Signals Calculation Job.
4. Modify the following fields to schedule the job:

Field	Description
Run	Frequency you want the job to run. The choice of subsequent fields depends on your setting in this field. By default, the job runs **Periodically**.
Day	Day you want the scheduled job to run. If you selected **Weekly** in the **Run** field, this field displays the days of the week. If you selected **Monthly** in the **Run** field, this field displays the days of the month.
Time	Time you want the scheduled job to start.

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Field	Description
Repeat Interval	Number of days and hours before the scheduled job runs again. This field appears when **Periodically** is selected from the **Run** list. By default, the job runs every 8 hours.
Starting	Date and time to start the periodic updates. This field appears when **Periodically** is selected from the **Run** list.

Disabling KPI Signals

KPI Signals can be disabled on request.

KPI Signals is activated by default. If you do not want this feature, request a ServiceNow AI Platform administrator to set the property *com.snc.pa.activate_kpi_signals* to *false*. Because this property does not exist by default, the administrator must add it. You can refer them to Add a system property.

Important:
If you reactivate KPI Signals, signal detection resumes from the time you originally deactivated the feature, not from the time you reactivated it.

Using KPI Signals

When a responsible user receives a signal notification, they either dismiss the signal or reset the baseline.

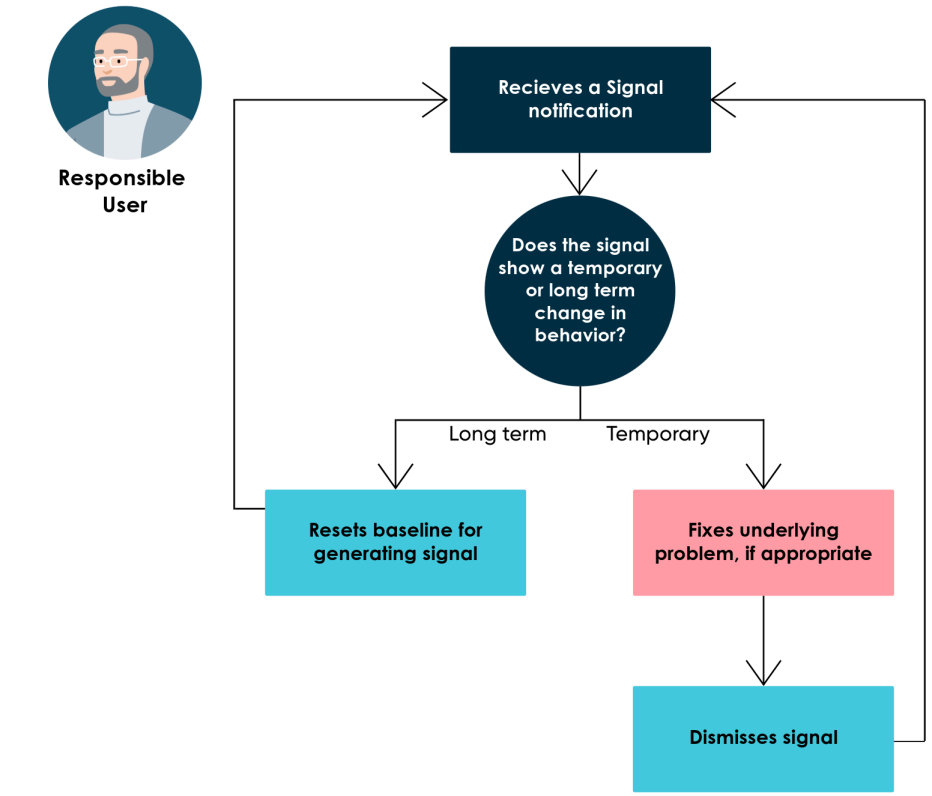
Overview of responses to KPI Signals notification

A responsible user evaluates the KPI Signals notification. If they determine that the underlying issue is a temporary problem, they fix the problem if appropriate and dismiss the signal. If they determine that the notification is due to a long-term change in the behavior of the underlying business process, they update the baseline that is used to generate a signal.

If it is later determined that it was a mistake to dismiss the signal or update the baseline, a responsible user can undo the action.

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Responses to a KPI Signals notification



1. Receive a notification from KPI Signals that an indicator should be examined.
2. Decide whether the signal is showing a temporary change, possibly due to a problem that can be corrected, or the signal is showing a long-term change in process behavior.
3. If the change is temporary, address the underlying problem, if appropriate, then dismisses the signal.
4. If the change is long-term, reset the baseline for generating the signal appropriately.
5. If the decision turns out to be incorrect, undo it.

Other use topics

Reset baseline or dismiss signal

When you get a signal that abnormal variation has occurred, either dismiss the signal or recalculate the parameters.

Before you begin

Role required: You must be a responsible user, unless you have the admin, pa_admin, or pa_kpi_signal_admin role.

About this task

Investigate the reason for the variation before deciding to reset the baseline or dismiss the signal. If you determine that the signal represents a "new normal," recalculate the baseline. If you determine that the signal is the result of a temporary circumstance, dismiss the signal.

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Procedure

1. Open KPI Signals from KPI Details.
   In the KPI Details page for an indicator, you see a notification dot on the KPI Signals tab. This dot tells you that you have a signal for the indicator. 

   Note:
   KPI Signals can detect signals for an indicator that is filtered on one first-level breakdown element. It does not support multiple elements or second-level breakdowns.

2. Examine the signal and investigate the business reasons behind this variation in process behavior.
   - If you determine that the signal shows a temporary change in behavior, click **Dismiss signal**. A temporary change in behavior may be due to a temporary change in circumstances, or due to a problem you are able to quickly correct.
   - If you determine that the signal shows a long-term, real change in the process behavior, click **Reset baseline**.
3. If you recalculate the baseline, fill in the following fields:

Field	Description
Reset from date	The date from which to begin calculating the new baseline. By default, this date is the first date of the signal. If the signal is irregular or followed immediately by more variation, consider a later start date.
Number of scores for baseline calculation	The default number of scores for calculating the baseline depends on the indicator frequency. Do not change this number unless you are confident you have good reasons. The minimum number is five.

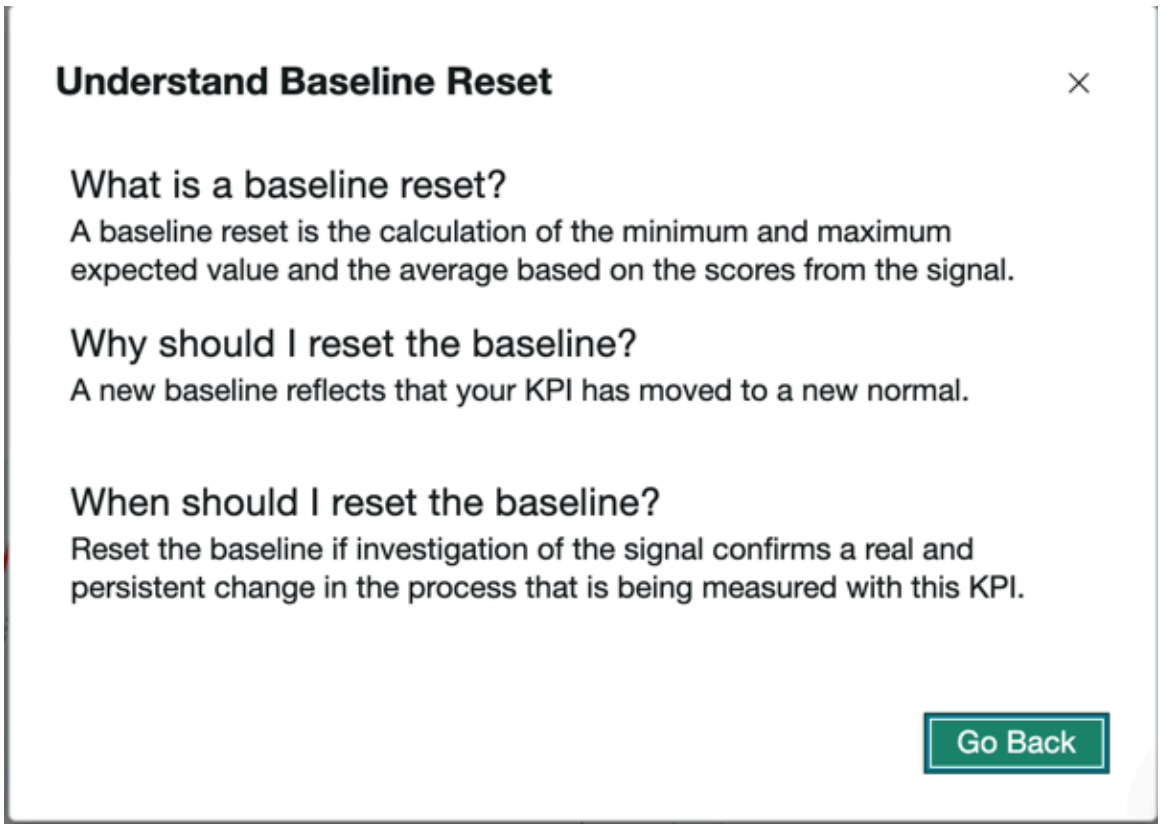
4. Whether you dismiss the signal or reset the baseline, give the reason for your decision.
   A required field labeled **What has changed?** appears in the KPI Signals panel. Briefly describe the results of your investigation into the signal.

   The reason for your decision appears when you view **Past** signals. It is key information for deciding whether to revert a signal dismissal or baseline reset.

5. Click either **Dismiss signal** or **Confirm**, to dismiss the signal, or reset the baseline, respectively.

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In the dialog for resetting the baseline, you can first click **How does it work?** Doing so opens a window with information about what a baseline reset is and when to perform one.



Result

If you reset the baseline, a message appears that the baseline is reset. You also see whether there is a more recent signal than the one you just handled. You can review the signals that you dismissed and your baseline resets in the **Past** tab.

Revert baseline reset or signal dismissal

Review previous decisions to reset the KPI Signals baseline or dismiss a signal. Revert the decision if necessary.

Before you begin

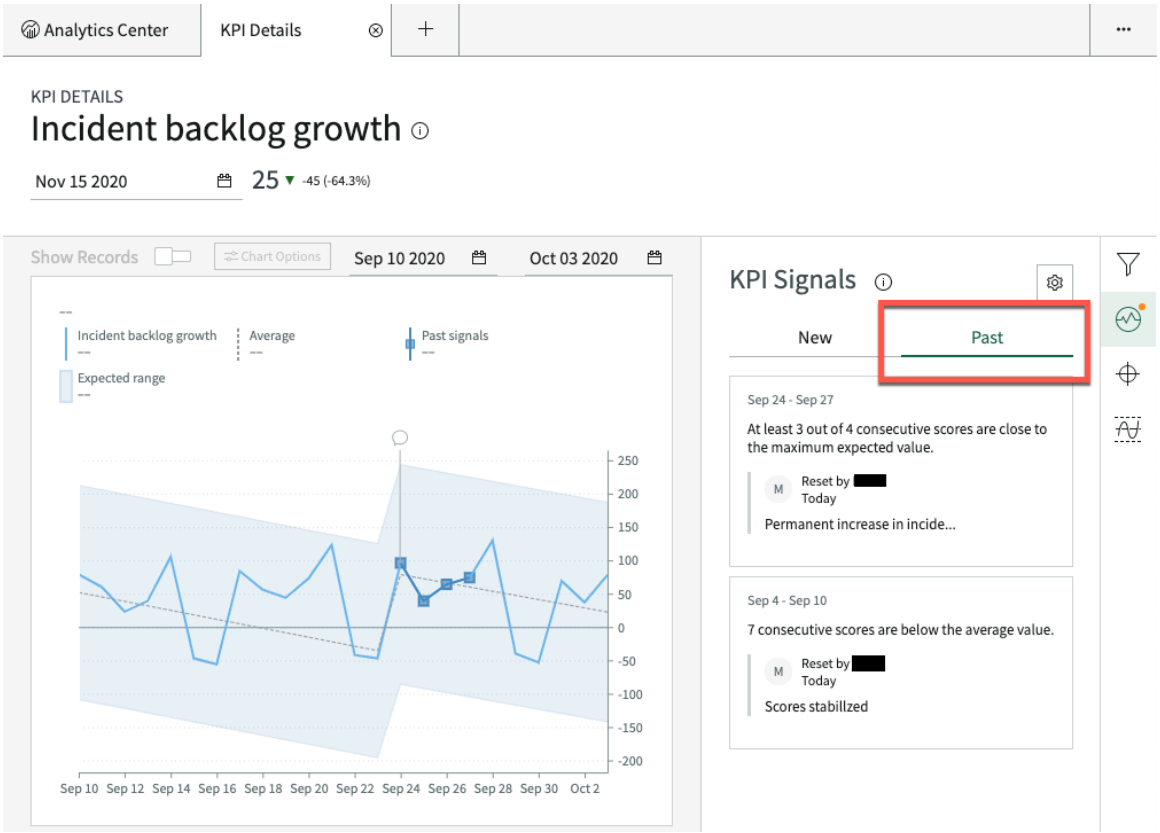
You must have access to KPI Details.

Role required: You must be a responsible user for the KPI, or have the admin, pa_admin, or pa_kpi_signal_admin role.

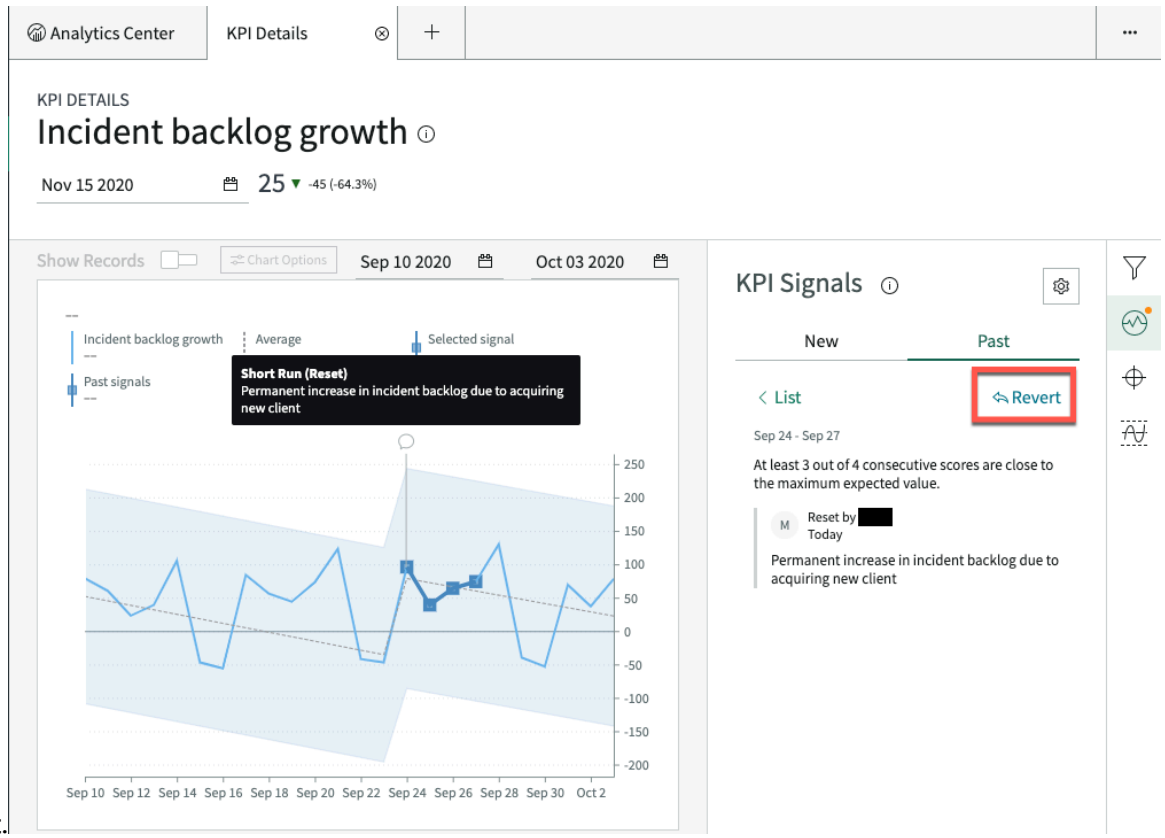
Procedure

1. From KPI Details, open the KPI Signals panel.
2. Switch to the **Past** tab.

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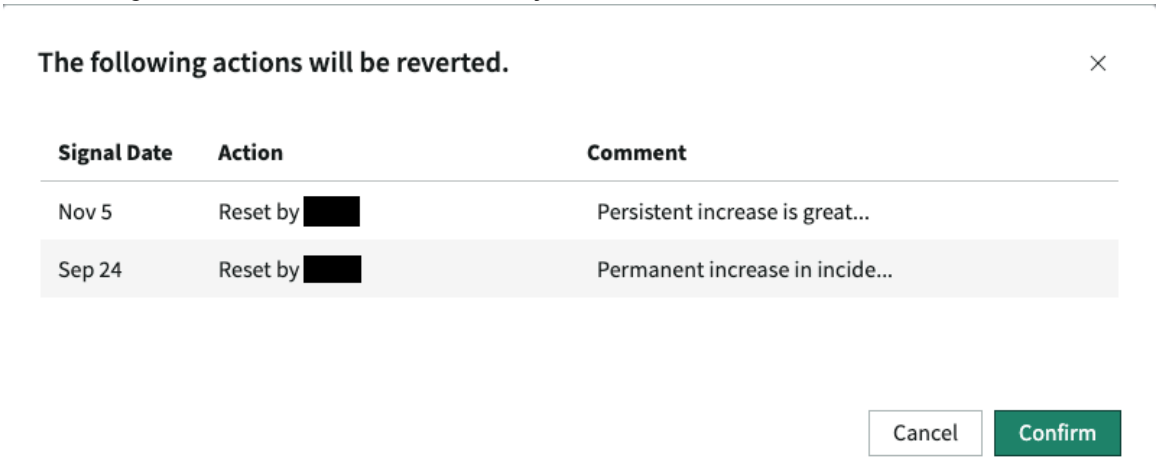
3. To focus on a baseline reset or a signal dismissal, click the card for that decision. You can also point to the callout for a signal to see the reason for its dismissal or for the baseline reset.



Note:
You cannot revert an anti-signal.

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4. If you determine that an earlier decision to dismiss a signal or reset a baseline was incorrect, click **Revert**.
5. Review the list of all decisions that you would revert.
   When you revert a signal dismissal or baseline reset, you also revert all later



   decisions.
6. If you decide to proceed with reverting the decisions, click **Confirm**.

What to do next

Now make a new decision for the oldest signal whose decision you reverted. Then work your way through any subsequent signals.

KPI Signals roles

The following roles apply to KPI Signals

Any role

A user with any role can be made responsible for receiving and responding to signal notifications for a specific indicator. This user can also configure signal detection and notification and assign responsibility for the indicators they are responsible for. They must also have access to the indicator.

pc_kpi_signals_admin

A user with this role or who inherits this role (via pa_admin or admin) can activate KPI Signals for an indicator. They can also configure signal detection and notification and assign responsibility for any indicator on the instance.

Platform Analytics experience reference

Resources shared across all features and applications in the Platform Analytics experience

Data caching in Platform Analytics

Data caching can help data visualizations load faster by reusing older responses when available. Users can always get the latest data by refreshing the dashboard manually.

Data caching could potentially speed up the load time of dashboards and data visualizations, especially for large datasets, for the following reasons:

- Caching can avoid long aggregation calculations when there have been no changes to the data.
- Caching can avoid aggregation calculations for users who have access to the same aggregated result data.

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- Caching can reduce the toll on the instance from long-running requests piling up.
- Caching may be suitable for use cases where users are more interested in the speed with which their dashboard loads than in the freshness of the data.

Supported data sources

Table and indicator data support caching.

Activating data caching

Before you activate data caching, the property *glide.analytics.cache.enabled* must be set to `true`.

In the inline dashboard editor, you can activate or deactivate data caching per dashboard. Caching then applies to all data visualizations on that dashboard that have a data source that supports it. For more information, see Configure Platform Analytics dashboard settings.

In the UI Builder, you can activate or deactivate data caching per data visualization. For an example, see the *useDataCache* property for either table or indicator data sources in Single Score UIB Setup.

In the UI Builder, you can also enable data caching for a local data instance of the table or indicator type. For more information, see Enable data caching for a local data instance.

Default dashboard caching

By default, new dashboards that you create in the inline editor do not have caching enabled. You have to enable caching per dashboard, as described in the previous section. However, you can change the default behavior so that all new dashboards that you create in the inline editor have caching enabled. To do so, set the property *glide.analytics.cache.enable_dashboard_default* to `true`.

If you set the default behavior to have caching enabled on new dashboards, consider whether you want to change the default expiration time. The default value for the default expiration time is 24 hours. You can set this value in the property *glide.analytics.cache.dashboard_default_value*. The options are 1, 2, 4, 8, 12, or 24 hours. When setting this value, consider the impact on data prefetching.

It is not possible to enable caching by default for data visualizations created in the UI Builder.

Prefetching data

The first loading of a dashboard does not have cached data to use, so can be subject to a slow load time. For example, the first time an IT agent logs in for the day, their cached data from the previous day has expired, so they must wait for the system to fetch data before any of their dashboards load. The prefetch mechanism addresses this issue for frequently used dashboards and data visualizations with long cache expiry times.

Prefetching keeps cache entries alive by refreshing the data automatically as the cache approaches expiry time, without any user interaction. A scheduled job looks for cache entries with prefetch enabled where the entry is due to expire in the next 30 minutes. The job collects all such records and queues them to be refreshed. After refreshing, the expiry time is reset. This scheduled job runs every 15 minutes, so that the table cleaner will not delete a valid cache entry that has not yet been processed.

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Prefetch settings and defaults

Prefetching is activated by default with settings chosen to balance minimizing system load with maximizing value to the user. An admin can change these values, but should do so with great caution and only for pressing reasons.

Property	Setting	Value	Notes
glide.analytics.cache.prefetch.min_age_in_seconds	Lower limit of cache expiration time [cacheExpirationTime] for data to be subject to prefetching	8 hours	Eight hours is the minimum safe lifespan of cached data for it to be prefetched. You may need to increase this value but should not decrease it.
glide.analytics.cache.prefetch.max_refresh_counter	Number of consecutive times data is prefetched without a cache hit before prefetching stops for this data	10	Prefetching is meant for frequently used data. In order to reduce system load, if data is prefetched 10 times in a row without a user looking at the data, prefetching ceases. The data then follows default cache behavior and will reload when next viewed. The default value was

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Property	Setting	Value	Notes
			selected to cover weekends. You may need to decrease this value but should not increase it.

Platform Analytics roles

Platform Analytics has both unique roles and roles from other applications that apply to it.

Users with any role

Users with any role can create visualizations in dashboards that they have editing rights to. They need access to the data that they wish to display. They can add data visualizations that have been shared with them to their dashboards. In the Visualization Designer, they can bookmark or export such visualizations, and if a visualization has been shared with them with sharing rights, they can share it with other groups and users. Specific roles are needed to create or edit visualizations in the Visualization Designer.

Users with any role can create dashboards and share them with groups, users, and roles. If a data visualization has been shared with them, they can add this visualization to their dashboards from the library. These users can share a dashboard that has been shared with them if sharing rights were also granted. They can pass along editing rights if granted.

User groups

Simplify user administration by creating groups that contain all the roles necessary for specific personas rather than to individual users. You can then assign individual users to those groups. When users transition to new roles, you can then re-assign their group memberships, and avoid scenarios where users retain unexpected roles.

For details on the administration of users, groups, and roles, see User Administration.

Role description

The following table provides the following information about each role associated with Platform Analytics.

Role name

Name of the role from the **Name** field in the Roles [sys_user_role] table.

Description

Description of the role and its intended use.

Contains Roles

List of roles contained within the role.

Contained by roles (except admin)

Any roles, besides admin, that contain the role. The admin role contains all the roles.

The following attributes are shared by all of the roles:

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- None of the roles are assigned to a group by default.
- None of the roles require users to be allocated as part of a paid subscription, although a paid subscription is required for most Performance Analytics functionality.
- None of the roles are elevated, meaning none grant access to High Security Settings.
- All of the roles are included in the base system, except for analytics_admin and sn_process_optimization_analyst, which are included with User Experience Analytics and Process Mining, respectively.

Tip:
Try to assign the least inclusive role that still provides the necessary access. For example, if you want a user to be able to create data visualizations in the library and share them with users, but not schedule their export, grant that user viz_creator and not viz_admin.

Role name	Description	Contains Roles	Contained by roles (besides admin)
admin	Can create dashboards. Can create data visualizations in the Visualization Designer, which are automatically saved to the Library. Can edit, duplicate, share, and delete any dashboard and data visualizations. Can add filters to the filter library or edit or delete any filter. Has User Experience Analytics administrator privileges.	All other roles in this table	Not applicable
platform_analytics_admin	Role for administrative privileges in the Platform Analytics experience. This role includes administrative privileges for products and features that are part of Platform Analytics, including Performance Analytics and User Experience Analytics. Has the rights of all roles listed here except report_admin rights to Core UI reports.	• analytics_admin • analytics_categories_admin • analytics_filter_admin • dashboard_admin • pa_admin • par_scheduler • viz_admin	None

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Role name	Description	Contains Roles	Contained by roles (besides admin)
	Equivalent to admin role from a security perspective.		
analytics_admin	Role for User Experience Analytics administrative privileges	All other User Experience Analytics admin and viewer roles. For more information, see Roles installed with User Experience Analytics.	platform_analytics_admin
analytics_categories_admin	Role for creating, editing, or deleting category tags on dashboards.	None	• platform_analytics_admin • dashboard_admin
analytics_filter_admin	Role for editing or deleting any Platform Analytics filter. Can add filters to the filter library. For more information, see Filters in Platform Analytics.	None	• platform_analytics_admin • dashboard_admin • pa_admin • report_admin • viz_admin
dashboard_admin	Can create, edit, duplicate, share, and delete any dashboard. These rights extend to both Platform Analytics and responsive dashboards. For more information, see Dashboard permissions. Can schedule the export of all dashboards on an instance. Can also delete scheduled exports.	• analytics_filter_admin • analytics_categories_admin • sn_par_sche_export.par_scheduler_admin • par_scheduler	platform_analytics_admim
now_assist_explorer_user	• Can view the trigger point to start a AI Data Explorer exploration from data visualizations, Lists, or the Now Assist panel.		

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Role name	Description	Contains Roles	Contained by roles (besides admin)
	• Can edit an exploration. • Can create a new exploration		
pa_kpi_signal_admin	Can activate KPI Signals for an indicator. For more information, see Activate KPI Signals monitoring for an indicator (KPI).	None	None. However, pa_admin has the same privileges
pa_admin	Role for Performance Analytics administrative privileges. Equivalent to admin role from a security perspective.	• viz_admin • analytics_filter_admin • All other Performance Analytics roles. For more information, see Performance Analytics roles.	platform_analytics_admin
par_scheduler	Can create and edit the scheduled email distribution of any dashboard or data visualization they can view or edit	None	sn_par_sche_export.par_scheduler_adı
sn_par_sche_export.par_scheduler_admin	Same as par_scheduler, but has full CRUD rights to the par_export table, including deletion	par_scheduler	• dashboard_admin • viz_admin
sn_process_optimization_analyst	Can configure a Process Mining map on a dashboard. For more information, see Configure a Process Mining map on a dashboard.	None	None
viz_creator	Can create data visualizations in the Visualization Designer, which are then available in the library. Can also edit, export, and share data visualizations in the Visualization	None	• viz_admin (implicit) • itil • report_user

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Role name	Description	Contains Roles	Contained by roles (besides admin)
	Designer, if they own that visualization or have had it shared with them with the relevant rights. Can only delete visualizations that they created. Can share visualizations only with groups and users.		
viz_admin	• Can create data visualizations in the Visualization Designer, which are then available in the library. • Can access all data visualizations in the library, either to add to a dashboard or open in the Visualization Designer. • Can perform all actions in the Visualization Designer on any visualization. • Can share a visualization with groups, users, or roles. • Can schedule the export of all data visualizations on an instance. Can also delete scheduled exports.	• analytics_filter_admin • sn_par_sche_export.par_scheduler_admin Also includes the same privileges as viz_creator	• platform_analytics_admin • pa_admin • pa_power_user
report_admin	As viz_admin, but can also create, edit, delete, and export all Core UI reports, including those on the Service Portal.	• viz_admin • analytics_filter_admin • report_user	

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The role hierarchy in the table is also shown in the following

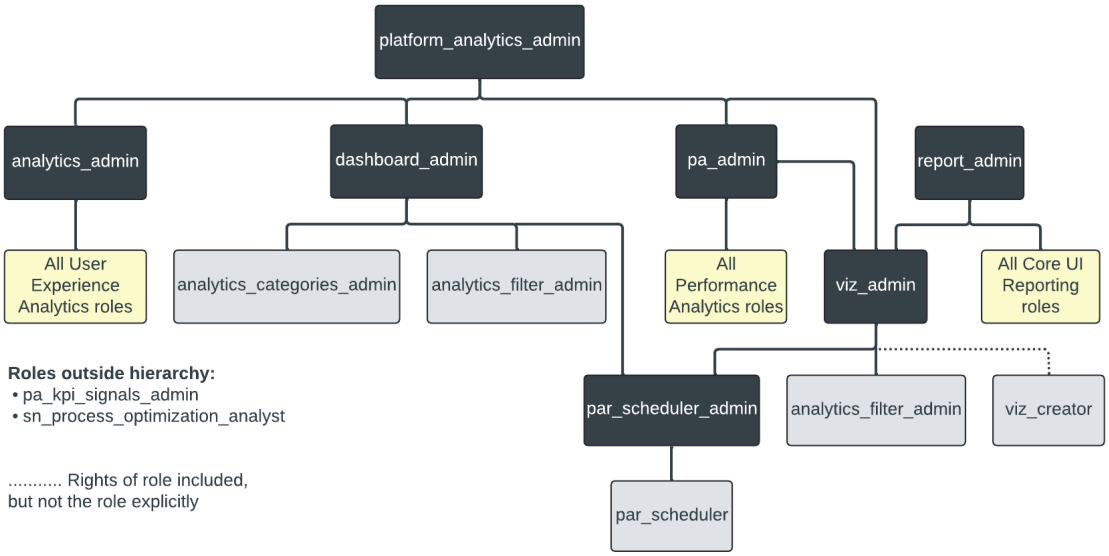


diagram:

Role lookup by use case

Dashboard roles

Use case	Required role
Create a dashboard	Any role
Share a dashboard	Any role to share a data visualization that you created or that was shared with you with sharing rights. With the viz_admin role or higher, you can share any data visualization on the instance. When you share a data visualization, you can pass along the rights to share that visualization further. You also decide whether to share with editing rights or only viewing rights. If a data visualization has been shared with you with sharing and editing rights, you can also pass along editing rights. dashboard_admin to share any dashboard A role with read access to the Roles [sys_user_role] table to share with roles
Edit a dashboard	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard Technical dashboards also require ui_builder_admin
Duplicate a dashboard	Any role, if you can view the dashboard. You cannot duplicate technical dashboards.
Create a printer-friendly copy of a dashboard	Any role, if you can view the dashboard.

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Dashboard roles (continued)

Use case	Required role
Export a dashboard	Any role, if you can view the dashboard.
Schedule the export of a dashboard	par_scheduler for dashboards that you own or that have been shared with you. dashboard_admin or higher for any dashboard
Delete the scheduled export of a dashboard	sn_par_sche_export.par_scheduler_admin (contained in dashboard_admin)
Bookmark a dashboard	Any role, if you can view the dashboard.
Delete a dashboard	Any role, if you created the dashboard. dashboard_admin or higher for any dashboard
Configure dashboard details	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard
Configure dashboard settings except scheduled refreshes	Any role, if you created the dashboard or have had it shared with you with editing rights. dashboard_admin or higher for any dashboard
Schedule dashboard refreshes	dashboard_admin or higher
Configure dashboard tab cache timeout	admin
Create dashboard categories	analytics_categories_admin or higher
Assign categories to a dashboard	Any role, if you can edit the dashboard. analytics_categories_admin or higher to assign a category to any dashboard.

Data visualization roles

Use case	Required role
Create a data visualization	Anyone with access to data can create a visualization of that data on a dashboard that they own. Users with the viz_creator role can create a visualization in the Visualization Designer. If you create a visualization in the Visualization Designer, it is saved to the library.
Edit a data visualization	You can edit any visualization that you created or that was shared with you with editing rights, if it is not in the library. If it is in the library, you also need the viz_creator role. Edit any visualization on the instance with viz_admin or higher.

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Data visualization roles (continued)

Use case	Required role
Add a visualization from the library to a dashboard	Any role, if the visualization has been shared with you. viz_creator to add any visualization from the library.
Add a visualization that was created in a dashboard to the library	viz_creator or higher and the right to edit the dashboard
Unlink a data visualization on a dashboard from the library, creating a version that is local to that dashboard.	Any role, if you can edit the dashboard containing the visualization
Duplicate a visualization in the Visualization Designer	viz_creator or higher
Share a visualization with users or groups	Any role to share a data visualization that you created or that was shared with you with sharing rights. With the viz_admin role or higher, you can share any data visualization on the instance. When you share a data visualization, you can pass along the rights to share that visualization further. You also decide whether to share with editing rights or only viewing rights. If a data visualization has been shared with you with sharing and editing rights, you can also pass along editing rights.
Share a data visualization with roles	viz_admin or higher
Export a visualization	Any role, if you can view the visualization in the Visualization Designer.
Schedule the export of a data visualization	par_scheduler or higher to schedule the export of a data visualization that you can edit. viz_admin or higher to schedule the export of any data visualization on the instance.
Delete the scheduled export of a data visualization	sn_par_sche_export.par_scheduler_admin (contained in viz_admin)
Delete a visualization	Any role, to delete a data visualization that you created. viz_admin or higher to delete any data visualization on the instance.
Control data source availability by role	admin
Configure chart interactions	Any role if you have the right to edit the data visualization. The viewer needs the right to view any data they drill down to.
Use service catalog variables in data visualizations	viz_creator or higher
Create coloring rules for data visualizations	Any role if you have the right to edit the data visualization.

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Filter roles

Use case	Role
Add a filter or a filter group to a dashboard	Any role, if the user has editing rights to the dashboard. dashboard_admin or higher to add a filter or filter group to any dashboard
Edit a filter on a dashboard	Any role, for a filter that is not in the library, if the user has editing rights to the dashboard. analytics_filter_admin or higher is also needed if the filter is in the library. Alternatively, the user can detach the filter on the dashboard from the library and edit a local copy.
Add a local filter on the dashboard to the library	analytics_filter_admin or higher, and editing rights to the dashboard
Create or edit a filter in the Filter Designer	analytics_filter_admin or higher

Miscellaneous roles

Use case	Role
Configure a Process Mining map on a dashboard	sn_process_optimization_analyst
Activate KPI Signals monitoring for an indicator (KPI)	pa_kpi_signal_admin
Create or edit an exploration in AI Data Explorer	now_assist_explorer_user

Related topics

- Performance Analytics roles
- Roles installed with User Experience Analytics
- Reporting roles
- Creating dashboards and other common dashboard tasks
- Common data visualization tasks

Platform Analytics tables

The following tables relate to Platform Analytics data visualizations and dashboards and can be accessed through scripts.

Data visualization tables

Table	Description
par_component	Contains all data visualizations in the visualization library and all filters in the filter library. Extends sys_metadata.

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Table	Description
par_component_permission	Contains the role, group, and user permissions for all data visualizations and filters in their respective libraries.
par_export	Lists all scheduled dashboard and data visualization exports. Extends sys_metadata.
par_export_job	Stores details of every attempt to export a dashboard or data visualization.
par_export_visualization	Stores the export details of all scheduled data visualization exports. Extends par_export.
par_metadata	Stores the metadata for each data visualization type.
par_notification	Lists email notification definitions of scheduled dashboard and data visualization exports. Extends sys_metadata.
par_notification_email	Stores metadata of scheduled dashboard and data visualization export emails, including subject and message. Extends par_notification.
par_notification_email_recipients	Stores groups and users who receive a notification email with a scheduled dashboard and data visualization export. Contains the non-metadata information for the emails.
par_visualization	Contains all data visualizations in the visualization library. Extends par_component.
par_visualization_permission	Contains the role, group, and user permissions for all data visualizations in the visualization library. Extends par_component_permission.

Dashboard tables

Table	Description
par_automated_kpi_promin_project	Stores references to Process Mining maps that are on Platform Analytics dashboards.
par_computed_insight	Contains all standard proactive analytics insights
par_custom_insight_content	Contains all custom-built proactive analytics insights
par_dashboard	Contains all dashboards in the dashboard library. Technical dashboards can be identified by belonging to the Advanced Dashboards experience. Extends sys_metadata.
par_dashboard_cache	Stores all changes to Platform Analytics dashboard layouts.

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Table	Description
par_dashboard_canvas	Stores the names, descriptions, and layouts of Platform Analytics dashboards and dashboard tabs. Extends sys_metadata.
par_dashboard_config	Contains the macroponent definitions for each type of data visualization that you can create inside a dashboard. Extends sys_metadata.
par_dashboard_configuration	Contains the macroponent definitions for each type of data visualization that you can create inside a dashboard. Extends sys_metadata.
par_dashboard_filter	Lists all filters on Platform Analytics dashboards and the name of the dashboard.
par_dashboard_permission	Contains the role, group, and user permissions for all dashboards in the dashboard library. Extends sys_metadata.
par_dashboard_tab	Contains the name, domain, application scope, and parent dashboard of all Platform Analytics dashboard tabs. Extends sys_metadata.
par_dashboard_user_metadata	Contains all options set by a dashboard viewer that persist between that viewer's user sessions. Extends sys_metadata.
par_dashboard_visibility	Cross-references all dashboards in the library by which experiences and workspaces contain them. Extends sys_metadata.
par_dashboard_widget	Cross-references all components that appear on dashboards by the dashboard canvas and the library component, if any. Extends sys_metadata.
par_export	Lists all scheduled dashboard and data visualization exports.
par_export_dashboard	Stores the export details of all scheduled dashboard exports. Extends par_export.
par_export_job	Stores details of every attempt to export a dashboard or data visualization.
par_indicator_model	Contains recommendations related to Performance Analytics analytics in proactive analytics insights.
par_insight_user_actions	Stores actions that viewers took on proactive analytics insights.
par_notification	Lists email notification definitions of scheduled dashboard and data visualization exports.
par_notification_email	Stores subject line and message body of scheduled dashboard and data visualization export emails. Extends par_notification.

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Table	Description
par_notification_email_recipients	Stores groups and users who receive a notification email with a scheduled dashboard and data visualization export.
par_recommendation	Stores recommendations of Process Mining projects to create. These recommendations are given through Process Mining insights.
par_recommendation_user_action	Stores whether users accepted or dismissed a Process Mining insight recommendation.

Now Assist in Platform Analytics

Platform Analytics includes several applications that leverage AI to generate insights into data.

Get started

Now Assist Explorer	Platform Analytics in the Now Assist Panel	Query Generation
Ask quick questions, receive tailored recommendations, and collaborate with AI and your colleagues to build long-term analysis.	Generate and export Platform Analytics artifacts from conversational interactions.	Shared backend for interpreting natural language questions as database queries and returning responses

Use AI to explore data with AI Data Explorer

AI Data Explorer is your AI-companion for instant insights and deep data explorations. Ask quick questions, receive tailored recommendations, and collaborate with AI and your colleagues to build long-term analysis.

https://player.vimeo.com/video/1162346463?h=00efb3fe00&badge=0&autopause=0&player_id=0&app_id=58479

See how to launch AI Data Explorer, ask questions in an exploration, and share the resulting insights with other users.

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Get started

Explore	Configure
 Overview of AI Data Explorer	 Enable AI Data Explorer and supplementary skills for an instance
Use	**Reference**
 Create data visualizations and share them with collaborators	 Roles, tables, and domain separation support

Important:

- Not all model providers are available for customers with in-country SKUs, and some Now Assist products/features are currently unavailable for in-country customers. For more information, see the KB1584492 article in the Now Support Knowledge Base. Be sure to check for model provider availability updates in future releases.
- Some Now Assist products/features are currently unavailable for customers in the FedRAMP, NSC DOD IL5, or Australia IRAP-Protected data centers, self-hosted customers, or in other restricted environments. For more information, see the KB0743854 article in the Now Support Knowledge Base . Be sure to check for availability updates in future releases.
- Some Now Assist products/features are currently available only for customers in some regions. Be sure to check for availability updates in future releases.
- Some AI products and skills are not available in Regulated Markets. For more information, see KB2593939: Regulated Markets AI Products/Skills Not Available. Be sure to check for availability updates in future releases.

AI limitations

This application uses artificial intelligence (AI) and machine learning, which are rapidly evolving fields of study that generate predictions based on patterns in data. As a result, this application may not always produce accurate, complete, or appropriate information. Furthermore, there is no guarantee that this application has been fully trained or tested for your use case. To mitigate these issues, it is your responsibility to test and evaluate your use of this application for accuracy, harm, and appropriateness for your use case, employ human oversight of output, and refrain from relying solely on AI-generated outputs for decision-making purposes. This is especially important if you choose to deploy this application in areas with consequential impacts such as healthcare, finance, legal, employment, security, or infrastructure. You agree to abide by ServiceNow's AI Acceptable Use Policy, which may be updated by ServiceNow.

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Data processing

This application requires data to be transferred from ServiceNow customers' individual instances to a centralized ServiceNow environment, which may be located in a different data center region from the one where your instance is, and potentially to a third-party cloud provider, such as Microsoft Azure. This data is handled per ServiceNow's internal policies and procedures, including our policies available through our CORE Compliance Portal.

Data collection

ServiceNow collects and uses the inputs, outputs, and edits to outputs of this application to develop and improve ServiceNow technologies including ServiceNow models and AI products. In addition, this application will collect information from tables that will be used to generate analytics. For example, information from the Incident table could be collected for requests for incident data visualizations. Customers can opt out of future data collection at any time, as described in the Now Assist Opt-Out page.

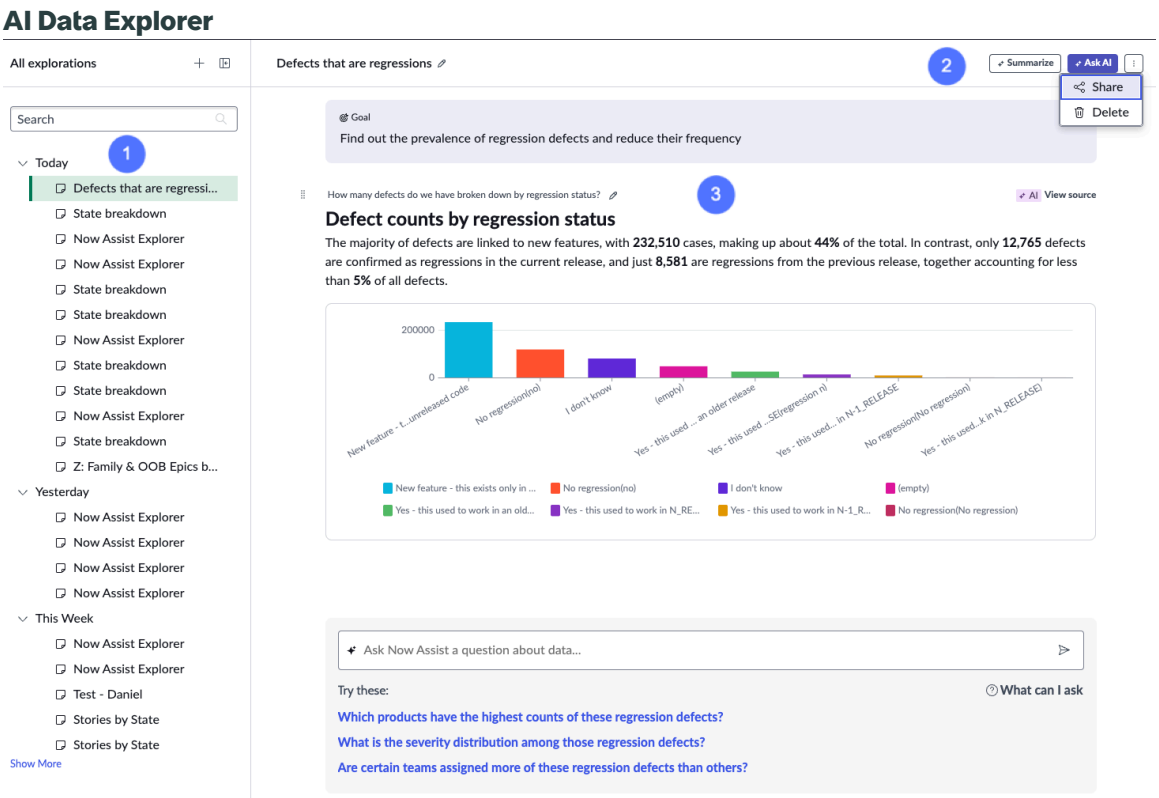
For more information, see the Now Assist documentation.

Understanding AI Data Explorer

AI Data Explorer is your AI companion for instant insights and deep data explorations. Ask quick questions, receive tailored recommendations, and collaborate with AI and your colleagues to build long-term analysis.

AI Data Explorer overview

The objective of AI Data Explorer is to bring your thoughts into one place by empowering users to explore, generate interesting findings, and collaborate seamlessly. This is achieved through an AI-assisted, interactive exploration that serves as a centralized space for data-driven decision making.



AI Data Explorer can be divided into the following sections:

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- 1 Exploration list. Expand or hide the list with the show/hide icon . The list shows all explorations that you own or that have been shared with you. You can also create a new exploration with the plus (+) icon.
- 2 Title and action bar. This section includes an editable title for the exploration, buttons for summarizing the exploration and asking a question about data, and a More Options menu for sharing and deleting the exploration. It also shows which other users are currently in the exploration. You can share an exploration only if you own it or it has been shared with you with sharing rights.
- 3 Exploration content. This section displays the results of data exploration queries. The results typically include a data visualization or list and a summary of the contents of that visualization or list. The exploration can also include its purpose or "goal" and any text that the participants have added, such as a discussion about the results.

AI Data Explorer users

Users

User	Description
Exploration creator	Creates new explorations. Sets the goal of the exploration. Generates the first graphics. Can use the exploration just for themselves, or can invite participants and viewers, who must have access to the data in generated data visualizations. Must have the now_assist_explorer_user role or higher.
Exploration participant	Anyone with whom the exploration is shared with editing rights. Must also have the now_assist_explorer_user role or higher. Can generate more data visualizations or write commentary. May be able to share the exploration further.
Exploration viewer	Anyone with whom the exploration is shared either without editing rights or without the now_assist_explorer_user role or higher. A viewer cannot ask questions of the AI or add text to the exploration, but they can read it.

AI Data Explorer benefits

- AI-Guided insights: Gain insights using natural language queries, with AI guiding your analysis and suggesting the next questions to explore.
- Document Editing and Organization: Collect insights in a single document. Edit, organize, and add your own thoughts for a comprehensive understanding.
- Collaboration with Other Users: Work together in a shared space to refine analyses, align on insights, and drive data-driven decisions with ease.
- Seamless integration with all applications: Trigger Now Assist explorer from any list or data visualization to ask questions about the data in your experiences.

What to explore next

To learn more about configuring and using AI Data Explorer, see:

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- Activate AI Data Explorer skills
- Using AI Data Explorer
- AI Data Explorer reference

Configure AI Data Explorer

Activate the AI Data Explorer skills. If necessary, you can disable AI Data Explorer on specific workspaces.

AI Data Explorer implementation checklist

Complete these steps to enable AI Data Explorer and verify that the semantic layer is configured correctly for your organization.

Use this checklist to verify that AI Data Explorer is properly configured and ready for use in your organization.

Prerequisites and configuration

- Verify that required AI skills are activated.
- Enable Record Level Analysis in the Analytics Exploration skill to get better insights.
- Check the base health of Query Generation using the Health page.
- Confirm that AI Search is active.
- Verify that the Semantic Layer is built. Entities and dimensions should not be 0.

Testing and validation

1. Navigate to **AI Data Explorer** from the main menu.
2. Try a simple question such as "Open incidents" to verify end-to-end functionality.
3. Verify that tables you want to use are added to the semantic layer. Task extended tables and some base tables are added by default, but custom tables that are not task-based might need to be added manually.
4. To check if a table is already in the semantic layer, navigate to **Query generation** > **Entities**. If the table is in the list and marked as active, it is already configured.

User access

Grant users who need access to AI Data Explorer the *now-assist-explorer-user* role.

General usage guidelines

- Use short, simple questions for best results.
- Only simple analytical questions are supported. Questions should be answerable with a single chart or single data source.
- AI Data Explorer cannot answer general definition questions or questions requiring comparison across multiple data sources. Break down complex analysis into multiple questions.
- When asking follow-up questions, use words like "these" to ensure filters are not dropped. For example, "Of these incidents, how many are critical?"

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Activate AI Data Explorer skills

Enable AI Data Explorer skills under Now Assist skills for Platform to give users AI-assisted, shared spaces to explore data.

Before you begin

Install the AI Data Explorer application from the ServiceNow® Store. The correct Workflow Data Fabric entitlement is required, along with Yokohama Patch 11 or higher.

The Query Generation skills "analytics query generation," "analytics insight generation," "analytics hidden insight generation," and "analytics follow-up generation" are required. These skills are active by default. For more information, see Query Generation skills.

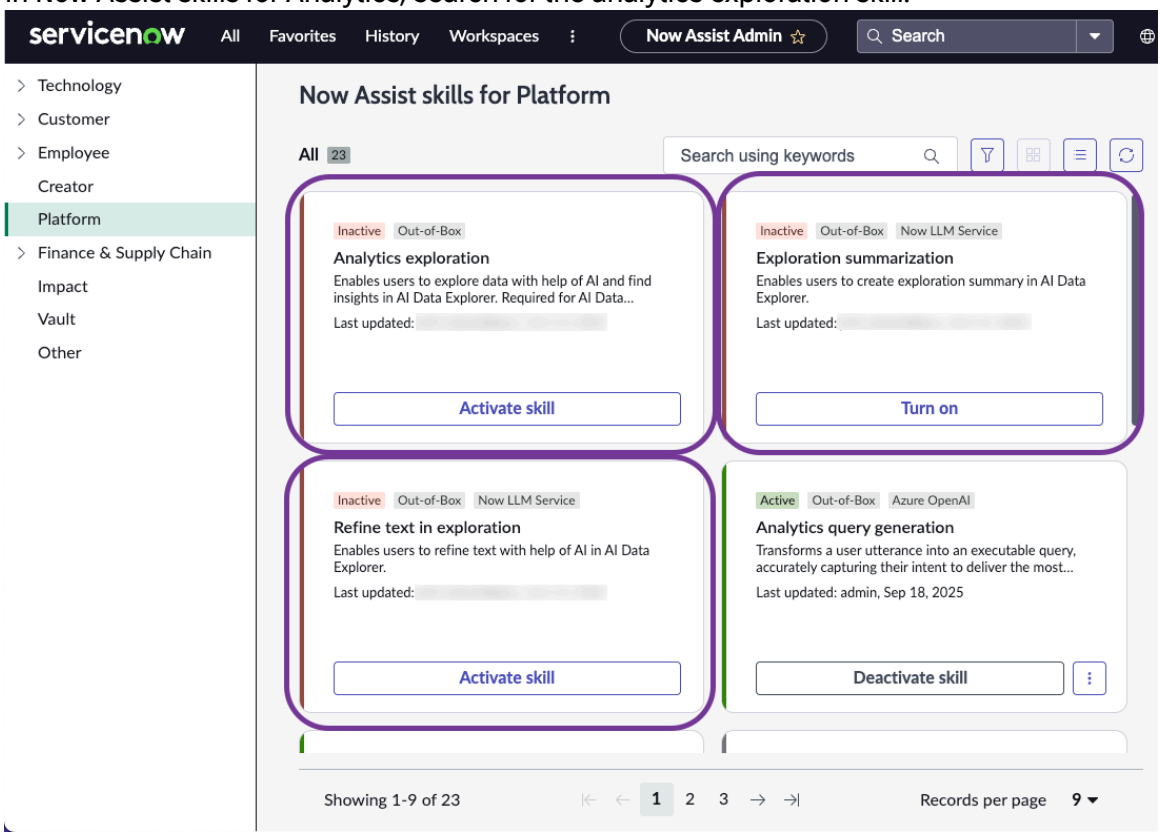
Role required: now_assist_explorer_admin or higher

About this task

Assign the now_assist_explorer_user role, and activate the AI Data Explorer skills.

Procedure

1. Grant the now_assist_explorer_user role to users who need to explore data with AI Data Explorer.
2. Navigate to **All** > *Now Assist Admin* > **Skills**.
3. In the product area pane, select **Data and Analytics** > **Analytics**.
4. In Now Assist skills for Analytics, search for the analytics exploration skill.



5. Select **Activate skill**.
6. Configure the analytics exploration skill.

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a. In the **Record level analysis** page, you can activate record-level analysis and set which tables it applies to.
For more information, see Configure record level analysis in AI Data Explorer.

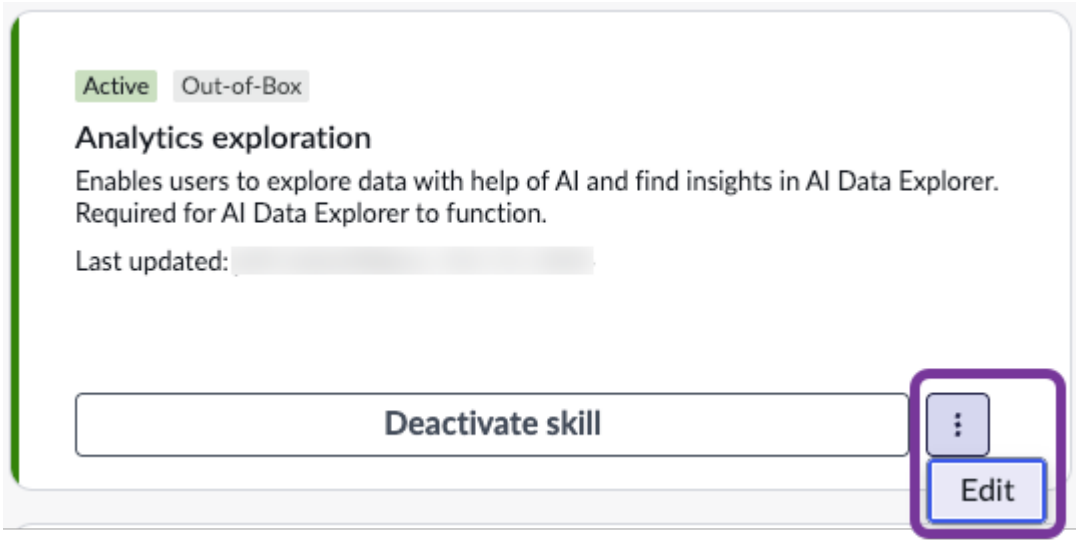
b. Select **Save and continue**.

c. In the **Define access** page, you can add roles who can create and edit explorations in AI Data Explorer.
All AI Data Explorer and Query Generation skills should have one role in common. The default role for this skill, now_assist_explorer_user, contains the default Query Generation role, sn_query_gen.user. Any changes you make must preserve the rights of the AI Data Explorer user to access Query Generation skills.

d. Select **Save and continue**.

e. In the **Review and activate** page, review the settings you made and either go back and change them or select **Activate**.

Note:
You can come back later and edit the settings for this or any other skill.



7. To enable users to generate recommendations based on the findings in their exploration, turn on the exploration action recommendation skill.
You can set the roles that can generate recommendations. The default role is now_assist_explorer_user. This role contains sn_query_gen.user, granting necessary access to Query Generation.
8. To enable users to generate summaries of explorations, turn on the exploration summarization skill.
You can set the roles that can generate summaries. Again, the default role is now_assist_explorer_user. This role contains sn_query_gen.user, granting necessary access to Query Generation.
9. To enable users to use AI to help refine text that they write in explorations, activate the refine text in explorations skill.
A dialog opens asking you where you want to display the refine text option.

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a. In the **Select display** page, under **Choose where to display**, toggle **Display** on for **In-product desktop**.

b. **Optional:** You can set the roles that can use AI to refine texts in their explorations. Again, the default role is now_assist_explorer_user. This role contains sn_query_gen.user, granting necessary access to Query Generation.

c. Select **Save and continue**.

d. Browse the review and select **Activate**.

Configure record level analysis in AI Data Explorer

Get more detailed answers based on the content of individual records to provide more meaningful insights.

Before you begin

Roles required: now_assist_explorer_admin or higher

About this task

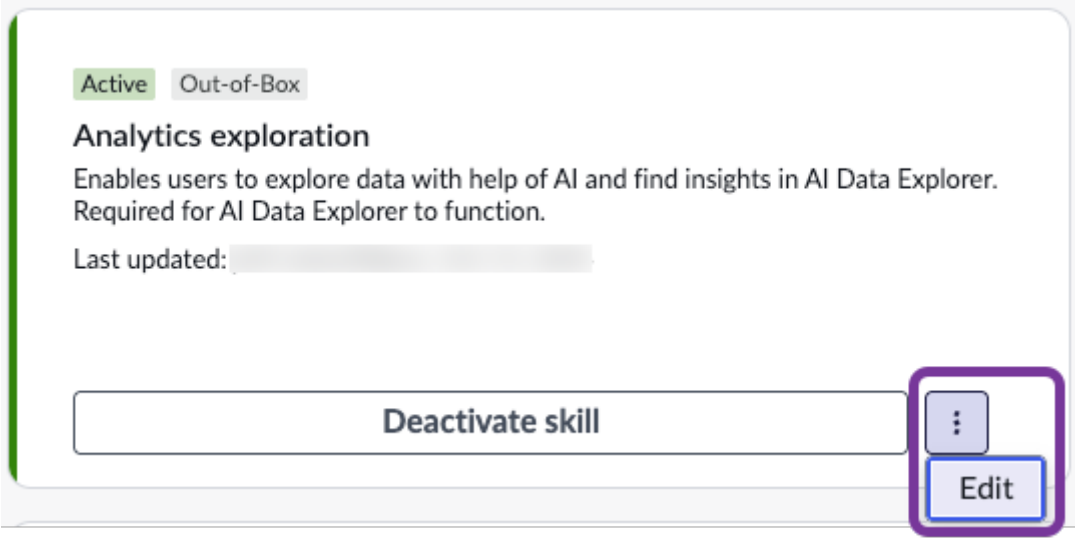
Record-level analysis provides deeper insights into your data. You can activate it as an administrator. You can activate it as an opt-in, where you specify the tables to which it applies, or as an opt-out, where it applies to all tables you don't specify. Whether activated or not, queries that touch on more than 50 records in a table aren't supported.

> ⚠ **Warning:**
> Take care when activating record-level analysis for a table with record-level security. The LLM applies the record-level security when analyzing records, but it applies only report_view ACLs when the exploration is shared. Therefore, users may see data about records that they are not authorized to access when an exploration is shared with them.

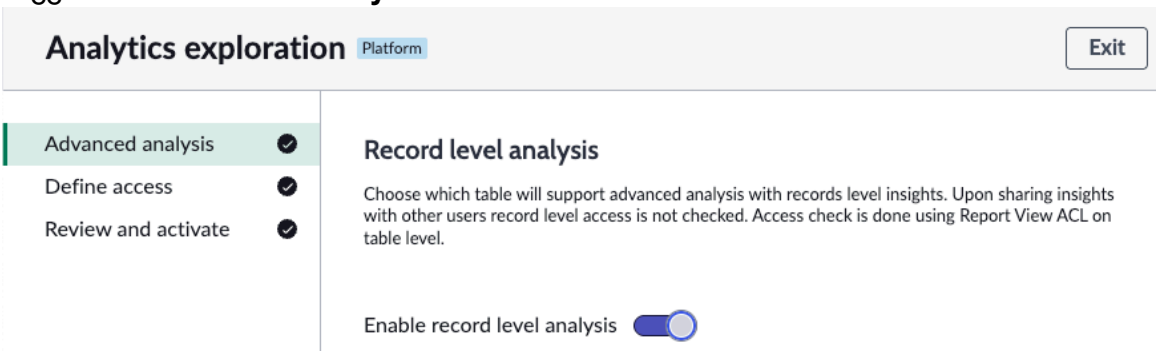
Procedure

1. Navigate to **All** > *Now Assist Admin* > **Skills**.
2. In the product area pane, select **Platform**.
3. In Now Assist skills for Platform, search for the analytics exploration skill.
4. If the **Activate skill** button is visible for this skill, press it to activate the skill.
5. If the **Deactivate skill** button is visible for this skill, expand the 3-dot menu ⋮ and select **Edit**.

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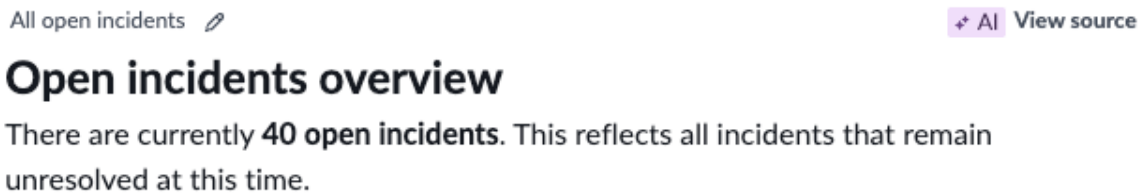
6. Select **Advanced analysis** from the menu, which opens the Record level analysis page.
7. Toggle on **Enable record analysis**.



8. In the **Enable for** field, select whether to create an include list or an exclude list of tables.
9. In the **Supported tables** or **Excluded tables** field, select which tables to include or exclude, respectively.
10. Select **Save and continue**.
11. Finish configuring the skill as described in Activate AI Data Explorer skills, or exit if the skill is already activated and you don't wish to make further changes.

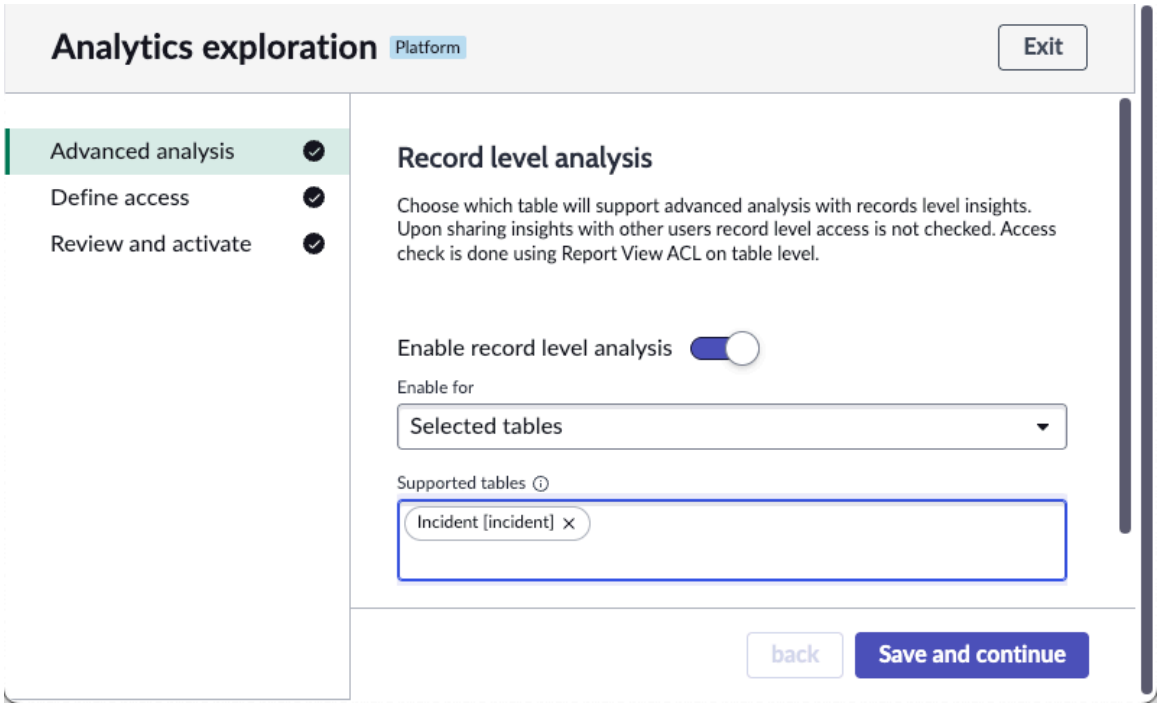
Example: Simple request with and without record level analytics

You don't have record level analytics enabled, and you open an exploration and ask for all open incidents. You're told "There are currently 40 open incidents. This reflects all incidents that remain unresolved at this time."

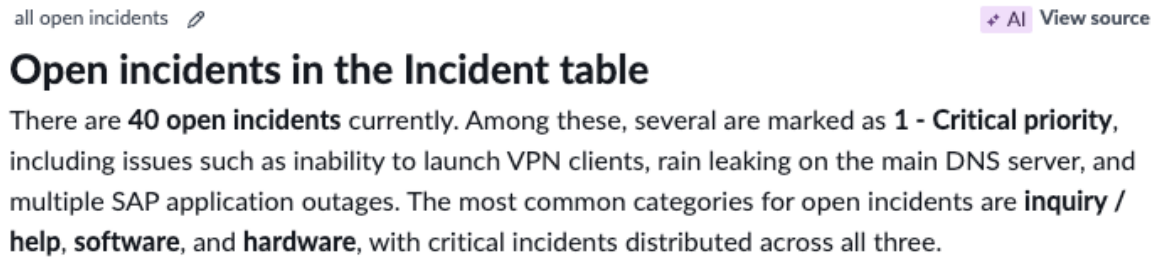


Now you enable record level analytics on the instance. You choose an opt-in approach and specify Incident [incident] as the only table included in record level analytics.

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Finally, you ask the same question again in an exploration, asking for all open incidents. Now the response includes details about the differences between open incident records. You're told "There are 40 open incidents currently. Among these, several are marked as 1 - Critical priority, including issues such as inability to launch VPN clients, rain leaking on the main DNS server, and multiple SAP application outages. The most common categories for open incidents are inquiry / help, software, and hardware, with critical incidents distributed across all three."



Remove data visualization links to AI Data Explorer in a specific workspace

If you don't want data visualizations in a specific workspace to have an entry point for AI Data Explorer, add the workspace to the PAAI Canvas Workspace Configs table.

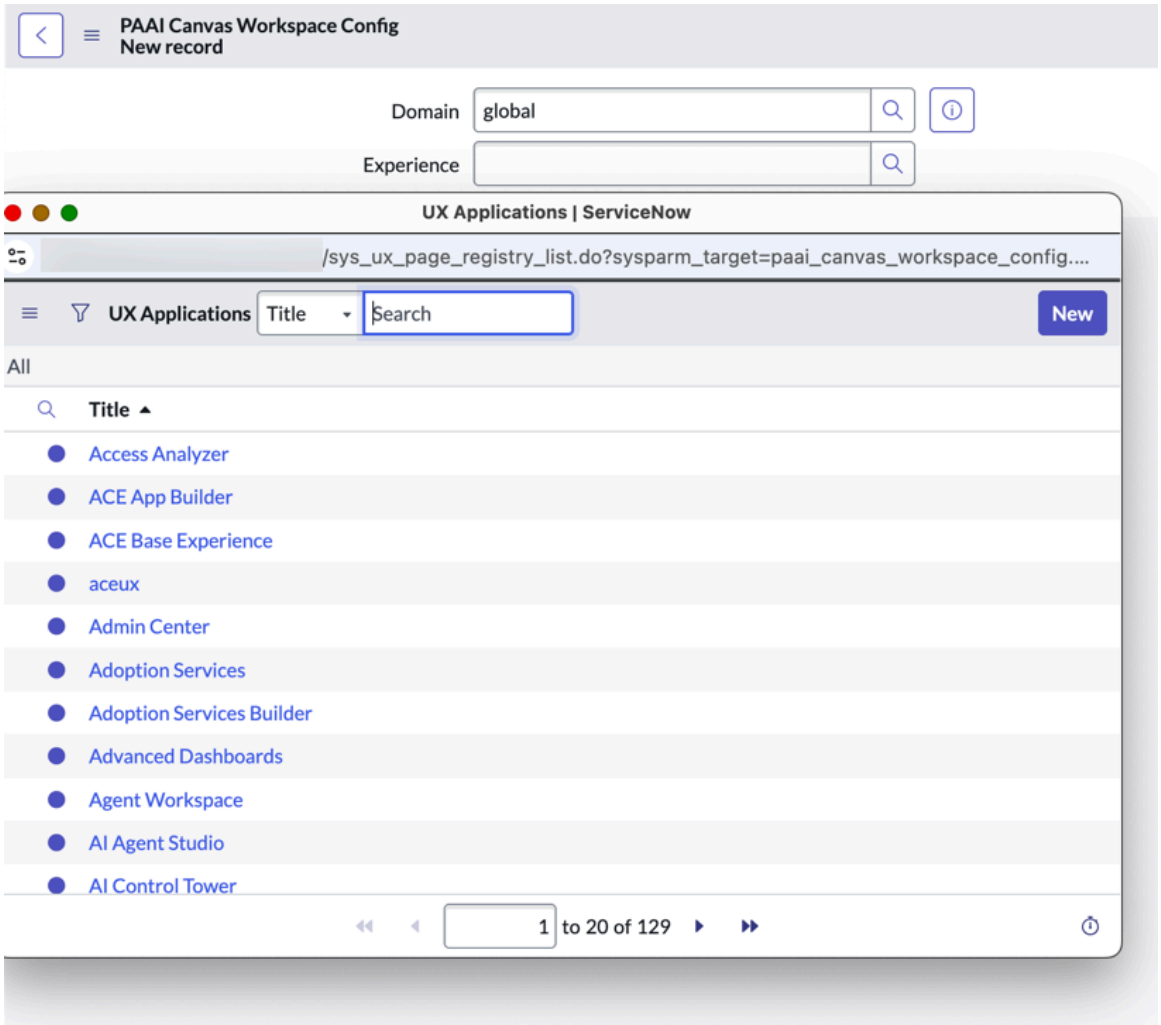
Before you begin

Role required: now_assist_explorer_admin or higher

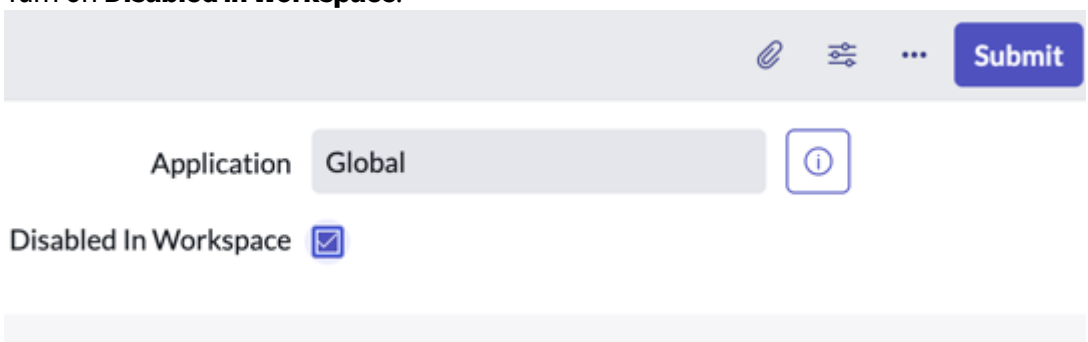
Procedure

1. Navigate to **All** and search for paai_canvas_workspace_config_list.do.
2. Select **New**.
3. In the new PAAI Canvas Workspace Config record, select the workspace or experience from the **Experience** list.

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4. Turn on **Disabled in workspace**.



5. Select **Submit**.

Enable AI Data Explorer for secure scope applications

Before you begin
Role required: admin

Procedure

Navigate to **All** > > .

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Common AI Data Explorer issues and fixes

Use Query Generation logs to inspect failed or incorrect queries and identify common issues with AI Data Explorer responses.

Go to **Query Generation** > **Administration** > **Logs** to inspect failed or incorrect queries.

1. Find the entry by user, date, or utterance.
2. Check **Semantic Entities/Dimensions/Segments Count**
3. Open **Query Constitutor Output** to see what was selected.
4. Compare with **Semantic Filter Result** for raw semantic matches.

AI Data Explorer troubleshooting guide

Symptom	Likely cause	Fix
"Unable to understand" response	System cannot find a matching table	Improve entity description; rephrase with table name; verify AI search is running; verify that all Indexed Sources are fully processed.
Wrong table selected	Similar table names, no disambiguation	Add semantic usage instructions to differentiate.
Wrong table selected (permissions)	User lacks read access to the intended table or fields	Verify and grant table and field read ACLs for the intended data.
Missing field in results	Dimension turned off, unclear label, or field not in semantic layer	Check dimension is active; update label.
Related fields not pulled in	Referenced table missing from semantic layer or reference dimension turned off	Add and enable the referenced table entity; enable the reference dimension.
Wrong filter applied	Bad segment match	Fix segment name and description; disable the segment.
No filter when expected	No matching segment; phrasing too vague	Create a manual segment; rephrase question.
Segment from report is wrong	Auto-generated segment has stale or irrelevant filter	Disable the report segment source or the specific segment.

Related topics

- Query Generation Health page
- Tuning the semantic layer
- Query Generation logs
- Configure record level analysis in AI Data Explorer
- Roles and tables installed with AI Data Explorer

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Using AI Data Explorer

Create "explorations"—editable documents where you analyze data with the help of AI. Set goals to guide smarter follow-up suggestions. Refine responses and add your own input. Collaborate easily with others and make data-informed decisions faster.

Launch AI Data Explorer

You can launch AI Data Explorer from either unified navigation or a data visualization or list . If you have the right role, you can create an exploration.

Before you begin

Role required: now_assist_explorer_user to create or edit explorations, any role to view explorations that have been shared with you.

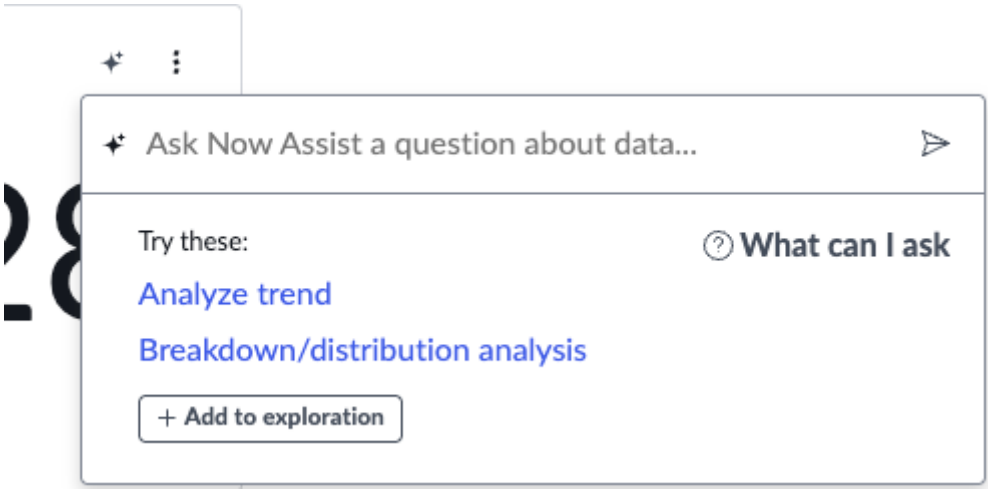
Procedure

1. Perform one of the following actions:
   - To launch AI Data Explorer from Unified Navigation, navigate to **All** > **AI Data Explorer** > **AI Data Explorer**.
   - To launch AI Data Explorer from a data visualization or list, select the Explore with AI button .



2. If you launch AI Data Explorer from a data visualization or list, choose from the following options:

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Important:

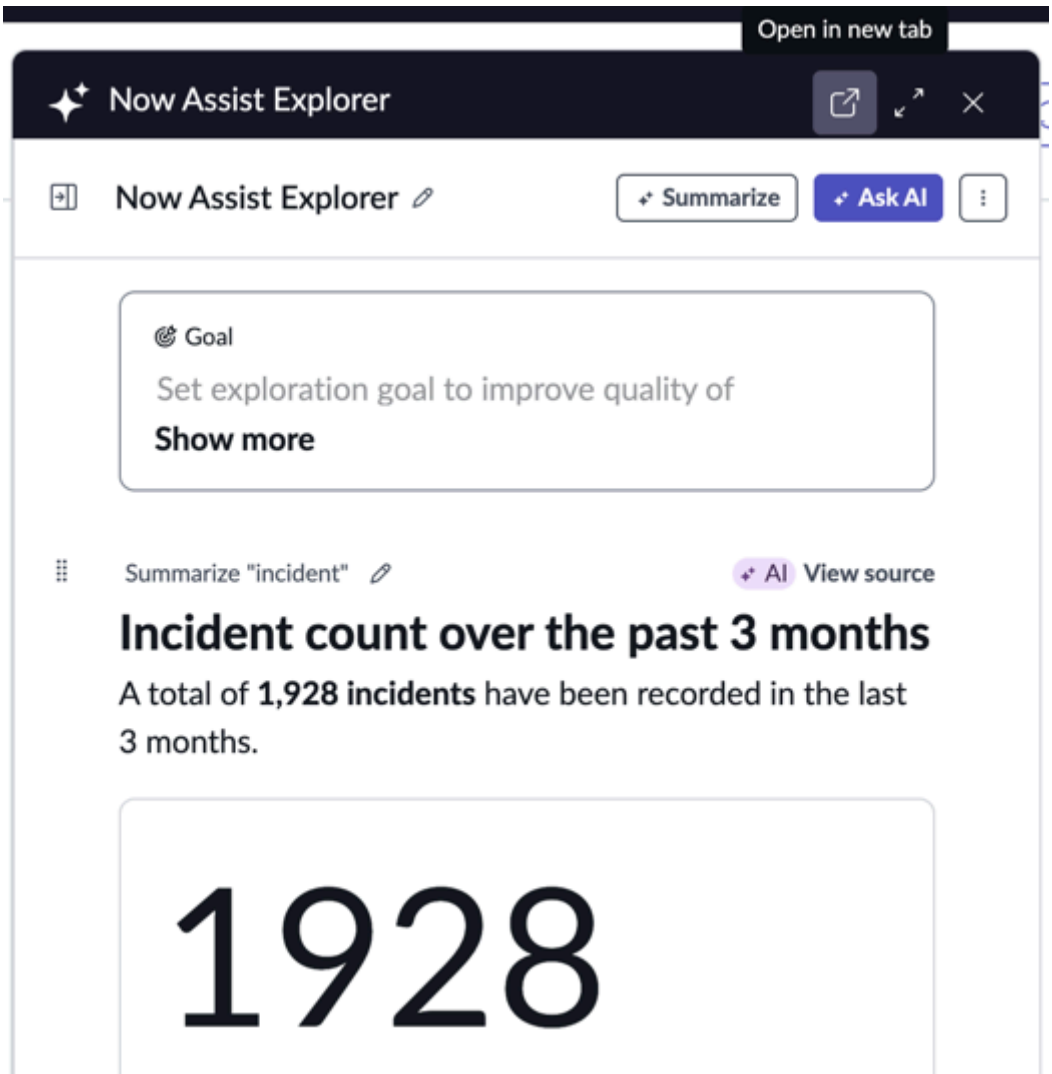
- The data visualization or list must display table data.
- Supported table data sources include database views and Workflow Data Fabric tables.
- The table or database view must be included in the Query Generation semantic layer. For more information, see Add a table to the semantic data layer.
- The data cannot be from a secure scope.

- Ask a specific question about your data.
- Choose a suggested question about the data visualization, such as **Analyze trend** or **Breakdown/distribution analysis**.
- Add the visualization or list to a new exploration or one that is open in another tab. For more information about adding visualizations to existing explorations, see Add an existing visualization to an exploration.

The results are shown in a new exploration. If you have an exploration open in another tab, you have the option to display the results there instead.

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The exploration opens in a floating panel. You can expand the dialog to a full screen or move the exploration to a new tab.



Questions and responses in an exploration

Ask the AI specific questions in AI Data Explorer, to which it responds with data visualizations, a summary, and suggested follow-up questions.

To ask a question in an exploration, launch AI Data Explorer from a data visualization or list or open an existing exploration. You will see a field with the placeholder "Ask Now Assist a question about data." For more information, see Launch AI Data Explorer.

Note:

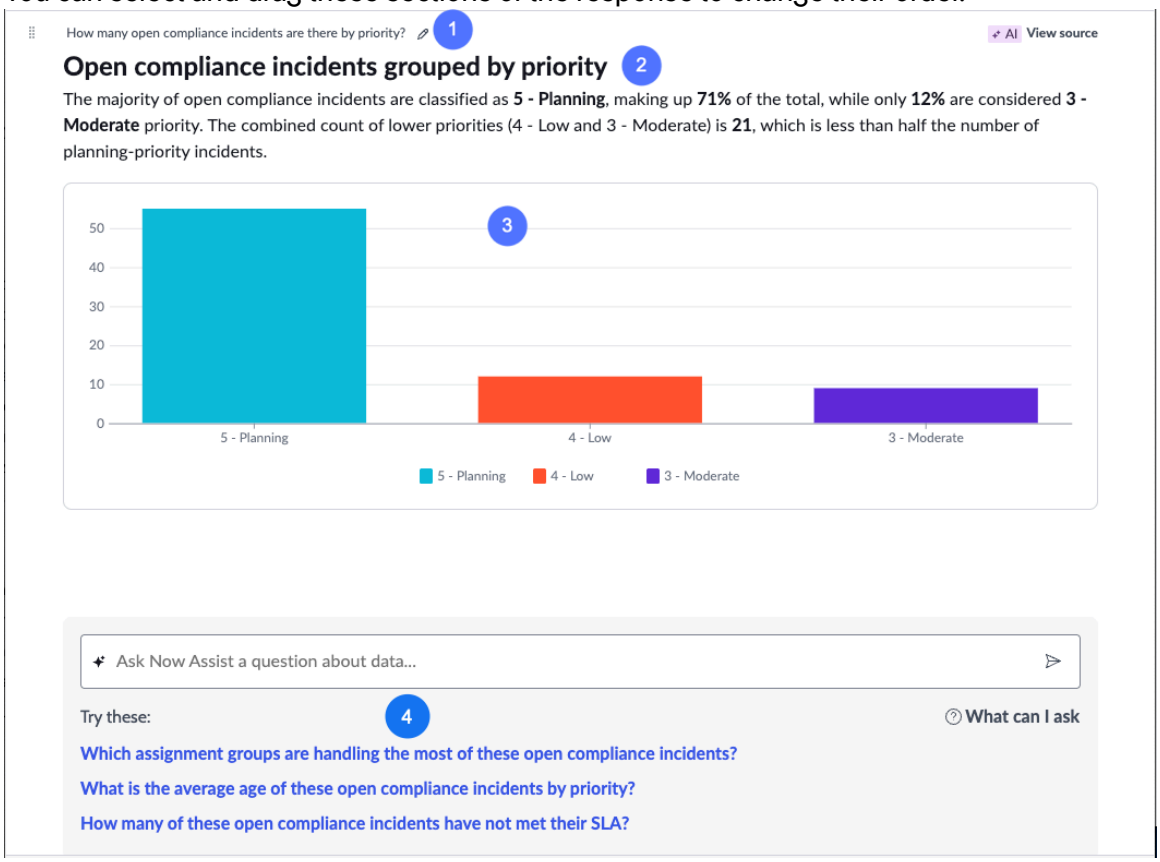
- The question you ask has to be about data in one of the tables listed in the Query Generation Semantic Table Configuration table. These tables can include database views and Workflow Data Fabric tables. For more information, see Add a table to the semantic data layer.
- AI Data Explorer cannot access data from secure scopes.
- When you have submitted a question, you cannot submit another question or do other work in the exploration until your question is processed. You can cancel the processing of your question.

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When you write a question in an exploration, the AI converts the question to a database query. The AI returns the following items:

- 1 Your original question. You can edit this question to generate new output.
- 2 The title of the response and a summarization of the AI findings.
- 3 A list or data visualization. This response can be an existing visualization instead of a generated one. For more information, see Launch AI Data Explorer. You can change the height of the list or visualization by interacting with the double arrow icon in its corner. You can also drag a visualization to other places in the exploration.
- 4 Suggestions for follow-up questions.

You can select and drag these sections of the response to change their order.



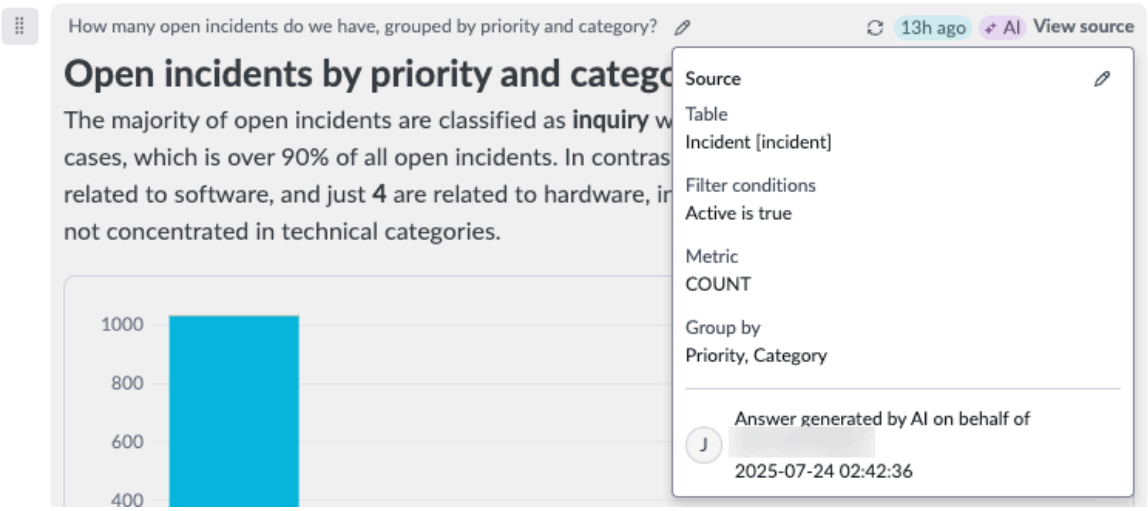
Viewing the response source

After you receive a response from the ServiceNow AI Platform, hover over the response to see the technical details of the response. The source details include the following information:

- The source table
- The filter conditions
- The metric
- Any grouping criteria

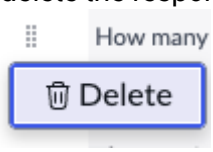
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If the exploration is too narrow on the screen, you select **View source** instead of hovering.



Deleting a response

If you expand the rectangle of dots before the beginning of the response, you have a button to delete the response.



Tips for asking questions

The goal of AI Data Explorer is to understand your prompts in your own words, delivering the analytics insights you want. However, if you do not know where to begin to formulate questions, or you are unsatisfied with the results, here are some tips:

Name your table

If you know the name of the table that contains the data you are interested in, add it to your prompt. Partial names or similar names are fine too.

Example: Instead of "How many P1s were opened this week," write "How many P1 requests were opened this week," which references the request tables. Better yet, write "How many P1 catalog requests were opened this week," which references the specific Catalog Requests table.

Explain what you mean

Query Generation tries to understand your terms, but you can add details to help guide it. If you get unexpected results, try being more specific about what you're looking for.

Example: Instead of "Show me all stale incidents," write "Show me all incidents not updated in 5+ days."

Be specific with names

When filtering by referenced records like users, groups, or services, try to use their full display names for best results. The AI model may learn from previous queries in the same document, but using full names ensures accuracy.

Example: Instead of "Cases with Workplace Ops," write "Cases with Workplace Operations."

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Edit and refine queries

If the generated query isn't quite right, you can manually edit the filter conditions. The AI model will learn from your edits and apply them to future questions in the same document. For more information, see Change the question or filter conditions

Example: You ask "Show me critical incidents from the network team" but are not satisfied with the response. Instead of asking repeated variations of the same question, hoping for a better result, edit the filter to find records where Assignment Group is 'Network Operations' and Priority is '1 - Critical'. Then ask "Show me the inflow trend for these incidents over time".

Don't leave bad queries in your exploration

The AI model uses the previous document context to write the next query. Therefore, if you cannot refine a query to get a useful response, delete it. Otherwise bad queries can accumulate in your exploration, leading to ever-worsening responses.

Import complex filters

For complex data that's hard to describe, import data visualizations or lists into your exploration. If the visualization or list is on a dashboard, you can apply any filters on the dashboard before importing. The AI model will use imported queries to understand related questions in the same document.

Example: Don't ask "Show me servers about to retire by location." Such a prompt is vague and complex. Instead, import a visualization from a dashboard titled "PostgreSQL servers nearing retirement," with the desired values for the dashboard filters Lifecycle State and Days Until Retirement pre-applied. Then ask "Show me the same servers but grouped by location".

Once you have a productive exploration going, with a lot of context, you may find that you are able to ask more abstract questions and get useful answers. However, these tips might help you get started.

Extended analysis

Generate a deeper level of analysis that can reveal new insights, enabling you to make more informed decisions.

Extended analysis involves aggregating the records related to a response in an exploration. It examines the same columns that you see when you view the list of records for the relevant table. It takes a Count of Choice, Reference, and Boolean columns. Therefore, you can influence extended analysis by selecting which fields to view in the relevant tables. The relevant tables include any related tables that Query Generation dot-walks to.

The number of columns that extended analysis examines is set in the system property *sn_query_gen.hidden_insights.groupby.min_fields*. The default value is 5. If the number of eligible columns that are visible on the record list is lower than this value, the system searches for more fields on the table. The search stops when the total number of fields from both the list view and the table search reaches the value of the system property. If the system can't find that many fields, it uses the fields it does find.

The search for fields on the table follows this logic:

1. The system searches for Choice fields on the table.
2. If the count of located Choice fields and eligible columns on the record list is greater than the value of *sn_query_gen.hidden_insights.groupby.min_fields*, not all located Choice fields are selected. Instead, the system selects the Choice fields with the highest cardinality, to bring the total count of fields up to the value of the property. The search then stops.

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3. If the system can't find enough Choice fields to bring the total count of fields up to the value of the property, the system selects the ones it finds, then looks for Reference fields. The same logic that was used for selecting Choice fields applies.
4. If the system can't find enough Reference fields to bring the total count of fields up to the value of the property, the system selects the ones it finds, then looks for Boolean fields. The same logic that was used for selecting Choice and Reference fields applies.
5. Extended analysis insights are generated for however many Choice, Reference, and Boolean fields are found, up to the value of the property. If no fields are found, extended analysis isn't performed.

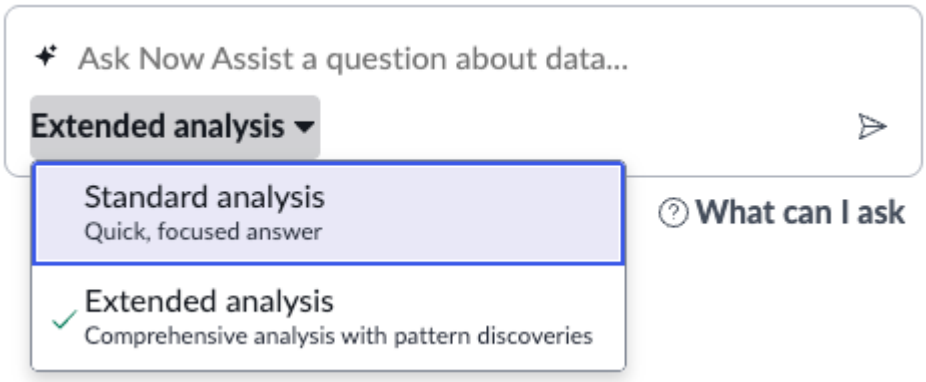
While the results of extended analysis usually enrich the responses in an exploration, the analysis takes more time and uses more system resources than a standard analysis. You have to use your judgment on when to employ it.

Sometimes different questions or follow-up questions return the same extended analysis findings. Instead of repeating those findings as insights, the system digs deeper into the underlying reasons for the repetition. As a user, you have three benefits from this approach:

- Every insight that is generated is unique.
- You don't need to posit as many follow-up questions to get the insights you need, because the system drills down automatically, directing you to the interesting part of the data to focus on.
- Results are faster, because extended analysis focuses on an increasingly specific subset of the data.

Extended analysis requires the analytics hidden insight skill from Query Generation to be active. For more information, see Query Generation skills.

To turn on extended analysis for an exploration, select it in the **Ask Now Assist a question about data** field. You have the same choice when you launch AI Data Explorer in a data visualization or list.



Example: Standard vs. extended analysis

Consider the following request made in an exploration: "Analyze the incident creation trend over the past 12 months." Using standard analysis, you get the following insights: "Incident creation peaked in July 2025 with 2,441 incidents, while the lowest monthly count was 1,177 incidents in August 2025. The first half of the period (September 2024 to February 2025) saw monthly incident counts consistently above 1,700, but the final month dropped by more than 50% compared to the peak."

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Insights from standard analysis



Making the same request with extended analysis, you get the same insight plus the following information:

- Incident volume dropped 49.2% from 2,441 in July 2025 to 1,177 in August 2025, indicating a major shift.
- The largest monthly increase was 28.3% in April 2025, with incidents rising by 512 to 2,321.
- Incident counts show a consistent downward trend (slope: -24.22), which suggests an ongoing reduction in reported issues.
- Monthly incident counts vary widely (range: 1,264; standard deviation: 369.24), indicating unstable operational demand.

Insights from extended analysis



Add a data visualization from an exploration to a dashboard

Put the visualization contained in a response from AI Data Explorer on a new or existing dashboard. Do so without interrupting your workflow in your exploration.

Before you begin

Role required: now_assist_explorer_user and ownership or editing rights to the exploration and the dashboard.

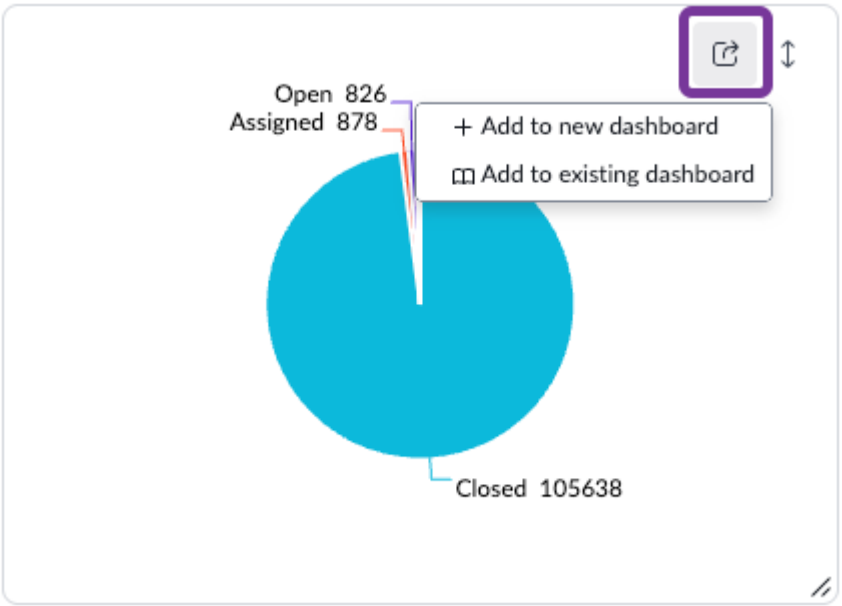
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Procedure

1. Launch AI Data Explorer.
   For more information, see Launch AI Data Explorer.
2. Open or create an exploration.
3. When you get a response with a data visualization that you want to put on a dashboard, select the **Add to dashboard** button on the visualization.
4. Select a new or existing dashboard, or the current dashboard if applicable.

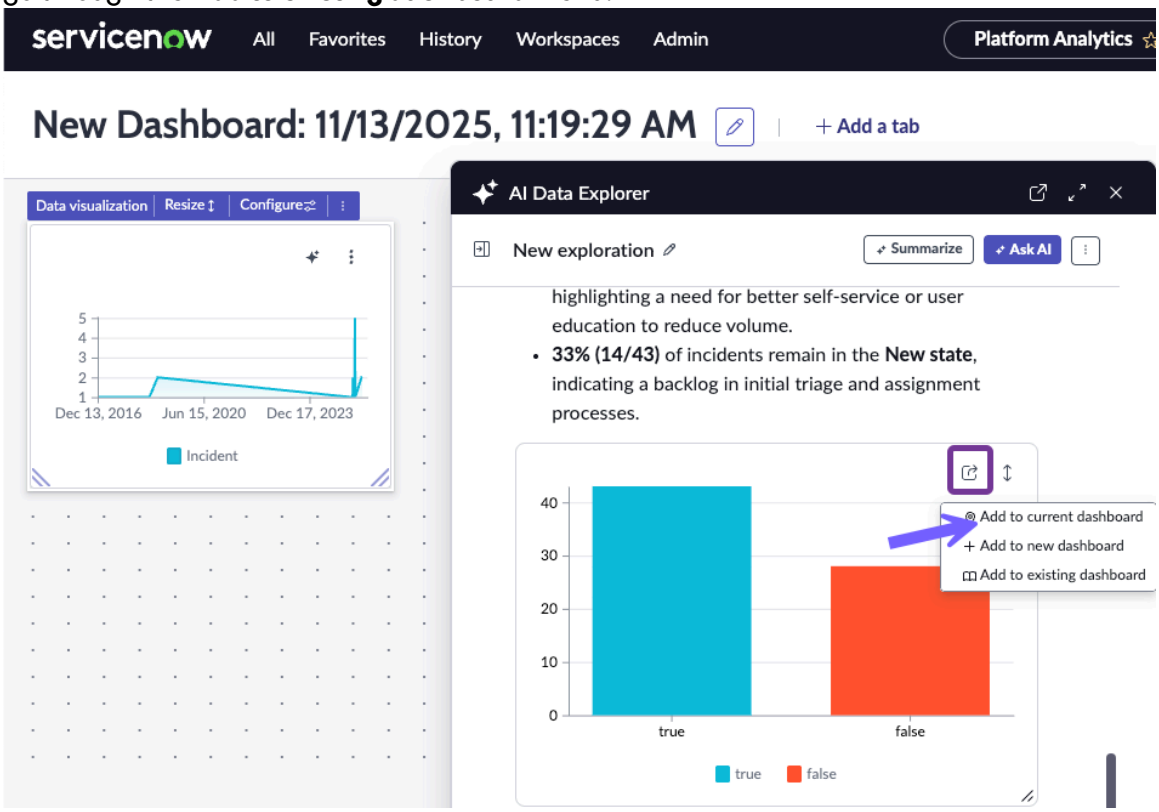
   Your options depend on whether you launched AI Data Explorer in its own tab, such as from Unified Navigation, or in a floating panel over another page.

   - If you are in AI Data Explorer in its own browser tab, you have the choice of adding the visualization to a new dashboard or to an existing one. (These are also your choices if you have AI Data Explorer open in a floating panel above a page that is not a dashboard.)



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- If you have a dashboard open in your main tab and AI Data Explorer in a floating panel on top of it, you can also add a visualization directly to the current dashboard tab without having to go through the **Add to existing dashboard** menu.



5. If you select **Add to existing dashboard**, choose the dashboard and a tab, if applicable. The list of available dashboards is filtered on those dashboards that you can edit.

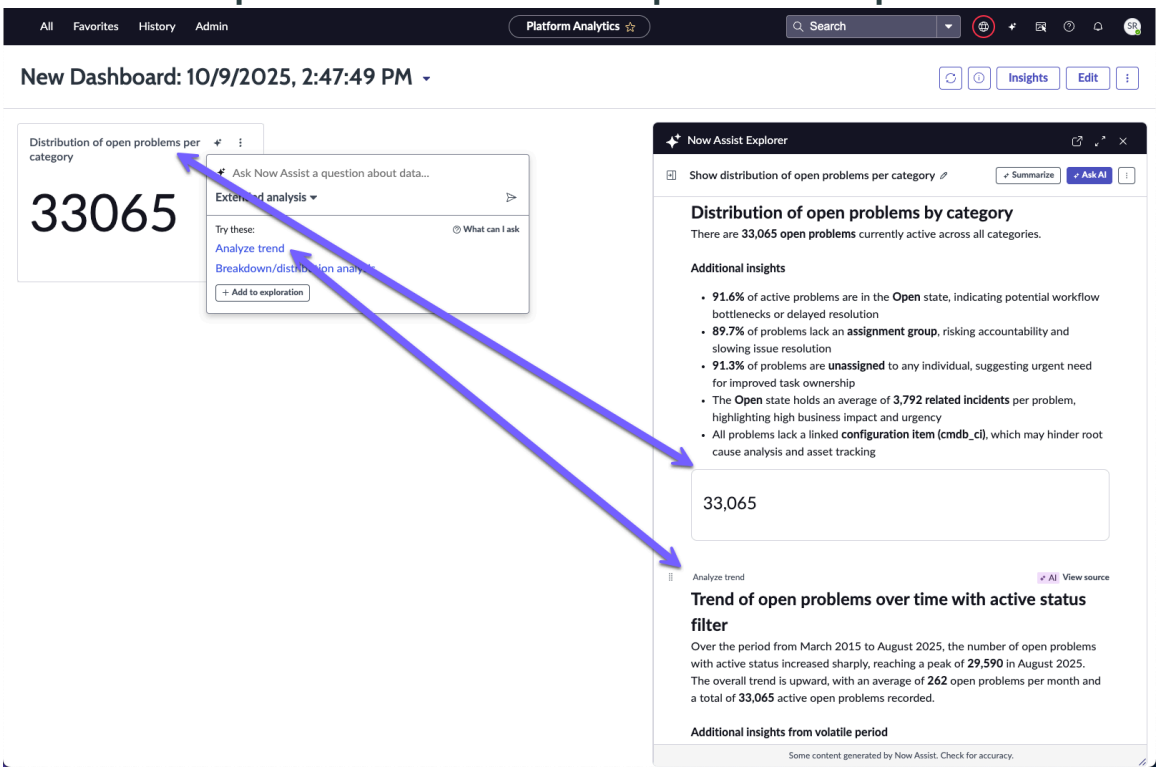
Result

The dashboard opens in full screen while the exploration moves to a modal in the foreground, if this isn't already the case. You can now use the **Add to current dashboard** option to copy more data visualizations from your exploration to the dashboard.

To save your visualization in the dashboard, select **Save** in the dashboard controls. You can either edit the dashboard further or continue working where you were in the exploration. You can maximize the modal with the exploration or open it in a new tab. If you hover over the **Explore with AI** button on the visualization on the dashboard and select one of the follow-up questions, that question is processed in the exploration. Exit the edit mode to enable the **Explore with AI** button.

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Dashboard and exploration after visualization is copied and follow-up is asked



Refresh a response with new data

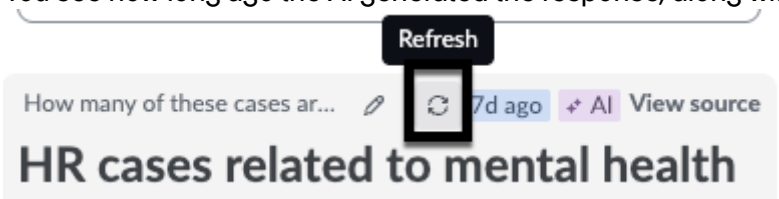
Look at the age of the response to a question in an AI Data Explorer exploration. Then regenerate the response with fresh data.

Before you begin

Role required: now_assist_explorer_user and ownership or editing rights to the exploration.

Procedure

1. Launch AI Data Explorer.
   For more information, see Launch AI Data Explorer.
2. Open an exploration that has questions and responses that may be out of date.
3. Locate a response of interest and hold the cursor over **View source**.
   You see how long ago the AI generated the response, along with a **Refresh** button.



4. If you decide that the data in the response is too old, select **Refresh**.

Result

The visualization, summary, and suggested follow-up questions in the response are all refreshed.

Note:
Refreshing a response removes all changes that you made manually to the text in the summary.

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Change the question or filter conditions

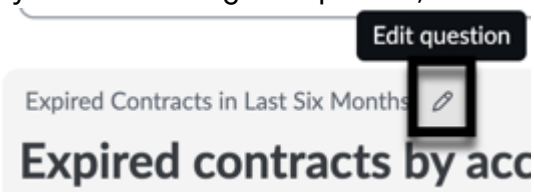
Regenerate the response to a question after you change the question or the filter conditions.

Before you begin

Role required: now_assist_explorer_user and ownership or editing rights to the exploration.

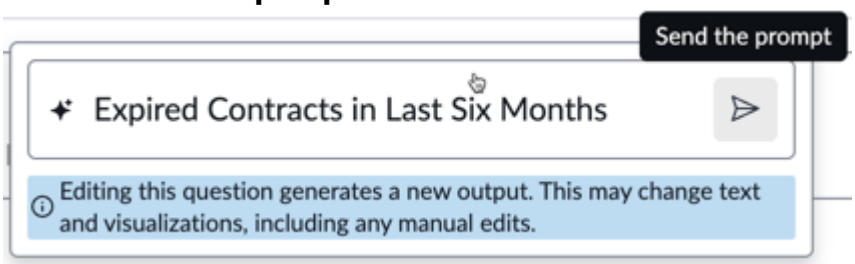
Procedure

1. Launch AI Data Explorer.
2. Open an exploration that has a question and response that you may want to change.
   For example, you may have imported a data visualization, and you want a different set of filter conditions than the original.
3. Locate the question and response of interest.
4. If you want to change the question, select the **Edit question** button .



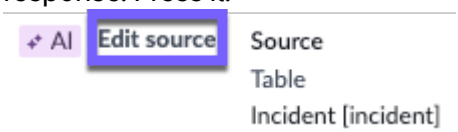
   a. Edit the question.

   b. Select the **Send the prompt** arrow.



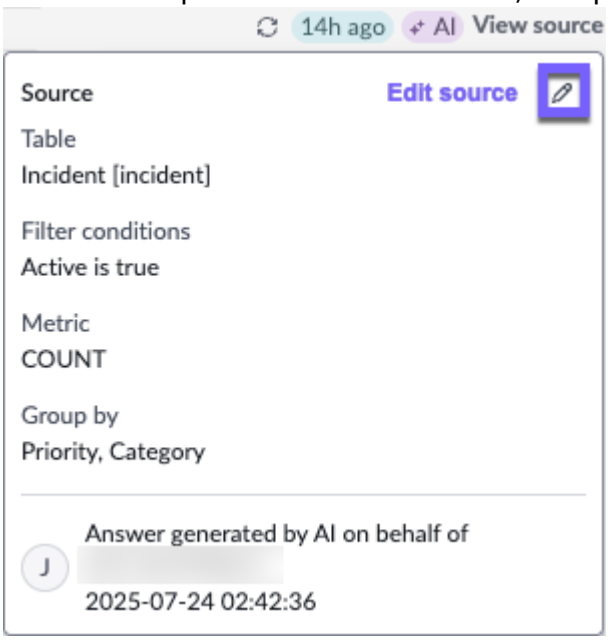
   A new response is generated, replacing the old one.

5. To change the filter conditions, follow one of these steps, depending on how wide the exploration is on your screen:
   - If the exploration is wide, you see an **Edit source** button next to the **AI** button on the response. Press it.

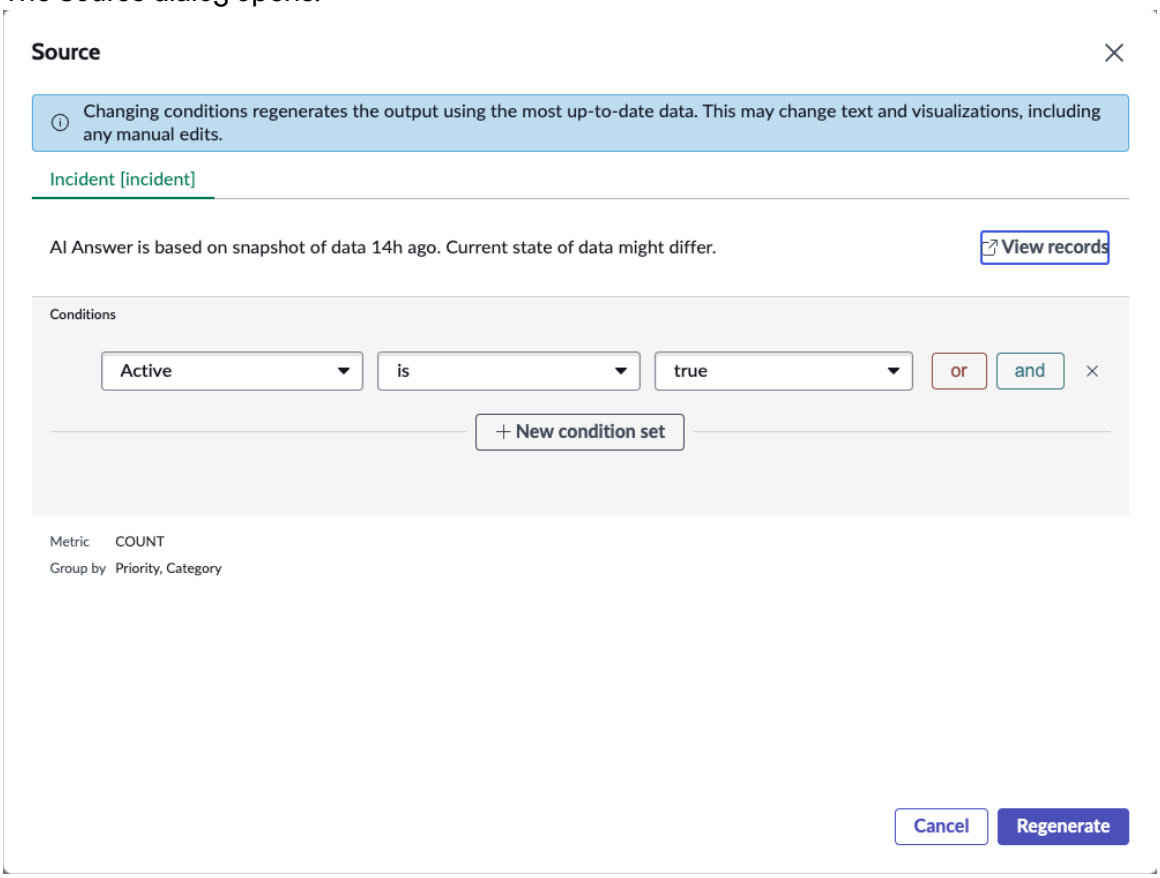


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- If the exploration is narrow, you see a **View source** button instead of an **Edit source** button. Press that to open the source information, then press the ✎ in the source information.



The Source dialog opens.



6. Change the filter conditions to meet your needs.
7. Select **Regenerate**.

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Result
The data visualization, summary, and suggested follow-on questions are regenerated using your modified filter conditions.

> **Note:**
> Regenerating a response removes all changes that you made manually to the text in the summary.

Duplicate, delete, copy to another exploration, or move an answer in an exploration

Duplicate, delete or reorder an individual question and response from inside an exploration. You can also copy a response to another exploration.

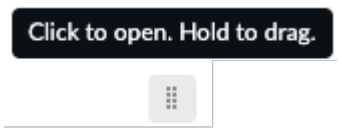
Before you begin
Role required: now_assist_explorer_user and editing rights to the exploration

About this task
Duplicate a response when you want to modify a response slightly while preserving the unmodified version, such as seeing what the response looks like with a different group-by value. You could also duplicate a response and refresh only one version, to compare the old and new values.

Copy a response when you want to share only a response, not the whole exploration, with another user. Copy the response to an existing exploration that the user can access, or copy it to a new exploration and share that exploration with the user. You can use this function to give yourself an editable version of the response in an exploration you own.

Procedure

1. Launch AI Data Explorer.
   See Launch AI Data Explorer.
2. Open the exploration that contains a question and answer that you want to duplicate, delete, copy and send, or move.
   See Open an existing exploration.
3. Point the cursor at the question and answer.
   A control appears next to the question and answer.
4. Point at the control, which is a rectangle of dots.



5. Move, duplicate, or delete the question and response.
   - To move the response, hold the control and drag the block to a different location in the exploration.
   - To duplicate the response, tap the control and select **Duplicate**. The duplicate of the response appears immediately after the original.
   - To copy the response to another exploration, tap **Copy to...**. You are given the choice of copying the response to an existing exploration or a new exploration.
   - To delete the response, tap the control and select **Delete**.

Related topics

Delete an exploration

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Setting exploration goals

Help Now Assist understand your intent and what you hope to get from the data exploration by setting a goal for an exploration. The goal can improve the relevance of AI outputs.

In the goal, explain the outcome you're trying to accomplish with your exploration. Clear goals guide the AI model to generate queries and write summaries that move you closer to that outcome.

Tip:

- Keep goals short and specific.
- Document any key assumptions that drive your outcome. For example, define success criteria for a business process, or explain negative patterns that you want to eliminate.
- If you know them, include the names of tables, fields, or data visualizations that contain the data you want to explore.

Examples of goals

Type of goal	Example
Answer high-level questions, make decisions	Determine staffing level required to triage and resolve incoming Incidents for the Cloud Services assignment group based on historical data. The key sign of success for the team is closing P2 or higher incidents in a timely manner.
Document evidence and actions taken for future reference	Compile a Post Incident Review report for all P2+ Incidents for the Cloud Services group from Q1 2025. Show all relevant incidents and the related problems and change requests required to address them. Document timeliness of response and relevant SLAs.
Explore data without specific questions in mind	Explore potential drivers for the Cloud Services team's incident spikes.

Write or edit text in an exploration

Edit text that the AI generated, or share your thoughts in AI Data Explorer by adding text to an exploration.

Before you begin

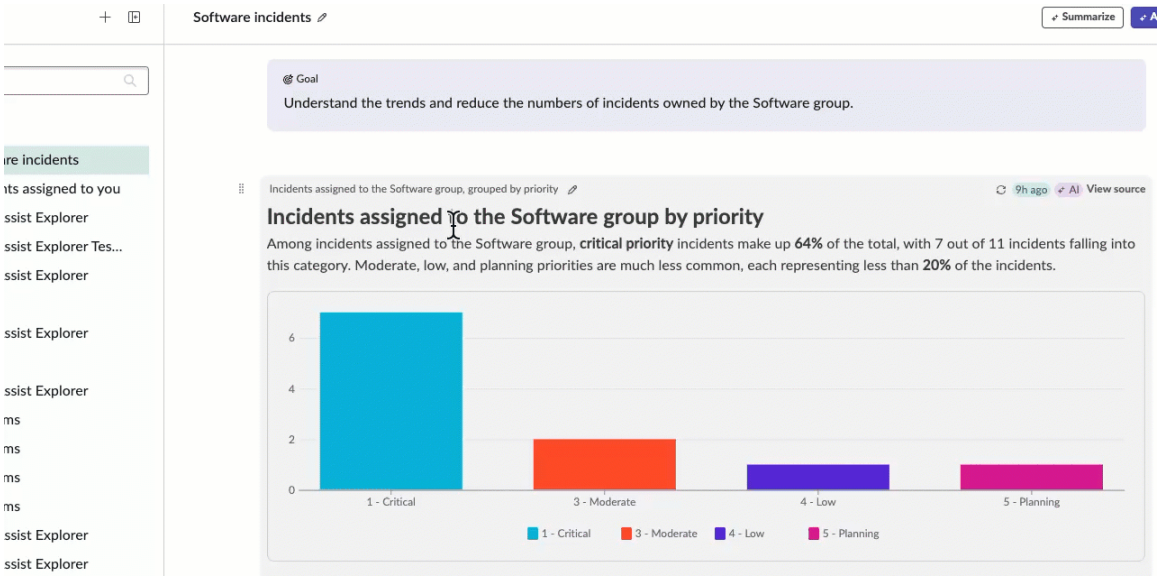
To access AI writing tools, the refine text in exploration skill must be activated. For more information, see Activate AI Data Explorer skills.

Role required: now_assist_explorer_user, and you must own the exploration or have editing rights to it.

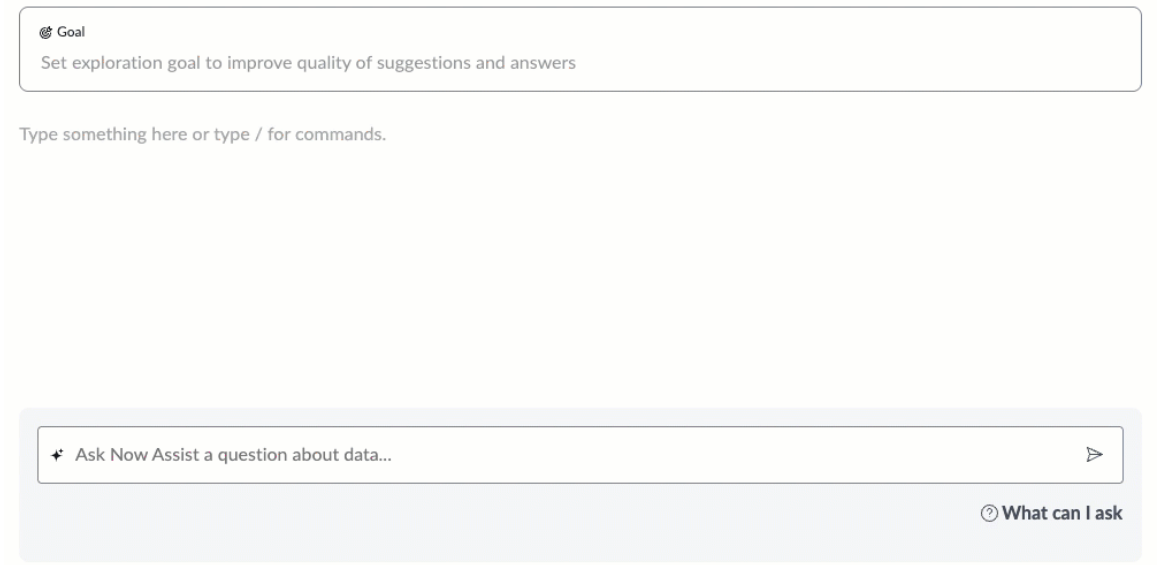
To edit the summary of insights that the AI has generated, place the cursor anywhere in the answer and start typing. You can also select all or part of that text and type over it. You have style options for your edits. You can also select the entire summary and have AI shorten it, lengthen it, or change the tone. The AI shows you its modified text, which you can copy and paste or insert below the original.

Note:
Refreshing or regenerating a response removes all changes that you made manually to the text in the summary.

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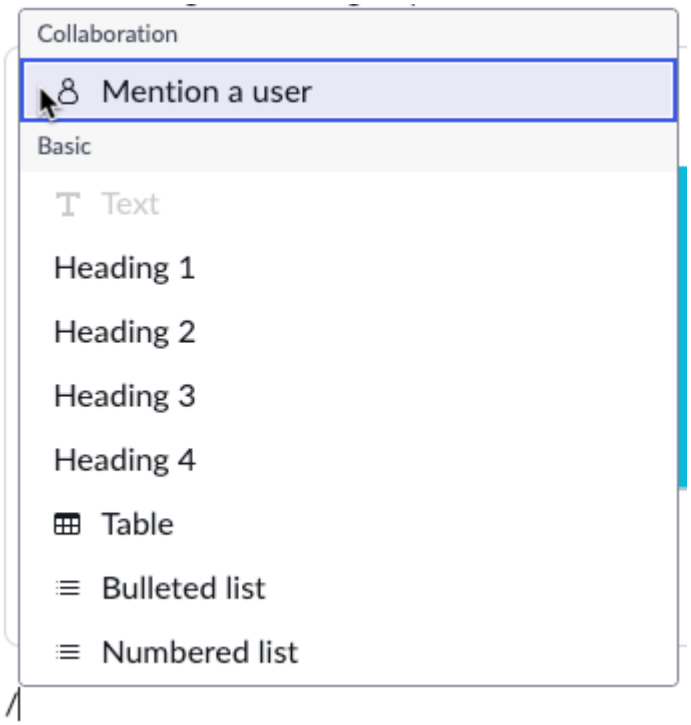


To add your own text to an exploration, place your cursor in an empty space and start typing. When you have finished your draft, select your text to add styling or have AI refine the text, like when you are editing generated text.



When editing your own text, you also have markup options. You can tag a colleague, who is notified of the tag if they have editing rights. If the colleague cannot access the exploration, you see a message to that effect. If you have sharing rights, you can immediately share the exploration with that user with editing rights. You can also add text markup by typing a forward slash (/) and selecting what you want from a list. Options include four levels of headings, tables, and bullet or numbered lists.

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Add an existing visualization to an exploration

You can add a data visualization or a list to a new or existing AI Data Explorer exploration from a dashboard, the data visualization library, or other areas of your workspace.

Before you begin

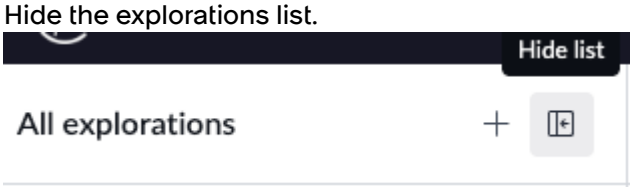
Role required: now_assist_explorer_user, access to the dashboard or library

About this task

Add an existing visualization to highlight an insight, add context to your exploration, or serve as a starting point for further analysis.

Procedure

1. Navigate to **All** > **AI Data Explorer** > **AI Data Explorer**.
2. Expand the explorations list and open the desired exploration.
3. Hide the explorations list.



4. Open a new browser tab and navigate to the workspace page or dashboard that contains the desired data visualization or list, or to the data visualization library.

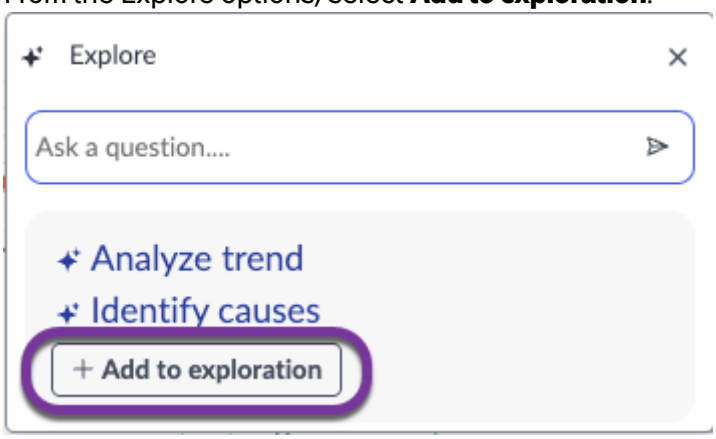
> **Important:**
> Do not close the original tab with the exploration.

5. If the page or dashboard has filters, set the desired filter values.
   These filter values apply to the imported data visualization or list.
6. Locate, and if necessary open, the data visualization or list and select the Explore with AI icon .

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7. From the Explore options, select **Add to exploration**.



If the data visualization shows data from multiple protected scopes, there is no option to add the visualization to an exploration.

You are asked whether you want to add the data visualization or list to a new exploration or an existing one that is open.

8. Select **Add to an open exploration**.
9. Select from the explorations that are open in other tabs and choose **Add**.

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Result

The exploration opens in a dialog in the tab that you are in. The list or data visualization is added to the end of the exploration. You can add more lists or data visualizations. When you select **Add to exploration**, the list or data visualization is automatically added to the open exploration.

View recommended actions in AI Data Explorer

Receive AI recommendations of actions to take based on your current exploration in AI Data Explorer.

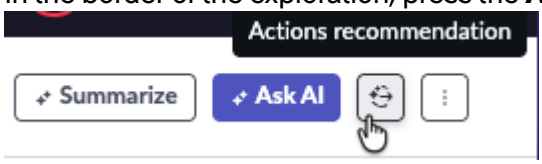
Before you begin

To use this feature, the exploration action recommendation skill must be turned on.

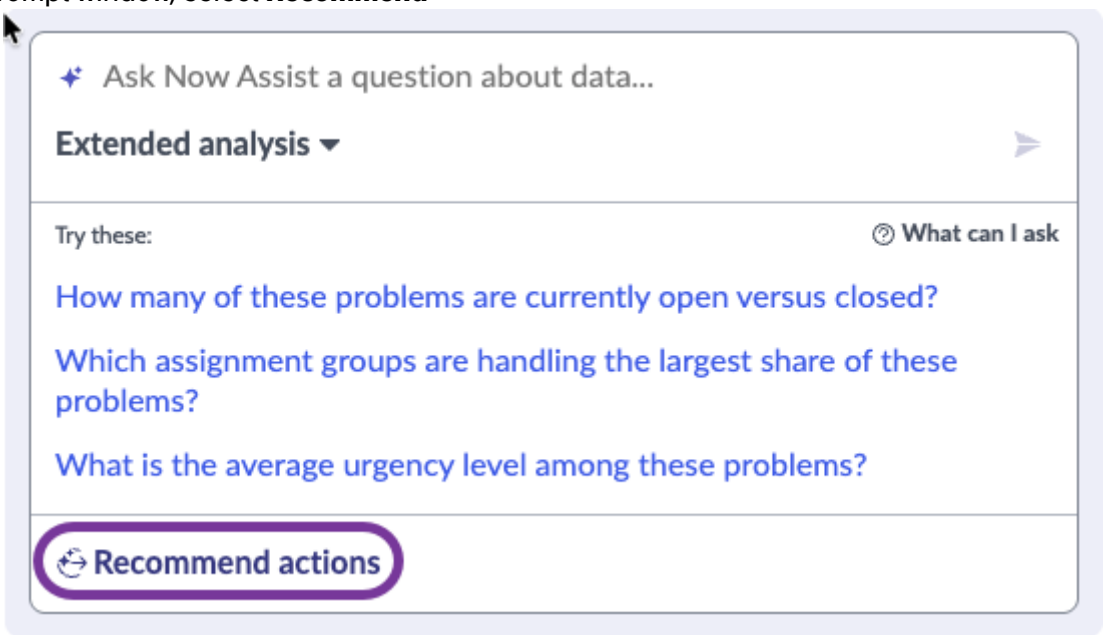
Role required: now_assist_explorer_user

Procedure

1. Launch AI Data Explorer.
   For more information, see Launch AI Data Explorer.
2. Open an exploration that already has generated insights.
3. For best results, set an exploration goal.
   For more information, see Setting exploration goals.
4. Perform one of the following actions:
   - In the border of the exploration, press the **Actions recommendation** button.

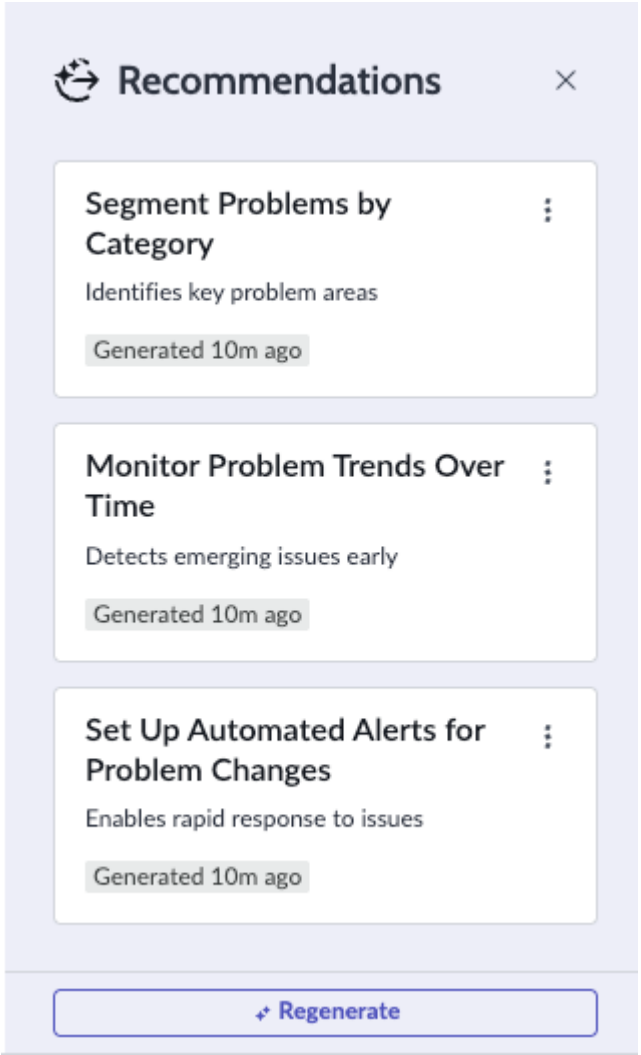


   - In the prompt window, select **Recommend actions**.



5. Read the recommendations.

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6. If you need more details about a recommendation, expand the three-dot menu on that recommendation and select **Show details**.
7. If you disagree with a recommendation, you can expand the three-dot menu on that recommendation and delete it.
8. To hide or show the recommendations, press the **Actions recommendation** button. When the recommendations are hidden, you can also show them with the **View recommended actions** control, which replaces the **Recommend actions** control in the prompt window.
9. Follow the recommendations you agree with.
10. When you have addressed the recommendations, you can press the **Regenerate** button after the recommendations to generate new recommendations.

Summarize an exploration

Use AI to generate a summary of an exploration. If you update the exploration, you can regenerate the summary.

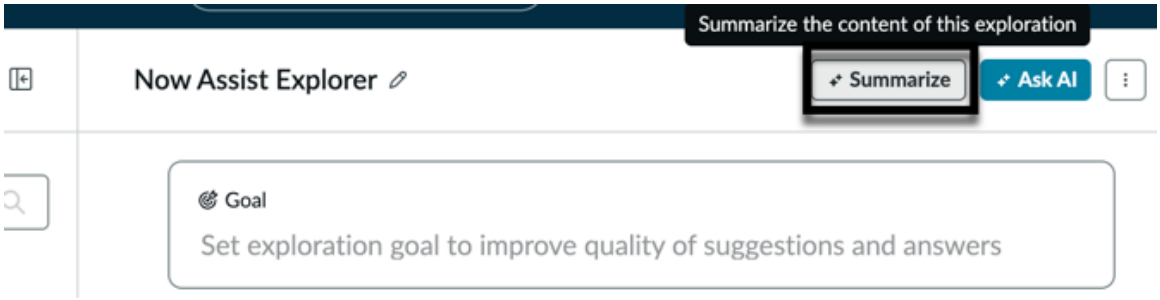
Before you begin

To access the AI summarization tool, the exploration summarization skill must be activated. For more information, see Activate AI Data Explorer skills.

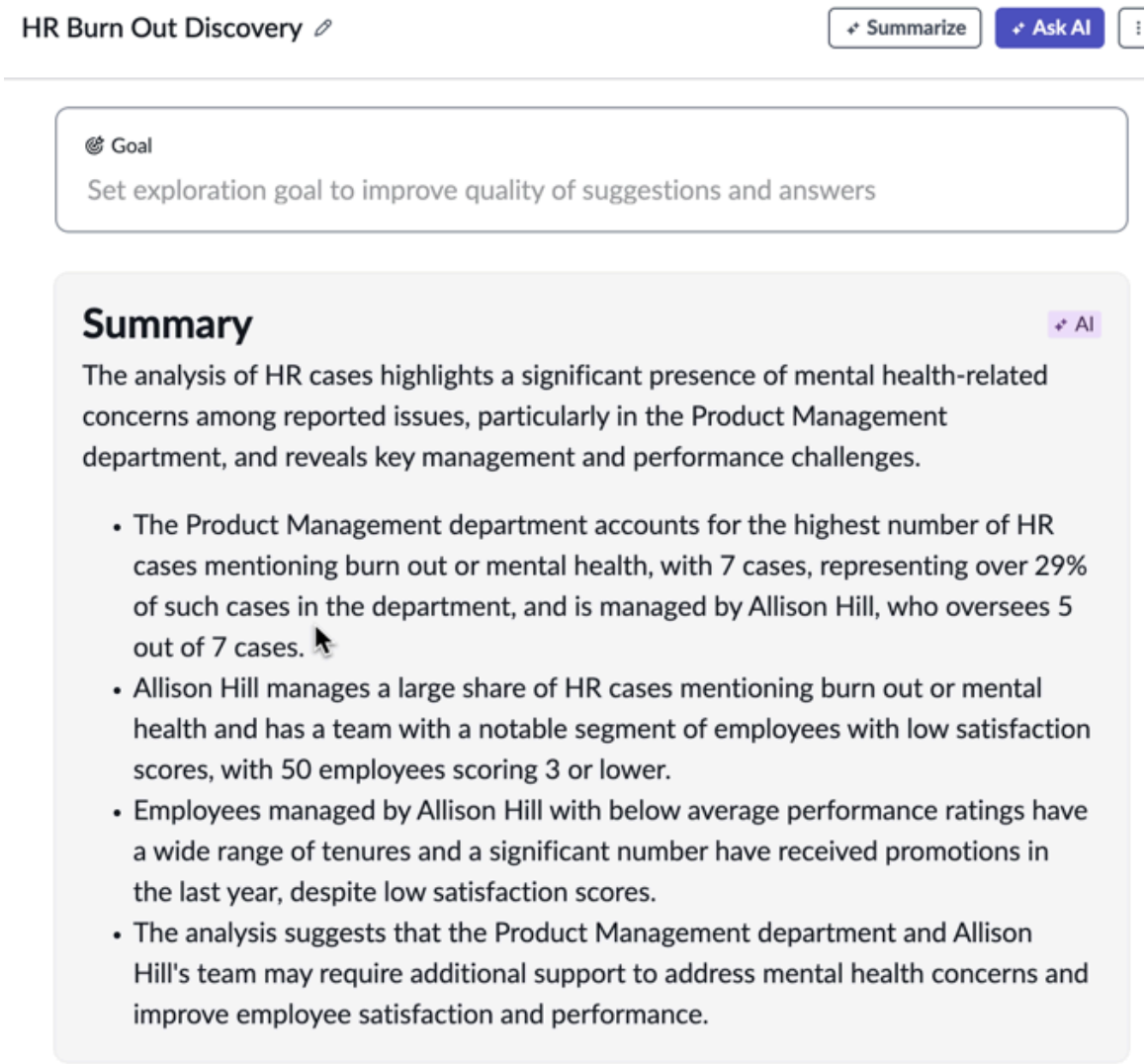
Role required: now_assist_explorer_user. You need editing rights to the exploration.

Generate a summary by pressing the **Summarize** button in the exploration header.

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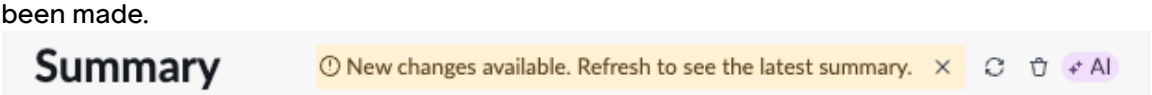


AI generates a summary and places it beneath the goal. The **Summarize** button disappears.



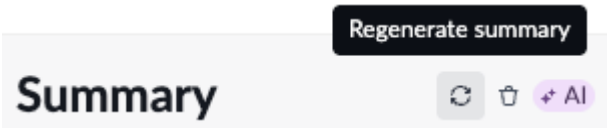
You can place your cursor in the generated summary and edit it, as described in Write or edit text in an exploration.

If you change the exploration, you get a message in the summary header that changes have been made.



To refresh the summary, press the **Regenerate summary** button in the summary header. You are asked to confirm that you want to regenerate the summary. If you confirm, the summary now reflects the most recent changes, and the Refresh message is dismissed.

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You can also delete a summary when you no longer need it. Press the **Delete** button in the summary header.

Note:
The Regenerate and Delete summary actions are not available if the exploration summarization skill is deactivated or the exploration is made read-only.

Duplicate an exploration

Create multiple copies of a AI Data Explorer exploration to repeat analyses, give yourself editing rights without affecting the original, or experiment with multiple variations of an exploration.

Before you begin

Role required: now_assist_explorer_user, and you must have the exploration shared with you at least with viewing rights.

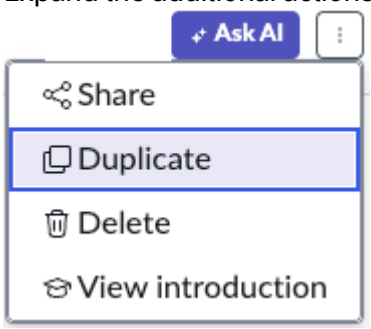
About this task

Duplicating an exploration grants the following possibilities:

- Create repeating analyses on the basis of an existing exploration. For example, you see an exploration about trends in May. You want to repeat the same analysis for June. By duplicating the May exploration, you don't need to start the exploration flow from scratch.
- Duplicate an exploration where you have only read-only access, to create a copy that you can edit. With editing rights, you can refine existing questions or ask new ones.
- Create a polished version of an exploration. To gather the right insights to drive decision making, you may need a sandbox where you can try out different takes and sets of questions. You can duplicate an exploration and experiment with the duplicates without losing the original detailed analysis.

Procedure

1. Launch AI Data Explorer.
   See Launch AI Data Explorer.
2. Locate and open the exploration that you want to duplicate.
   See Open an existing exploration.
3. Expand the additional actions list and select **Duplicate**.



4. In the Duplicate exploration dialog, set a name for the duplicate exploration and decide whether you want it to have the same access permissions as the original.

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If you select **Copy with access permissions**, the users who had the original exploration shared with them have the same access to the duplicate. You have editing access to the duplicate whether or not you could edit the original, regardless of the choice you make here.

5. Press **Duplicate**.

Share and collaborate on an exploration

Work with others to generate, discuss, refine, and follow up on insights related to a shared project, concern, or goal.

Before you begin

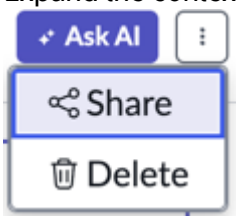
Role required: Any, with sharing rights to the exploration

About this task

Participants (shared with editing rights) in an exploration can work together in real time to ask questions of the AI, discuss the results, refine those results, and pursue follow-up questions. You can tag colleagues in text. If they can edit the exploration, they are notified when they are tagged. If you tag someone without access, you see a message that you have done so, and if you have the right to share the exploration, you can immediately share it with them with editing rights.

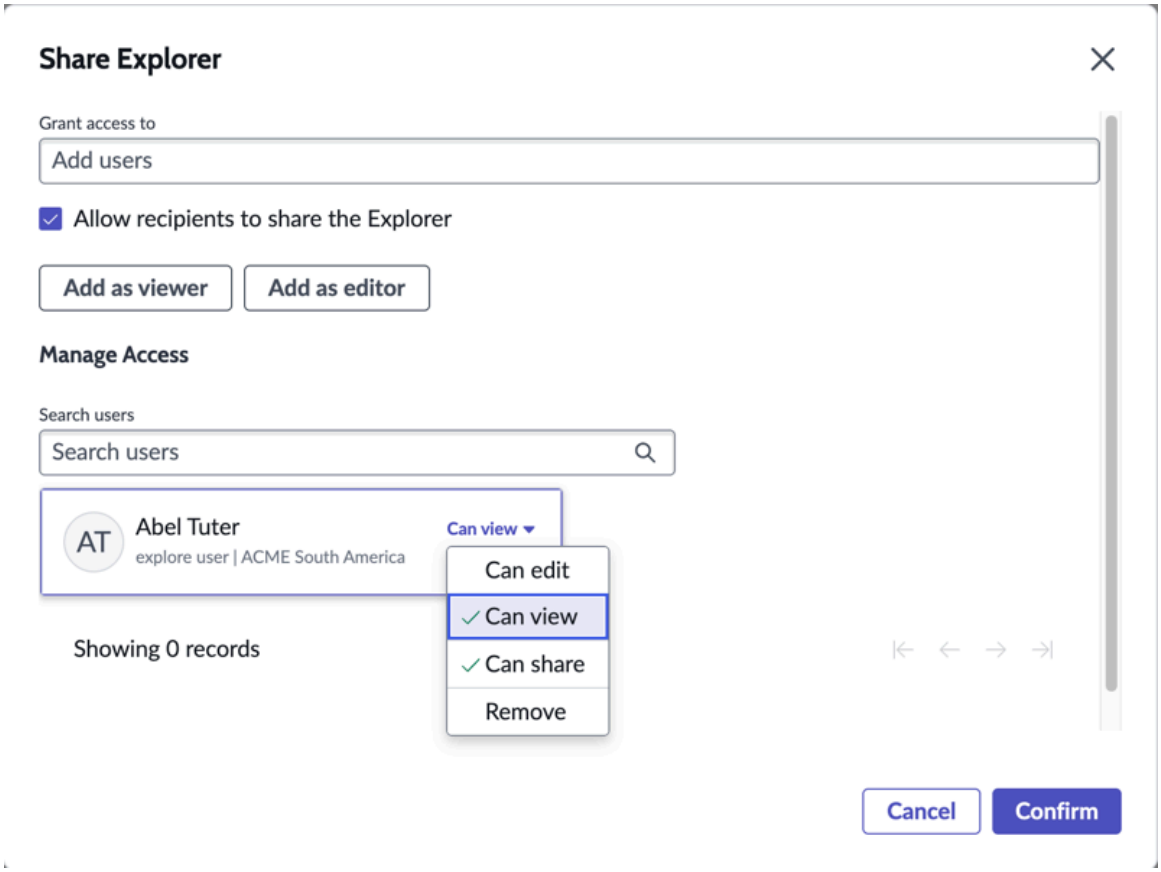
Procedure

1. Launch AI Data Explorer.
   See Launch AI Data Explorer.
2. Create or open the exploration that you want to work on with others.
3. Expand the context menu ⋮ and select **Share**.



The **Share explorer** dialog opens.

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4. In the **Grant access to** field, enter the names of one or more users you want to share the exploration with.
   You can share an exploration only with users who can access the data that the exploration shows.

> **Warning:**
> If a user adds data to an exploration that not all other collaborators are allowed to access, those users will no longer be able to view the exploration's content. The affected collaborators are notified that they can no longer view, receive data from, or make any changes to the exploration.

5. To allow the people you share the exploration with to share the exploration as well, select **Allow recipients to share the exploration**.
   When you add a user as a viewer, they can only share the exploration as a viewer. When you add a user as an editor, they can share the exploration as a viewer or as an editor.
6. Select one of the following options.

Option	Description
Add as viewer	Grant only viewing rights to the users you are sharing the exploration with. They cannot edit it.
Add as editor	Grant editing rights to the users you are shar ing the exploration with. They are notified when they are tagged in text. You must be in the same application scope as the exploration to add a user as an editor.

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Option	Description
	Important: The user must also have the now_assist_explorer_user role to edit the exploration.

7. Select **Confirm**.

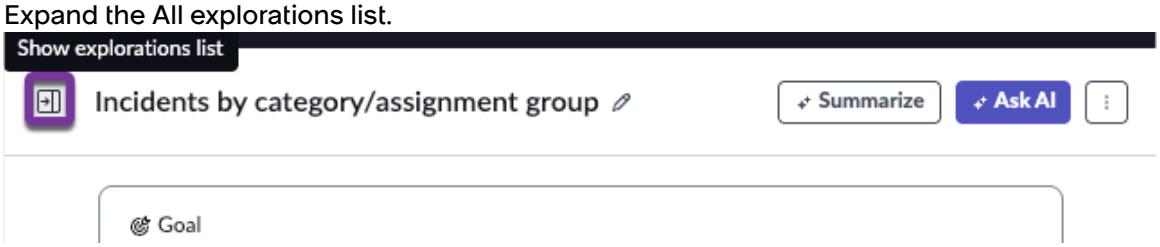
What to do next
You can add or remove users to share the exploration with. You can also change the rights of the users who you have shared the exploration with.

Open an existing exploration

In AI Data Explorer, you can open any exploration that you own or that has been shared with you.

Before you begin
Role required: Any role to open an exploration that has been shared with you. now_assist_explorer_user to edit the exploration, even if it has been shared with you with editing rights. admin to open and edit any exploration.

Procedure
1. Navigate to **All** > **AI Data Explorer** > **AI Data Explorer**.
2. Expand the All explorations list.



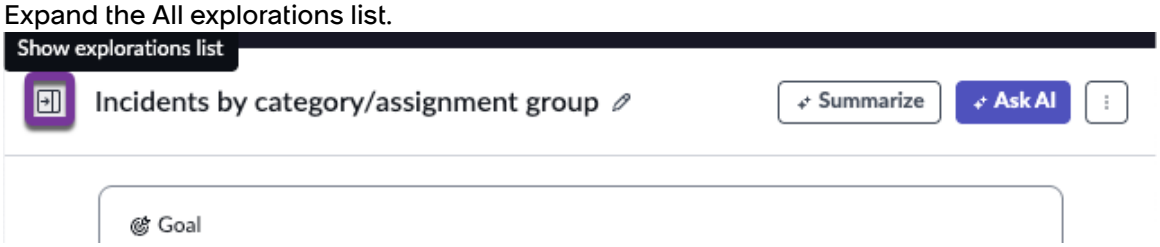
3. Search the name of the exploration or browse the list.
4. Select the exploration name to open it.

Delete an exploration

Authorized users can delete an exploration in several ways.

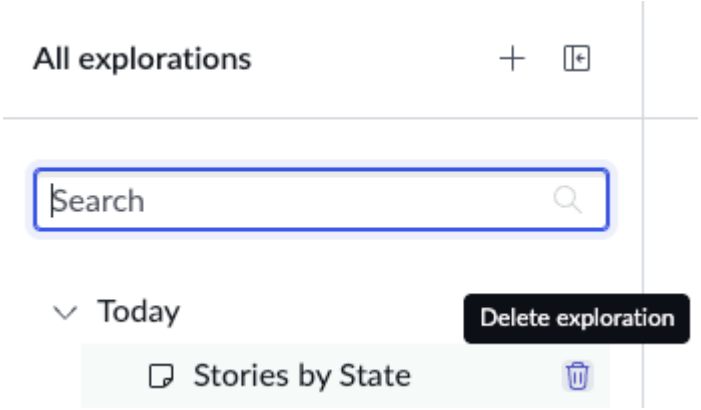
Before you begin
Role required: now_assist_explorer_user and ownership of the exploration. Users with admin role can delete any exploration.

Procedure
1. Navigate to **All** > **AI Data Explorer** > **AI Data Explorer**.
2. Expand the All explorations list.

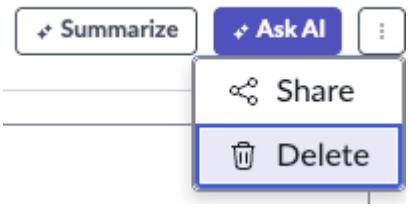


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3. To delete an exploration, either
   - Delete the exploration from the All explorations list.



   - Open the exploration and delete it from the additional actions list in the toolbar.



Related topics

Duplicate, delete, copy to another exploration, or move an answer in an exploration

AI Data Explorer reference

Reference topics provide additional information about the roles and tables in AI Data Explorer. They also describe how AI Data Explorer supports domain separation.

Roles and tables installed with AI Data Explorer

Reference information for roles and tables installed when you activate AI Data Explorer. Use this information to understand permissions and metadata storage for explorations.

Roles installed

Role name	Description	Contains roles
now_assist_explorer_user	Enables users to see AI Data Explorer in unified navigation and the Explore button on eligible lists and widgets on dashboards. Users can create explorations or browse and edit shared explorations. **Note:** If you share an exploration with edit rights, but the user does not have this role, they can only view the exploration regardless.	sn_query_gen.user

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Role name	Description	Contains roles
now_assist_explorer_admin	Can access and manage all explorations on the instance. Can control the visibility of AI Data Explorer in workspaces. Can view logs and manage tables in the semantic data layer (inherited from sn_query_gen_admin). For more information, see Query Generation logs and Add a table to the semantic data layer.	now_assist_explorer_user, sn_query_gen.admin, uxframework_user

Tables installed

The AI Data Explorer application is private. You cannot edit these tables directly. However, if you have the admin role, you can read them. Each table begins with the prefix "paai_canvas."

PAAI Canvas, PAAI Canvas Component, and PAAI Canvas Conversation records follow this hierarchy: Canvas (one record per exploration) > Conversation (currently one per canvas) > Component (one or more per conversation).

Table	Description
PAAI Canvas [paai_canvas]	Contains name, goal, sys ID, domain, and other metadata that defines an exploration. Each record is a separate exploration.
PAAI Canvas Component [paai_canvas_component]	Contains the metadata for the UX macroponents, such as data visualizations, that get added to an exploration.
PAAI Canvas Conversation [paai_canvas_conversation]	Conversations include AI answers with text, links to data visualizations, and any user input. Currently there is one conversation per exploration.
PAAI Canvas Log [paai_canvas_log]	Stores relevant licensing information.
PAAI Canvas Permission [paai_canvas_permission]	Permissions governing who an exploration is shared with. Each collaborator has a permission record for their rights in that exploration. A user has one such record for each exploration they collaborate in.
PAAI Canvas Workspace Config [paai_canvas_workspace_config]	Workspaces/experiences for which links from data visualizations to AI Data Explorer are turned off.

Domain separation support for AI Data Explorer

Domain separation is supported for AI Data Explorer. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data.

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Support level: Basic

- Business logic: Ensure that data goes into the proper domain for the application's service provider use cases.
- The application supports domain separation at run time. The domain separation includes separation from the user interface, cache keys, reporting, rollups, and aggregations.
- The owner of the instance must set up the application to function across multiple tenants.

Sample use case: When a service provider (SP) uses chat to respond to a tenant-customer's message, the customer must be able to see the SP's response.

For more information on support levels, see Application support for domain separation.

Overview of domain separation in AI Data Explorer

The goal of AI Data Explorer is to provide shared spaces, called "explorations," where collaborators can ask for and discuss AI-generated data visualizations with summaries. The AI also suggests follow-up questions. AI Data Explorer shows data only from domains that collaborators can access.

How domain separation works in AI Data Explorer

When a user in an exploration asks a question of the AI, the answer is limited to data from domains that the user and other collaborators can access. Users from a child domain cannot see explorations from parent or sibling domains, but users from a parent domain can see explorations from child domains if those explorations are shared with them.

All AI Data Explorer tables have domain fields to associate explorations to domains and restrict access accordingly.

Related topics

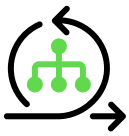
Domain separation for service providers

Generate or export dashboards and data visualizations in the Now Assist panel

Generate and export Platform Analytics artifacts from conversational interactions. For example, ask for information about the number of open incidents and get a single-score data visualization. Then export that visualization as a PDF file, all in the Now Assist panel.

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Get started

Explore  Learn more about how you can work with Platform Analytics in the Now Assist panel	Configure  Enable visualization generation and export skills for an instance	Generate data visualizations  How to create data visualizations conversationally in the Now Assist panel
Export dashboards and data visualizations  Use AI to export dashboards and data visualizations conversationally in the Now Assist panel	Reference  Roles and tables that are included with the data visualization generation and export skills	

Important:

- Not all model providers are available for customers with in-country SKUs, and some Now Assist products/features are currently unavailable for in-country customers. For more information, see the KB1584492 article in the Now Support Knowledge Base. Be sure to check for model provider availability updates in future releases.
- Some Now Assist products/features are currently unavailable for customers in the FedRAMP, NSC DOD IL5, or Australia IRAP-Protected data centers, self-hosted customers, or in other restricted environments. For more information, see the KB0743854 article in the Now Support Knowledge Base . Be sure to check for availability updates in future releases.
- Some Now Assist products/features are currently available only for customers in some regions. Be sure to check for availability updates in future releases.
- Some AI products and skills are not available in Regulated Markets. For more information, see KB2593939: Regulated Markets AI Products/Skills Not Available. Be sure to check for availability updates in future releases.

AI limitations

This application uses artificial intelligence (AI) and machine learning, which are rapidly evolving fields of study that generate predictions based on patterns in data. As a result, this application may not always produce accurate, complete, or appropriate information. Furthermore, there is no guarantee that this application has been fully trained or tested for your use case. To mitigate these issues, it is your responsibility to test and evaluate your use of this application for accuracy, harm, and appropriateness for your use case, employ human oversight of output, and refrain from relying solely on AI-generated outputs for decision-

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making purposes. This is especially important if you choose to deploy this application in areas with consequential impacts such as healthcare, finance, legal, employment, security, or infrastructure. You agree to abide by ServiceNow's AI Acceptable Use Policy, which may be updated by ServiceNow.

Data processing

This application requires data to be transferred from ServiceNow customers' individual instances to a centralized ServiceNow environment, which may be located in a different data center region from the one where your instance is, and potentially to a third-party cloud provider, such as Microsoft Azure. This data is handled per ServiceNow's internal policies and procedures, including our policies available through our CORE Compliance Portal.

Data collection

ServiceNow collects and uses the inputs, outputs, and edits to outputs of this application to develop and improve ServiceNow technologies including ServiceNow models and AI products. In addition, this application will collect information from tables and indicators that will be used to generate analytics. For example, information from the Incident table or the Number of open incidents indicator could be collected for requests for incident data visualizations. Customers can opt out of future data collection at any time, as described in the Now Assist Opt-Out page.

For more information, see the Now Assist documentation.

Explore generating or exporting dashboards and visualizations in the Now Assist panel

Generate and export Platform Analytics artifacts from conversational interactions. For example, ask for information about the number of open incidents and get a single-score data visualization. Then export that visualization as a PDF file, all in the Now Assist panel.

Overview of skills

There are two skills pertaining to working with data visualizations and dashboards conversationally in the Now Assist panel:

Data visualization generation

Lets you create relevant visualizations based upon natural language questions and available data, leveraging Platform Analytics and Query Generation. The visualizations can show data from any ServiceNow AI Platform tables. The user can add the visualization to a dashboard. This skill simplifies the process of data visualization generation and configuration, potentially increasing efficiency.

Dashboard and visualization export

Lets you export existing Platform Analytics dashboards and data visualizations conversationally, leveraging Query Generation. The available output formats depend on what you are exporting, but typically include PDF and Microsoft PowerPoint.

Roles

The now_assist_panel_user and either now_assist_analytics_generation or now.assist.creator and roles are required to use the data visualization generation skill. The user must also have access to the data for which they are requesting a visualization.

The user can add a generated visualization to any dashboard to which they have editing rights.

The now_assist_panel_user role is required to use the dashboard and visualization export skill. To schedule the export, the user also needs par_scheduler.

Activation

The data visualization generation and dashboard and visualization export skills are included with Generative AI Controller, which is installed as a dependency of Now Assist applications from

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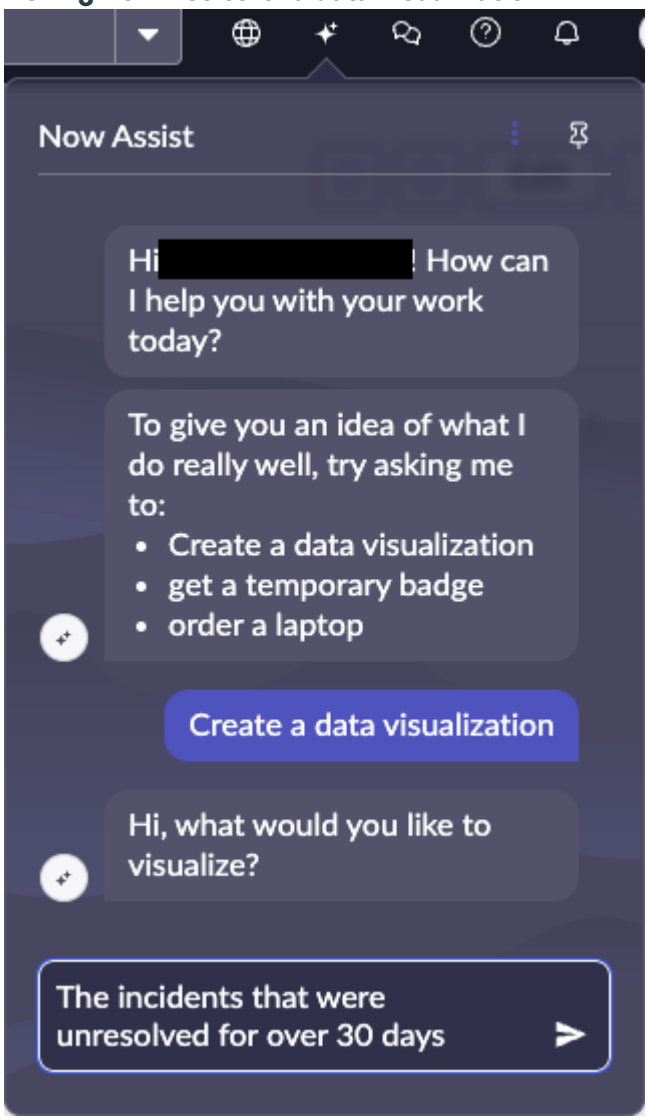
the ServiceNow Store. You have to activate the skills after installation. For more information, see Configuring Now Assist panel skills for Platform Analytics.

Supported user interfaces

Access the data visualization generation skill by starting a conversation in the Now Assist panel and asking for information available from a Platform Analytics table.

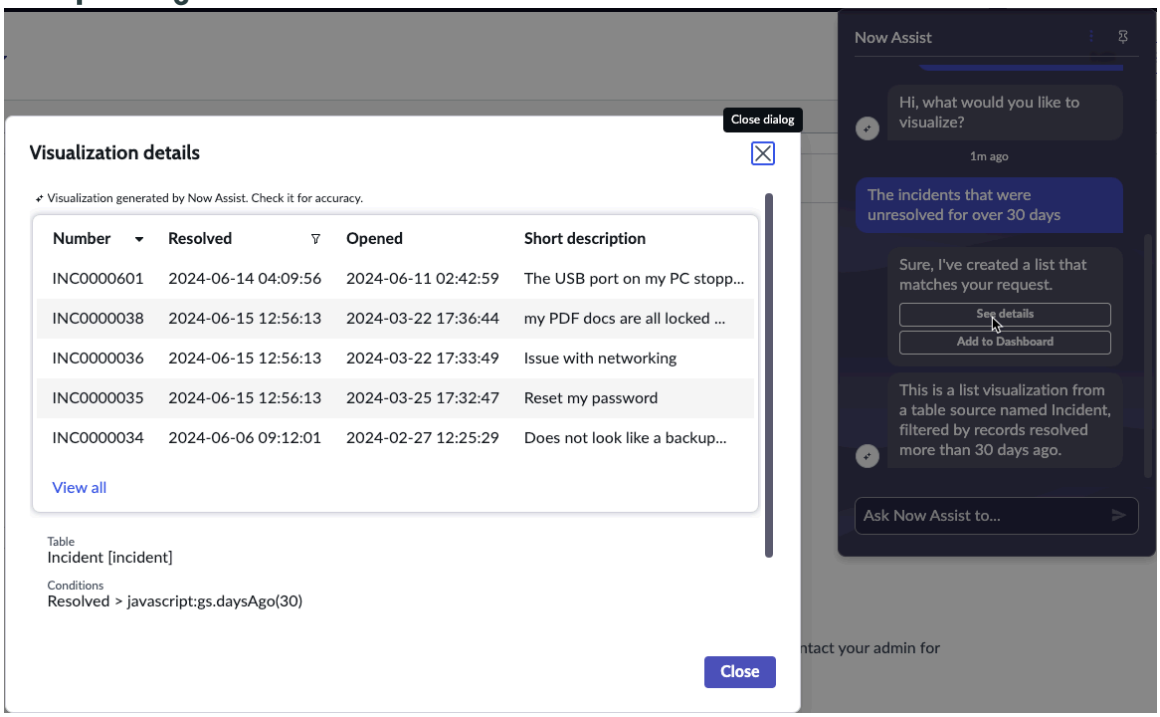
Similarly, access the dashboard and visualization export skill by starting a conversation in the Now Assist panel and asking to export a specific visualization or dashboard.

Asking Now Assist for a data visualization



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Example of a generated data visualization



Configuring Now Assist panel skills for Platform Analytics

Activate the skills for generating and exporting Platform Analytics dashboards and data visualizations from conversations in the Now Assist panel.

The dashboard and visualization export skill are included in the Generative AI Controller application and plugin, which contains a range of utilities. This plugin is included in all Now Assist applications.

The Query Generation skills "analytics query generation," "analytics insight generation," "analytics hidden insight generation," and "analytics follow-up generation" are required. These skills are active by default. For more information, see Query Generation skills.

Activate the data visualization generation skill

Give users generative AI capabilities for creating data visualizations from the Now Assist panel by activating the data visualization generation skill.

Before you begin

The data visualization generation skill is included in Generative AI Controller, which is in most Now Assist applications from the ServiceNow® Store.

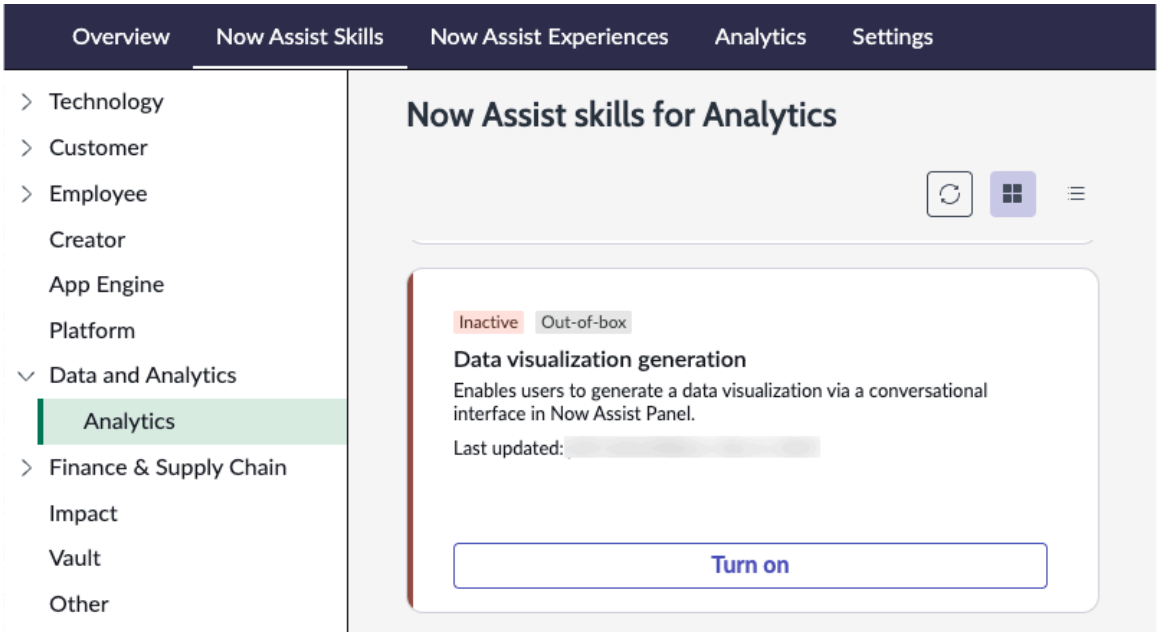
The Query Generation skills "analytics query generation," "analytics insight generation," "analytics hidden insight generation," and "analytics follow-up generation" are required. These skills are active by default. For more information, see Query Generation skills.

Role required: admin

Procedure

1. Navigate to **All** > *Now Assist Admin* > **Skills**.
2. In the product area pane, select **Data and Analytics** > **Analytics**.
3. In Now Assist skills for Analytics, search for the data visualization generation skill.

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4. **Optional:** In the **Define access** page, you can add roles who can use this skill. By default, the now.assist.creator.analytics, now_assist_explorer_user, and now_assist_analytics_generation roles have these rights. Think carefully before making any changes.

   (Optional) All **Analytics** skills have this option. The data visualization skill and Query Generation skills should have one role in common. Note that each default data visualization generation role contains the sn_query_gen.user role, which is the default role for Query Generation skills.

5. Select **Turn on**.

Result
If the skill was successfully activated, the system notifies you.

Dashboard and visualization export skill

Give users generative AI capabilities for creating data visualizations from the Now Assist panel by activating the dashboard and visualization export skill.

Before you begin
The dashboard and visualization export skill is included in Generative AI Controller, which is in most Now Assist applications from the ServiceNow® Store.

Role required: admin

About this task

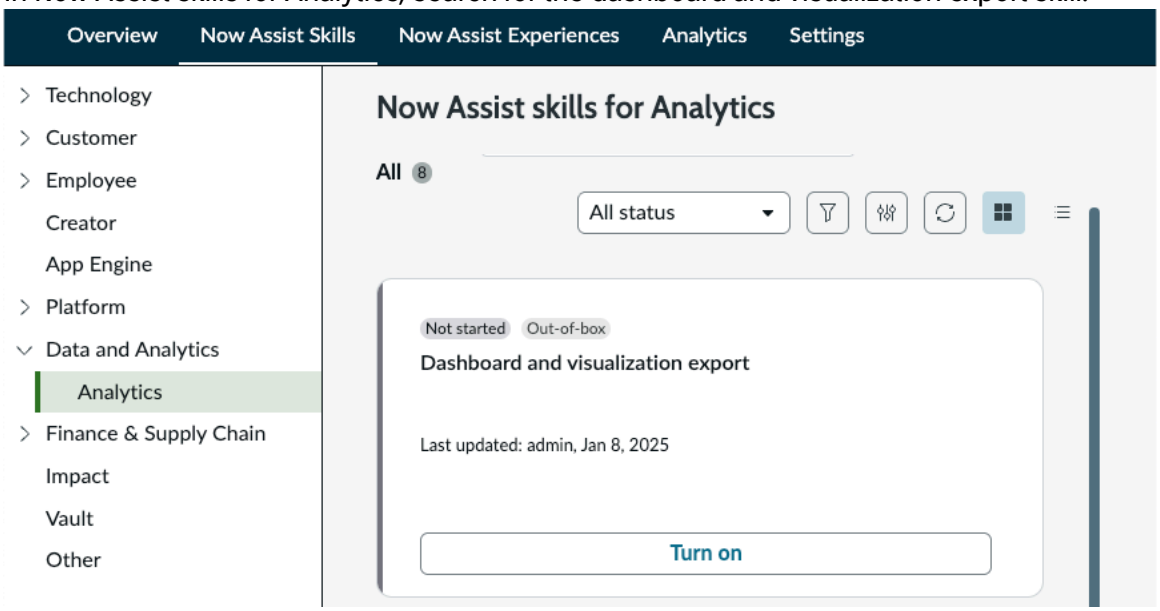
Important:
This Now Assist skill is turned on by default. The skill will be automatically available to appropriate role users for the application. For more information, see Now Assist skills, agents, and agentic workflows on by default.

Procedure

1. Navigate to **All** > *Now Assist Admin* > **Skills**.
2. In the product area pane, select **Data and Analytics**.

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3. In Now Assist skills for Analytics, search for the dashboard and visualization export skill.



4. Select **Turn on** or **Deactivate skill**.

Result

If the skill was successfully activated or deactivated, the system notifies you.

Generate visualizations in the Now Assist panel

Request generative AI to create a visualization of data that you want to see. If you are on a dashboard that you can edit, you can add the visualization to that dashboard.

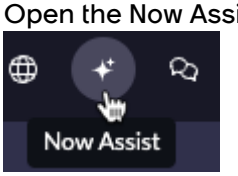
Before you begin

Role required: now_assist_panel_user and either now_assist_analytics_generation or now.assist.creator.analytics. You need access to the data that you want to see. If you want to add the visualization to a dashboard, you need editing rights to that dashboard.

Important:
You need the correct entitlements to this skill and to Query Generation.

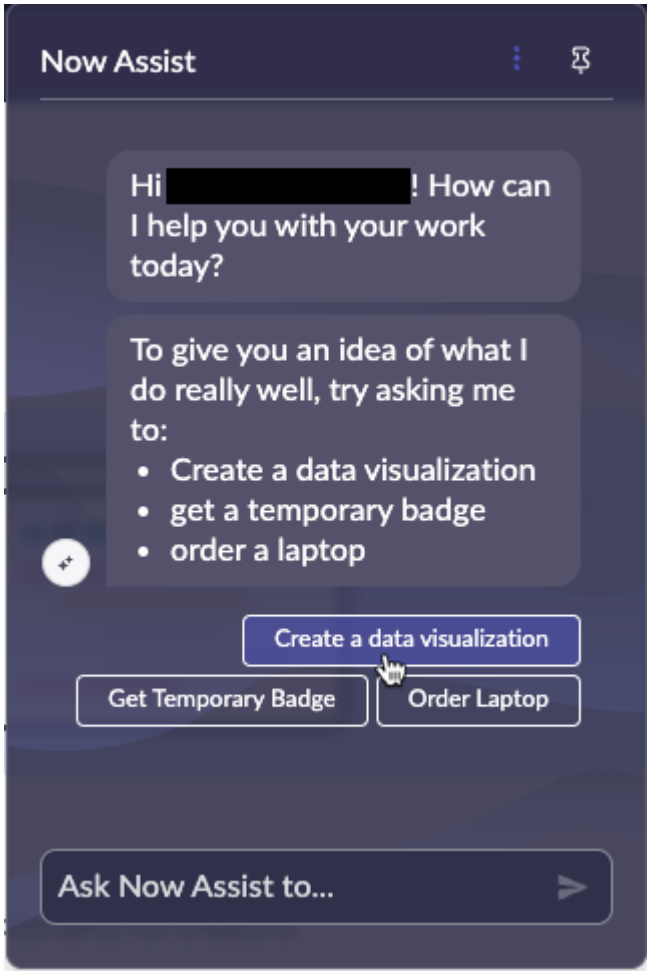
Procedure

1. If you want to add a visualization to a dashboard that you can edit, navigate to **All** > **Platform Analytics** > **Library** > **Dashboards** and open the dashboard from the library.
2. Open the Now Assist panel.



3. Select **Create a data visualization**.

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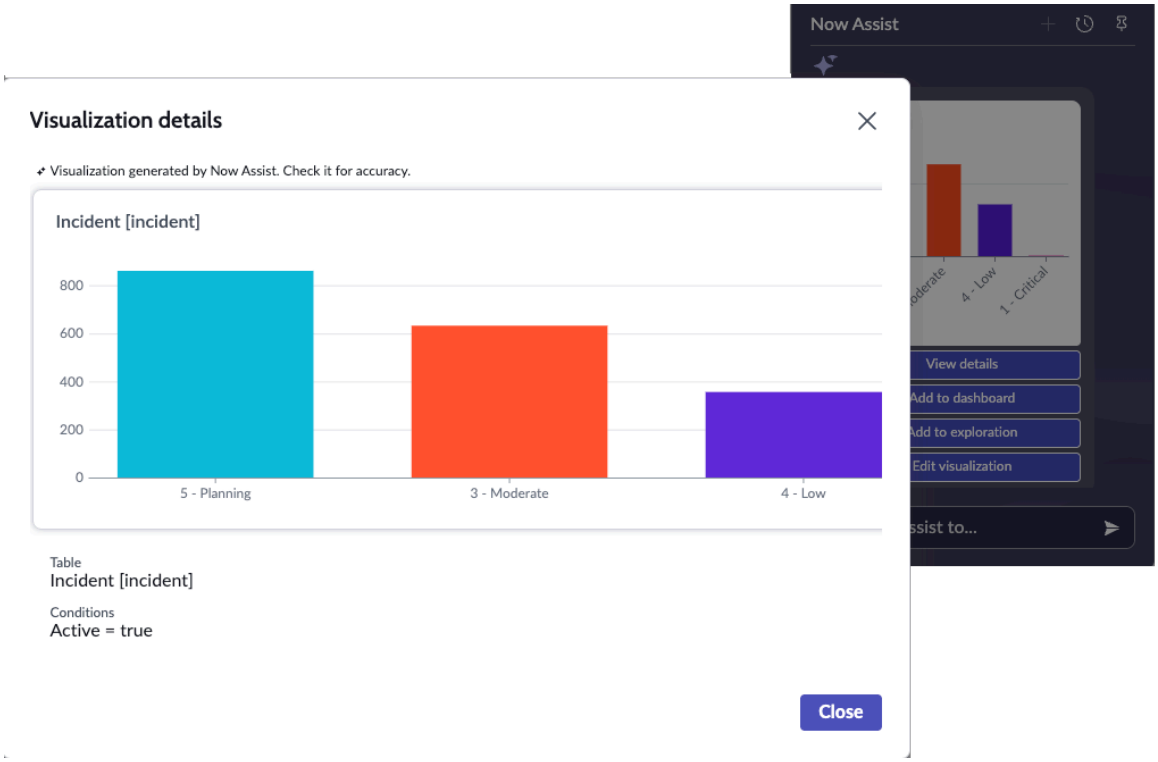


4. Ask for data to see.
   For example, ask "Can I see open incidents by priority?" You then would get a visualization of the count of incidents divided across priorities where active=true. You can specify the chart type, too, but not all charts are supported. For more information about what kind of questions you can ask, see Guidelines and example questions and Limitations to generating data visualizations.

   Note:
   Analytics Generation only returns visualizations of data in tables for which semantic generation is enabled. If you have a question, ask your admin to check the Semantic Table Configurations [sn_query_gen_table_config_list] under **Query Generation** > **Administration** > **Semantic Table Config**.

5. To pop out a larger view of the visualization that shows the table name and conditions, select **View details**.

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6. To add the visualization to a dashboard, select **Add to dashboard**.
   A pane opens where you can choose from any of the dashboards that are available to you to edit. You can also create a new dashboard to contain the visualization. Note that technical dashboards are not supported.
7. To add the visualization to a collaborative workspace in AI Data Explorer, select **Add to exploration**.
   For more information, see Use AI to explore data with AI Data Explorer.
8. To edit the visualization, select **Edit visualization**.
   If you have the viz_creator role, you can save the visualization to the Data Visualizations library. For more information, see Edit a data visualization in the Visualization Designer.
9. Under **What would you like to do next**, you see several suggestions:

Suggestion	Description	Example of prompt
Change visualization type or condition	Change a configuration field like Group by, or the filter conditions, or the visualization type.	Change group by to Priority.
Use another table as the data source	Change the data that you want to visualize, according to table name. You may be prompted for the aggregation type, such as Count.	Change table to Problem.
Leave this topic	Select this button to finish work on this visualization	Not applicable

Guidelines and example questions

This section shows guidelines and some typical questions that you could ask in the Now Assist panel to generate data visualizations.

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Follow these guidelines when asking Now Assist to generate a data visualization:

Be precise in your questions

- Use the correct term for the subject of the data you want, such as 'incident' or 'change request.' If you know the name of the table, include that name in the question.
- Be as detailed and precise in your conditions as possible. Do not say "all incidents not resolved in 30 days," say "all incidents that were still open 30 days after they were created."
- If you want a specific visualization type, say so.

Experiment with questions

Save your questions somewhere, including any modified versions. Saving your questions enables easy comparison of results.

When you generate a data visualization, look it over carefully. Check whether it really shows you what you want to know. Keep refining your questions until you're satisfied.

Examples

Show me the number of open incidents by priority

Gives you a chart of records on the Incident table grouped according to the Priority column value.

Show task sla as pie

Here you are asking for a pie chart of Task SLA records, but you have not specified the field by which to group the records. Now Assist gives you a list of fields to choose from, and then it shows you a pie chart based on your selection.

Show unresolved problems where Assignment group is not empty

Gives you a list of records from the Problem [problem] table, filtered to show only records with a value in the Assignment group field.

Show me the total number of tasks with high priority

Gives you a single score chart with the number of unique records (Count Distinct aggregation) on the Task table with a priority of 2 (High).

Tasks created this month, grouped by priority

Gives you a bar chart of records on the Task table that were created this month, grouped by the value of the Priority field.

Limitations to generating data visualizations

While data visualization generation is designed to handle a wide range of queries and scenarios, certain cases are not supported or only partially supported.

Unsupported queries

Query contents	Example	Limitation
Visualization type	"Show me a heatmap of open incidents by creation date"	Only the following visualization types are supported: • Scores: single score, dial, gauge • Bar: horizontal and vertical bars • Donut, pie, and semi-donut

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Unsupported queries (continued)

Query contents	Example	Limitation
		• Time series: area, line, column, scatter, spline, step • List
Data source	"Show me open asset contracts"	Only table data sources listed in the Semantic Table Configuration table are supported. See Add a table to the semantic data layer.
Multiple Group By conditions	"Show me open incidents by group and state."	Data visualization generation will produce results, but only the first 'group by' clause (group) will be considered. The second 'group by' clause (state) will be ignored in the current output.
Multiple time periods	"Show me open incidents last week, month, and year."	Data visualization generation is currently unable to process queries that request data for multiple time periods simultaneously. Only one time period can be handled at a time.
Conflicting or complementary conditions	"Show me resolved and unresolved cases last week."	Data visualization generation detects only the first condition (resolved) under the state column. The second condition (unresolved) is misinterpreted and may be incorrectly mapped to another column or ignored.
Multiple data tables	“Show me high priority incidents, problems and changes”	Data visualization generation identifies only the first table and ignores the other ones.
Non-English queries	--	Only English is supported
Technical dashboards	--	Data visualizations can be added only to dashboards that are created in the inline editor. Technical dashboards are not supported.

Possible ways to circumvent limitations

- Simplify your queries by focusing on one 'group by' clause at a time.
- Specify a single time period per query.
- Avoid multiple conditions in a single query.

Export dashboards and data visualizations from the Now Assist panel

Export or schedule the export of dashboards and data visualizations conversationally through AI instead of going through the Platform Analytics user interface.

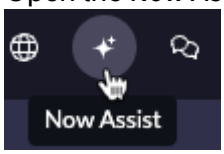
Before you begin

Role required: now_assist_panel_user. To schedule an export, you also need par_scheduler. You need access to the dashboard or the data in the visualization.

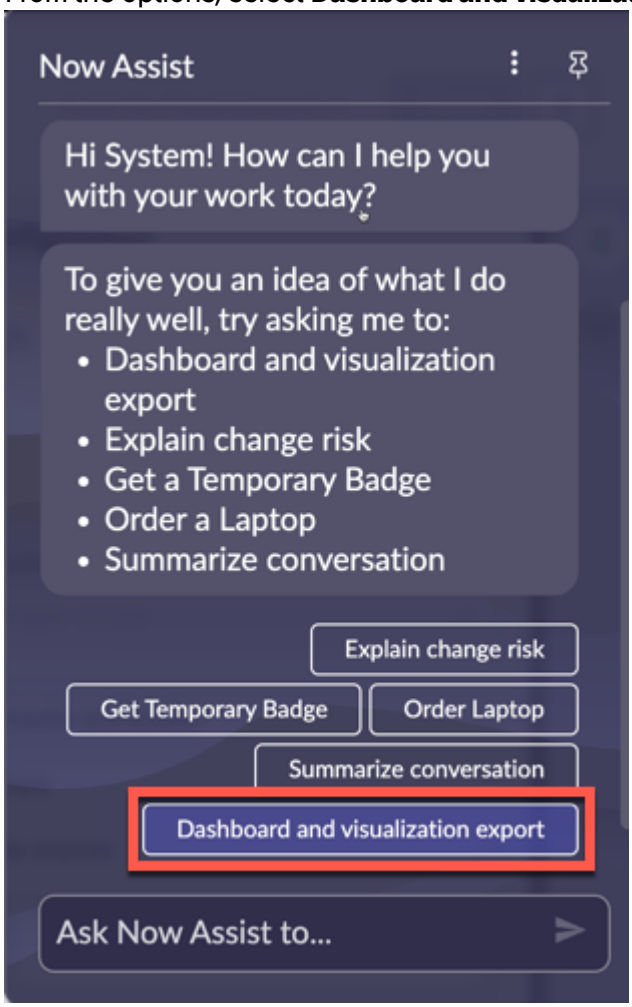
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Procedure

1. Open the Now Assist panel.



2. From the options, select **Dashboard and visualization export**.



3. Engage in an iterative conversation until Now Assist produces the export you want.
   - If you want an immediate export, specify the word "Export" in your prompt. If you want to schedule an export, specify "Schedule."
   - Specify the name of the data visualization or dashboard.
   - Specify the word "visualization" or "dashboard" depending on what you want to export. Specify the word multiple times for best results.
   - Specify the desired output type.
   - Specify whether you want to download the export or have it emailed.

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- You can only export dashboards or data visualizations that have been saved to the library.
- Although you can directly export only visualizations that are in the library, if you export a dashboard, you export all visualizations on that dashboard, including those that were not saved to the library.

For more information, see the topics linked after this procedure.

What to do next

Tip:
After an export request is complete, reset the conversation before beginning a new request. Otherwise, some option selections might carry over to the new request. If this happens anyway, consider clearing your browser cache.

Related topics

Export a visualization from the Visualization Designer

Export a Platform Analytics dashboard

Schedule the export of data visualizations or dashboards

Supported export output types

The dashboard and visualization output skill supports the same outputs for the same data visualizations as Platform Analytics generally.

You can export dashboards as Microsoft PowerPoint or PDF files, but not all dashboard components support these formats. Unsupported components are not exported. The formats for exporting data visualizations directly also depend on the visualization type.

Supported export formats

Data visualization or dashboard element	Supported dashboard export formats	Supported data visualization export formats
Calendar reports, Indicator scorecards, Pivot tables, Geomap	None	None
Lists	PDF	PDF, Microsoft Excel (.xls or .xlsx), Embedded LIST
Other data visualizations	PowerPoint, PDF	PowerPoint, PDF, PNG, JPEG, Embedded PNG
Non-data visualization dashboard elements, like Headings	None	Not applicable

Export destinations

When you export a dashboard or data visualization in the Now Assist panel, you have to specify the destination.

You can select from the following file destinations:

- Download
- Email
- Scheduled email

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Specify recipients for an email. If you select scheduled email, also specify the frequency of the email. You are asked for more details depending on the frequency you have selected.

Note:
If you select **Download** and the export takes longer than 10 seconds, you receive the export as an email attachment instead of a download. Thus the export completes asynchronously, freeing up the Now Assist panel.

Limitations for exporting dashboards and visualizations

The dashboard and visualization export skill supports only some dashboards for export. Requests for export are not always recognized or understood correctly.

Bear these limitations in mind:

- You can only select dashboards or data visualizations for export that have been saved to their respective libraries.
- You cannot export technical dashboards, only dashboards that have been created in the in-line dashboard editor.
- By default, you can export a maximum of 150 visualizations in one PowerPoint export. If you need more slides, consider exporting the dashboard as separate tabs.
- Recognition of request content can be intermittent. The more detail you specify in your request, the more likely it is that not all of it will be recognized.

Some prompts are not recognized at all. Avoid the following phrases:

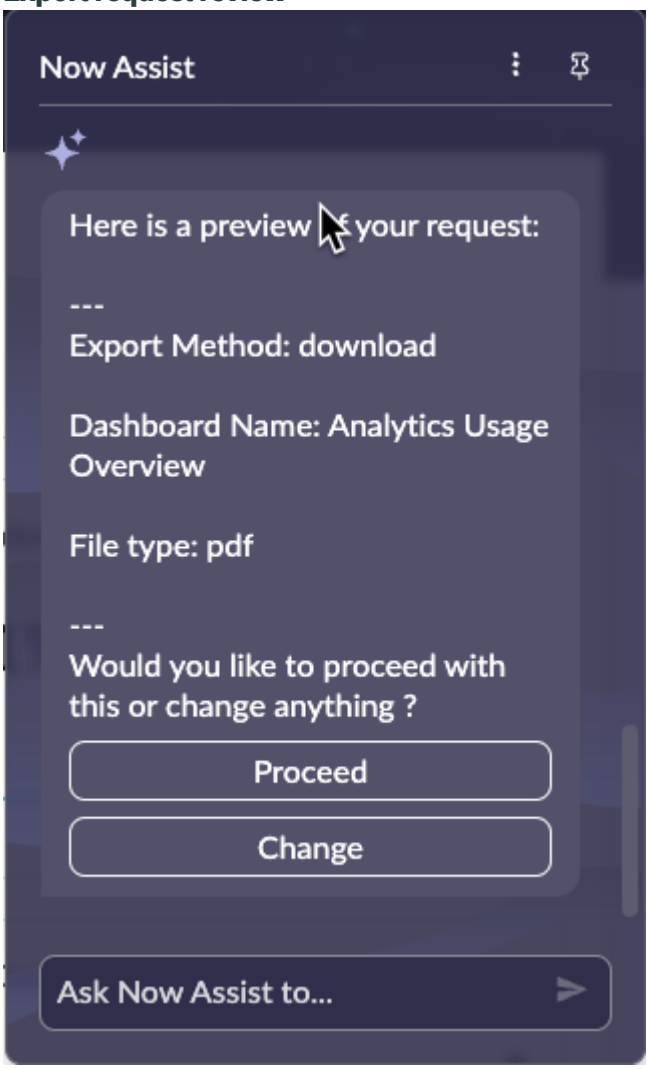
- Mail to me
- Mail with subject and body as Visualization/Dashboard name

Export guidelines and examples

In your prompts for the dashboard and visualization export skill, you can describe the export you want with a variable amount of detail. You are prompted for any necessary information that is missing. Before the export runs, you are asked to review the request, giving you a chance to change any options.

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Export request review



Here are some example requests with different levels of detail, to use in different circumstances:

Export this visualization to PowerPoint

If you have a dashboard or data visualization open, you do not have to specify the name. Now Assist is aware of the context. For this request, you would be asked for the export method.

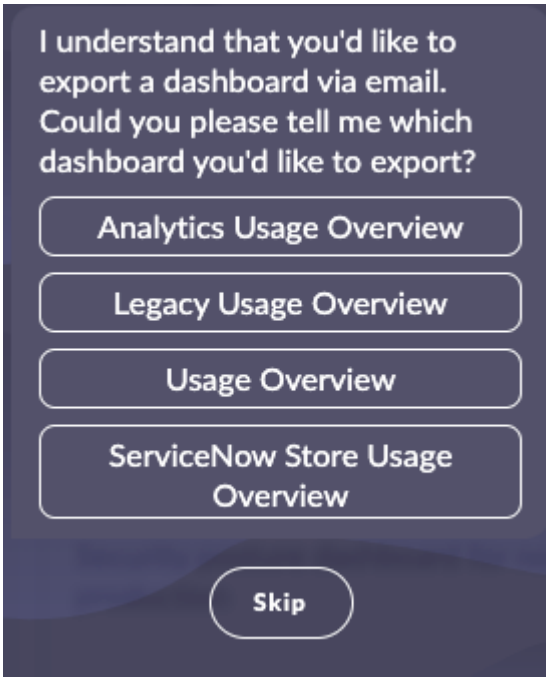
Export visualization Asset lifecycle by state to PPT

If you do not have the dashboard or visualization open, either specify its name or choose it from the list. Always specify whether you want to export a dashboard or a visualization.

Export and email Usage Overview dashboard

As there are several dashboards with Usage Overview in the name, you are asked which one to export.

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Export to PowerPoint the Reports Usage tab of the Analytics Usage Overview dashboard

You can export an entire dashboard or a selected tab to PowerPoint. You can only export entire dashboards to PDF.

Export this dashboard to PowerPoint with applied filters

In this case, you export the open dashboard and apply any filters on the dashboard as a whole and on any tabs. If you export a dashboard tab with applied filters, you apply only the top-level dashboard filters and the filters on that tab. You can apply filters only when exporting to PowerPoint.

Reference for dashboard and visualization skills

Information about the roles, tables, and scheduled jobs included with the data visualization generation and dashboard and visualization export skills.

Data visualization generation roles

Several types of components are installed with activation of the plugin, including tables, user roles, and scheduled jobs.

Roles installed

Role name	Description	Contains roles
now_assist_analytics_generation	In combination with now_assist_panel_user, allows the holder to generate data visualizations in the Now Assist panel.	sn_query_gen.user

Tables installed

Data visualization generation does not include any tables of its own. However, it relies on the Query Generation back end, which does include several tables. For more information, see Query Generation.

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Query Generation

Query Generation is a shared backend that Now Assist in Platform Analytics applications use to translate plain language user questions into database queries.

Get started

Explore	Configure	Reference
		
Explanation of what Query Generation is	Enabling Query Generation and adding or removing support for specific facts tables	Guide to tables in Query Generation

Important:

- Not all model providers are available for customers with in-country SKUs, and some Now Assist products/features are currently unavailable for in-country customers. For more information, see the KB1584492 article in the Now Support Knowledge Base. Be sure to check for model provider availability updates in future releases.
- Some Now Assist products/features are currently unavailable for customers in the FedRAMP, NSC DOD IL5, or Australia IRAP-Protected data centers, self-hosted customers, or in other restricted environments. For more information, see the KB0743854 article in the Now Support Knowledge Base . Be sure to check for availability updates in future releases.
- Some Now Assist products/features are currently available only for customers in some regions. Be sure to check for availability updates in future releases.
- Some AI products and skills are not available in Regulated Markets. For more information, see KB2593939: Regulated Markets AI Products/Skills Not Available. Be sure to check for availability updates in future releases.

AI limitations

This application uses artificial intelligence (AI) and machine learning, which are rapidly evolving fields of study that generate predictions based on patterns in data. As a result, this application may not always produce accurate, complete, or appropriate information. Furthermore, there is no guarantee that this application has been fully trained or tested for your use case. To mitigate these issues, it is your responsibility to test and evaluate your use of this application for accuracy, harm, and appropriateness for your use case, employ human oversight of output, and refrain from relying solely on AI-generated outputs for decision-making purposes. This is especially important if you choose to deploy this application in areas with consequential impacts such as healthcare, finance, legal, employment, security, or infrastructure. You agree to abide by ServiceNow's AI Acceptable Use Policy, which may be updated by ServiceNow.

Data processing

This application requires data to be transferred from ServiceNow customers' individual instances to a centralized ServiceNow environment, which may be located in a different data center region from the one where your instance is, and potentially to a third-party cloud provider, such as Microsoft Azure. This data is handled per ServiceNow's internal policies and procedures, including our policies available through our CORE Compliance Portal.

Data collection

ServiceNow collects and uses the inputs, outputs, and edits to outputs of this application to develop and improve ServiceNow technologies including ServiceNow models and AI products. In addition, this application will collect information from tables and indicators that will be used to generate analytics. For example,

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information from the Incident table or the Number of open incidents indicator could be collected for requests for incident data visualizations. Customers can opt out of future data collection at any time, as described in the Now Assist Opt-Out page.

For more information, see the Now Assist documentation.

Exploring Query Generation

Query Generation is an AI-powered service that translates user questions into an executable query and returns the results. An executable query contains the data source, filter, aggregation, and visualization instructions that best answer the user's question. The results include a textual summary, a data visualization, and suggestions for follow-up.

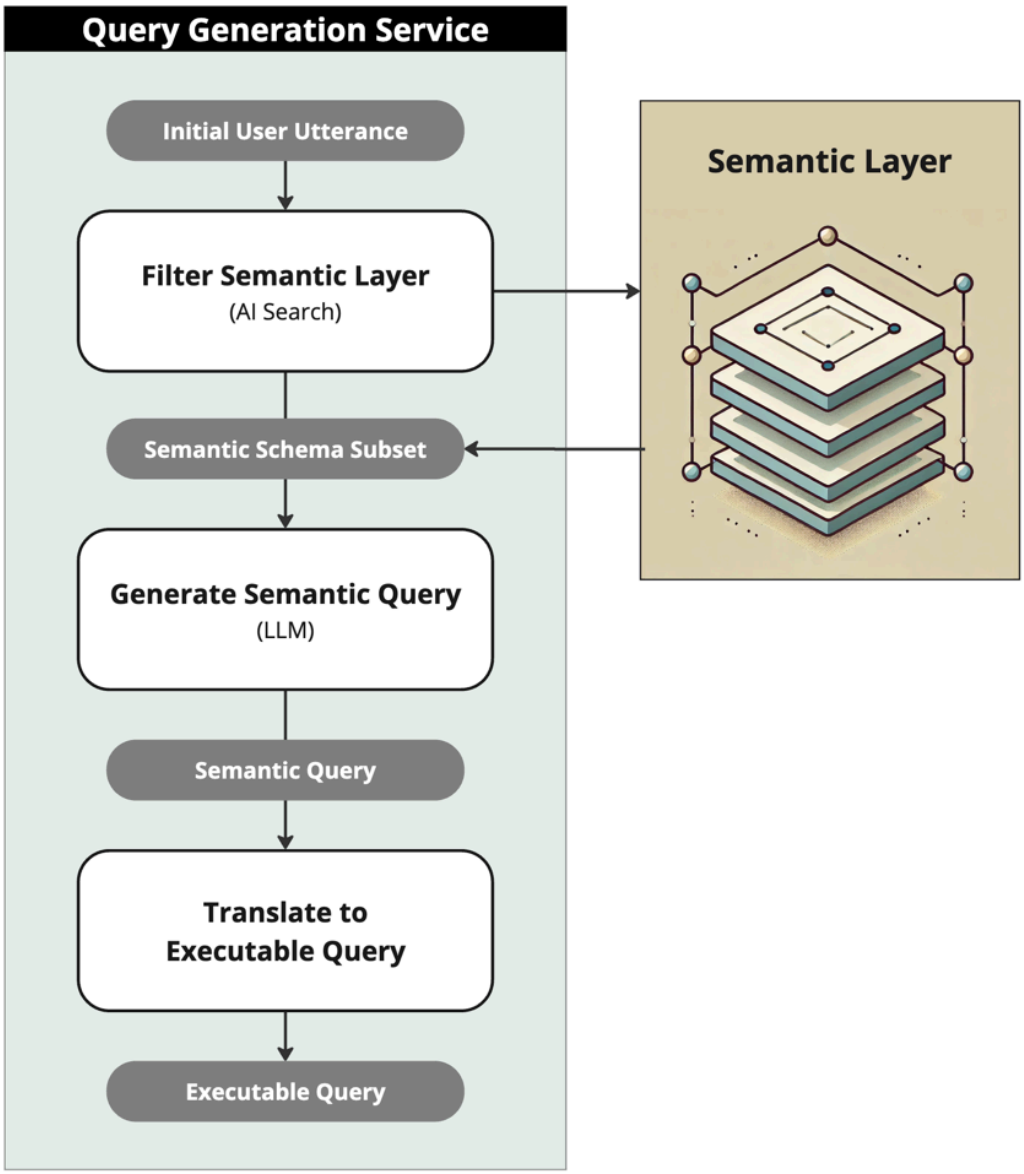
Query Generation overview

Query Generation relies on a semantic data layer to generate queries. The semantic data layer is a flat representation of tables and table columns that the Query Generator uses to find the actual facts tables and columns related to a user utterance. Specifically, facts tables are represented by Entity records and their columns by Dimension records.

Not all facts tables are included in Query Generation, as this would overload an instance. To see which facts tables are included, open the Semantic Tables Configurations list [sn_query_gen_table_config_list], and note which tables are present and have Enable Semantic Generation = true. You can add more tables to the list, but be careful of possible performance impacts. For more information, see Add a table to the semantic data layer.

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How Query Generation works



Before Query Generation can call the LLM, it has to filter the instance schema down to only the relevant entities and dimensions needed to answer the user's question. This filtration serves two critical purposes:

- It provides the LLM with precise grounds for truth about available tables and columns, preventing hallucination of non-existent data structures.
- It maintains a focused context window, which improves LLM performance and accuracy compared to processing the entire schema.

Query Generation uses a semantic filter to narrow the entities (facts tables) to the 2 closest matches to the user's question. Then from those entities, it narrows the dimensions (columns) to the 30 most similar to the user's question. Query Generation passes these results to the LLM, which generates a semantic query. A constitutor takes this semantic query and translates it into an executable query.

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Query Generation users

Users

User	Description
ServiceNow AI Platform administrators responsible for Now Assist in Platform Analytics [admin]	Administrators can add or remove tables from the semantic data layer. Only users with the admin role can read or change Query Generation records.
Users of Now Assist in Platform Analytics applications	Users of the Now Assist in Platform Analytics applications call Query Generation through those applications, although Query Generation is not visible to them. They should have the required Query Generation user roles through the roles granted to them to use the intermediary application.

What to explore next

To learn more about configuring and using Query Generation, see:

- Configuring Query Generation
- Query Generation reference

Configuring Query Generation

Select the tables that are subject to Query Generation.

Configuration overview

You must activate the Query Generation skills for it to be used. You may also change which tables are included and have semantic generation enabled.

Query Generation skills

Query Generation skills enable users to ask questions in Now Assist in Platform Analytics applications and receive answers.

Before you begin

Query Generation is included in Generative AI Controller, which is included with Now Assist applications from the ServiceNow® Store. Yokohama Patch 7 or later is required.

Role required: admin

About this task

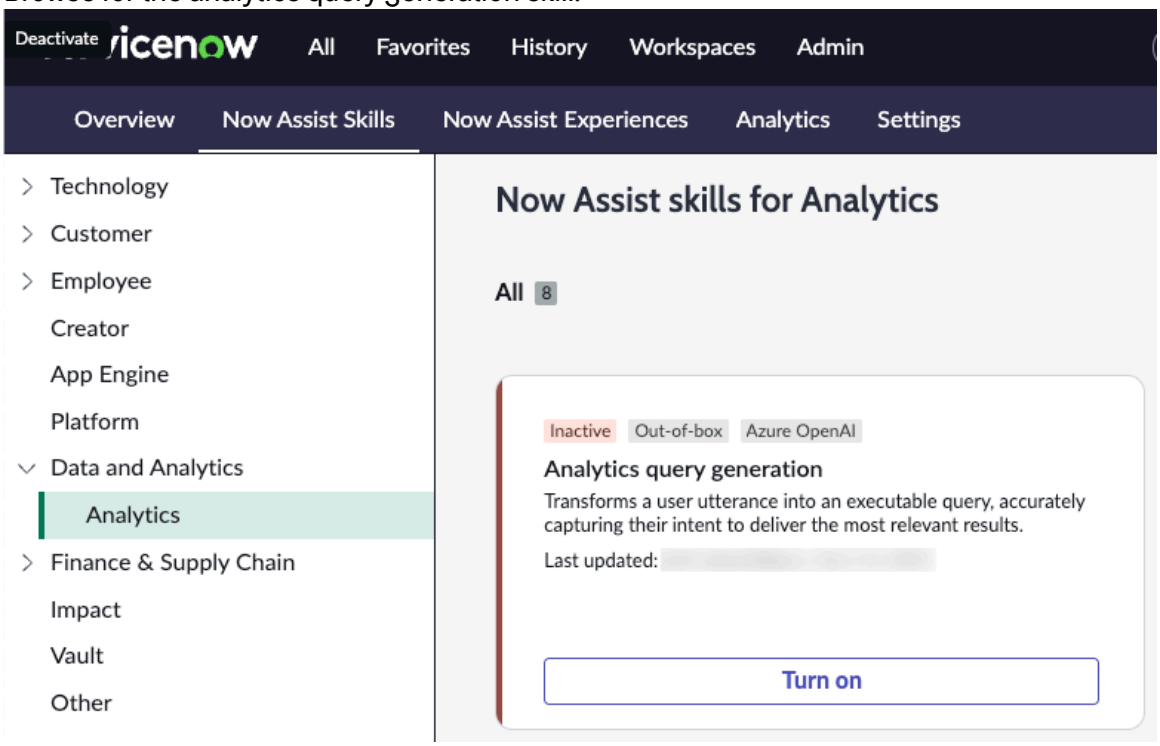
Important:
This Now Assist skill is turned on by default. The skill will be automatically available to appropriate role users for the application. For more information, see Now Assist skills, agents, and agentic workflows on by default.

Procedure

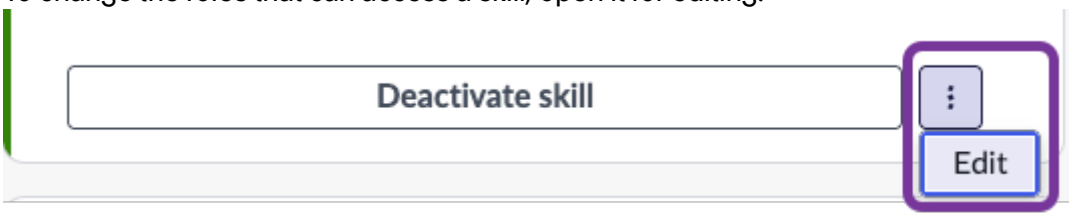
1. Navigate to **All** > **Application Manager** and verify that the Generative AI Controller plugin is activated.
   It is likely to already be active, especially if you installed and activated a Now Assist application and plugin that has Now Assist for Platform as a dependency.
2. Navigate to **All** > *Now Assist Admin* > **Skills**.

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3. In the product area pane, select **Data and analytics** > **Analytics**.
4. Browse for the analytics query generation skill.



5. To deactivate a skill, select **Deactivate skill**.
   Features that require the skill, such as AI Data Explorer, will no longer function.
6. To change the roles that can access a skill, open it for editing.



> **Warning:**
> Be careful when selecting the roles that can access a skill. The default role is sn_query_gen.user, which the default roles for other Now Assist in Platform Analytics skills contain. Users of these other skills must be able to access Query Generation skills.

Add a table to the semantic data layer

Add more tables to the Query Generation semantic layer so that users can use Now Assist in Platform Analytics applications to ask questions about the data in those tables.

Before you begin

Semantic table configuration supports regular tables, database views, and Workflow Data Fabric tables.

> **Warning:**
> Adding a table to the semantic data layer and enabling semantic generation on that table can negatively impact both initial load time and runtime performance of Query Generation.

Role required: admin, now_assist_explorer_admin, sn_query_gen.admin

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Procedure

1. Navigate to **All** > **Query Generation** > **Administration** > **Semantic table config**.
   If you do not have this navigation path despite having the correct roles, you may be missing a required entitlement.
2. In the Semantic Tables Configurations list, select **New**.
3. Set your session application scope to be the same as the scope you want for the table.

> **Important:**
> To add a database view, you must select the same scope as that database view.

4. Select a table from the **Table Name** list.
5. Select whether to enable semantic generation for the table.
   By default, semantic generation is enabled. For more information, see Enable semantic generation for tables in the semantic layer.
6. Select whether to include the hierarchy of child tables.
   By default, child hierarchies are included.
7. Select **Submit**.

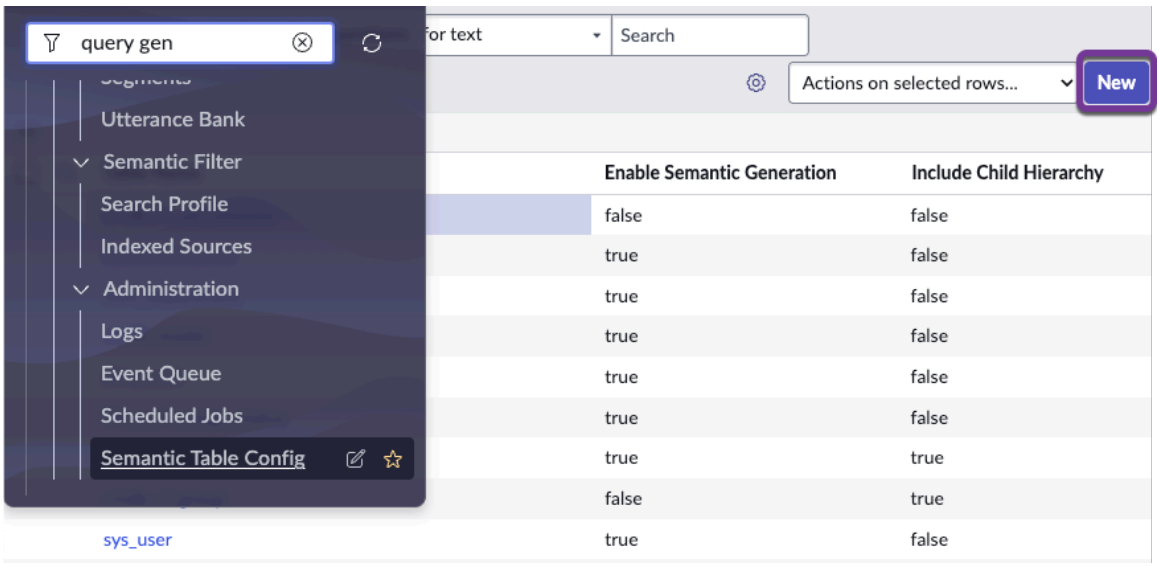
Result

Your table is added to the list. If you enabled semantic generation, records for the table and its child tables, if included, are generated in the Entities [sn_query_gen_entities] table. Records for the table columns are generated in the Dimensions [sn_query_gen_dimensions] table.

Example: Adding the Contract table hierarchy to the semantic layer

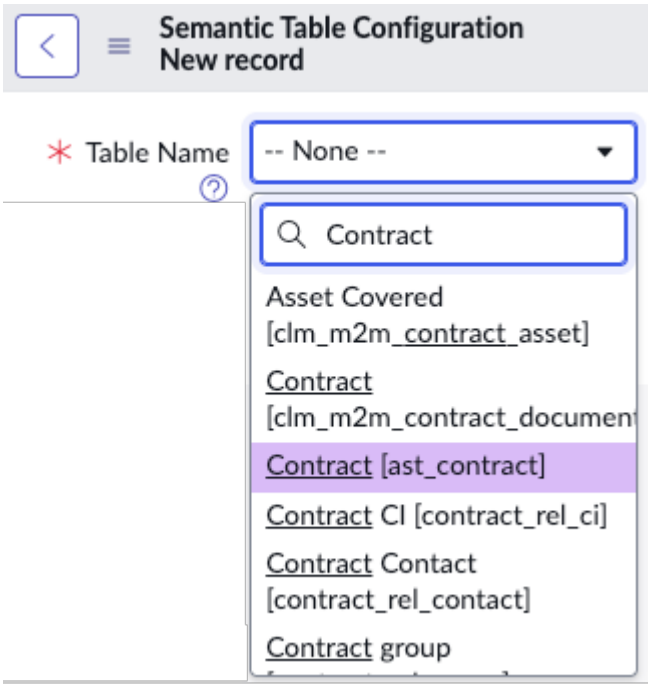
If you have users who need to explore and discuss data relating to asset contracts, you need to add the Contract [ast_contract] table to the semantic layer. This table hierarchy is not supported by default.

1. First, you open the Semantic Table Configuration list [sn_query_gen_table_config_list] and press the **New** button.

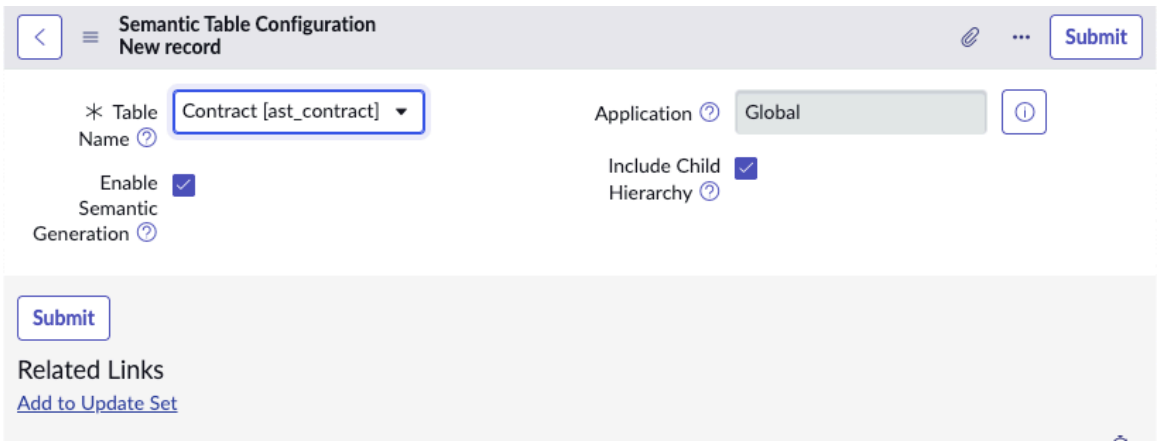


2. Now you are in the form for creating a new Semantic Table Configuration record. You search for the Contract [ast_contract] table and select it.

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3. You want to enable semantic generation on the entire Contract table hierarchy, so you leave the **Enable Semantic Generation** and **Include Child Hierarchy** checkboxes selected and press **Submit**.



4. You see that the Contract [ast_contract] table has been added to the Semantic Table Configurations table, and that semantic generation is enabled on its hierarchy.

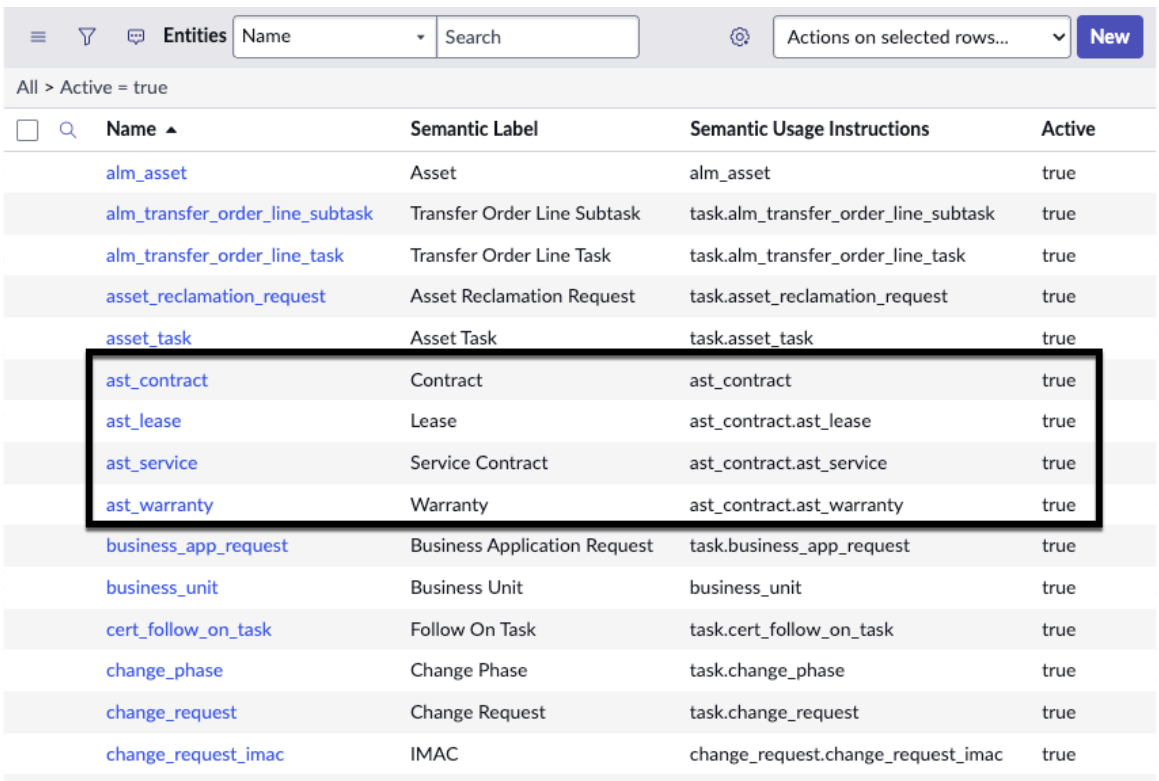
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Semantic Table Configurations | for text | Search | Actions on selected rows... | New

All

Table Name	Enable Semantic Generation	Include Child Hierarchy
cmdb_ci	true	true
dscy_net_base	false	true
dscy_priv_command_affinity	false	true
x_snc_bt1_csm_m2m_problems_cases	true	false
cmn_cost_center	true	false
dscy_invalid_serial	false	true
cmn_location	true	false
ast_contract	true	true
dscy_credentials_affinity	false	true
u_imp_tmpl_x_snc_dep_tracker_dependency	true	true
x_snc_bt1_csm_customer_account	true	false
cmn_schedule	true	false

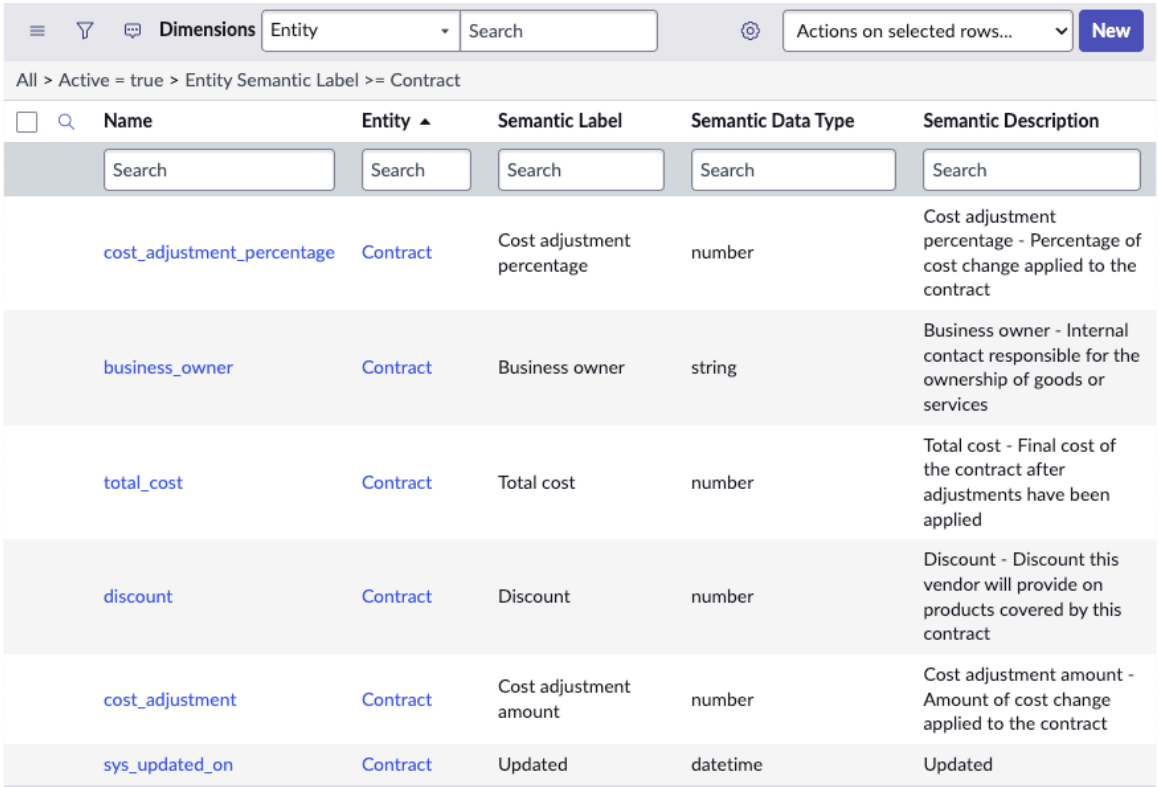
5. When you open the Entities list [sn_query_gen_entity_list], you see that the Contract table and all its children are represented by Entity records, and all the records are active.



Name ▲	Semantic Label	Semantic Usage Instructions	Active
alm_asset	Asset	alm_asset	true
alm_transfer_order_line_subtask	Transfer Order Line Subtask	task.alm_transfer_order_line_subtask	true
alm_transfer_order_line_task	Transfer Order Line Task	task.alm_transfer_order_line_task	true
asset_reclamation_request	Asset Reclamation Request	task.asset_reclamation_request	true
asset_task	Asset Task	task.asset_task	true
ast_contract	Contract	ast_contract	true
ast_lease	Lease	ast_contract.ast_lease	true
ast_service	Service Contract	ast_contract.ast_service	true
ast_warranty	Warranty	ast_contract.ast_warranty	true
business_app_request	Business Application Request	task.business_app_request	true
business_unit	Business Unit	business_unit	true
cert_follow_on_task	Follow On Task	task.cert_follow_on_task	true
change_phase	Change Phase	task.change_phase	true
change_request	Change Request	task.change_request	true
change_request_imac	IMAC	change_request.change_request_imac	true

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6. Looking in the Dimensions list [sn_query_gen_dimension_list], you see that many columns of the Contract table are represented, and you are confident that you have successfully added the table hierarchy to the semantic layer.



Name	Entity	Semantic Label	Semantic Data Type	Semantic Description
Search	Search	Search	Search	Search
cost_adjustment_percentage	Contract	Cost adjustment percentage	number	Cost adjustment percentage - Percentage of cost change applied to the contract
business_owner	Contract	Business owner	string	Business owner - Internal contact responsible for the ownership of goods or services
total_cost	Contract	Total cost	number	Total cost - Final cost of the contract after adjustments have been applied
discount	Contract	Discount	number	Discount - Discount this vendor will provide on products covered by this contract
cost_adjustment	Contract	Cost adjustment amount	number	Cost adjustment amount - Amount of cost change applied to the contract
sys_updated_on	Contract	Updated	datetime	Updated

Add a batch of tables to the semantic layer

Instead of adding individual tables or database views to the semantic layer, you can select multiple ones from a list and enable Query Generation for them together.

Before you begin

Role required: admin, now_assist_explorer_admin, sn_query_gen.admin

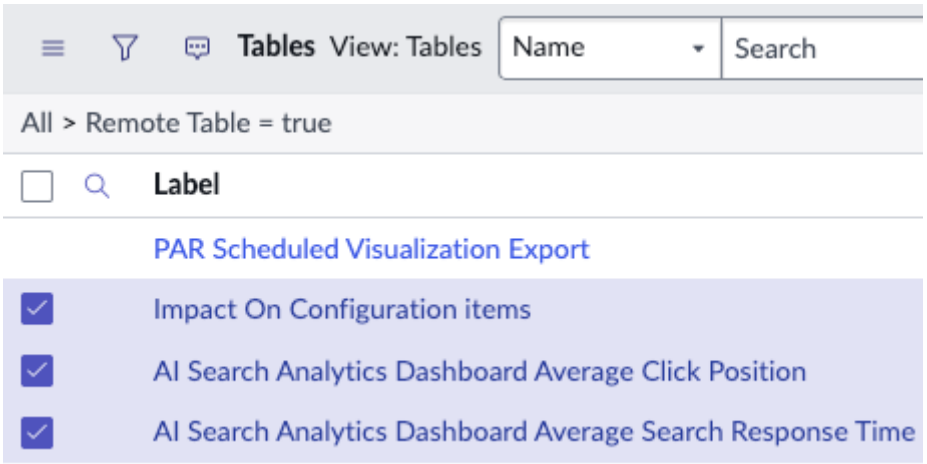
Procedure

1. Navigate to the Tables list [sys_db_object_list], the Database Views list [sys_db_view_list], or a subset of one of those lists, such as Remote Tables.
2. Set your session application scope, which will be reflected in the scopes of the Semantic Table Configuration records you create.

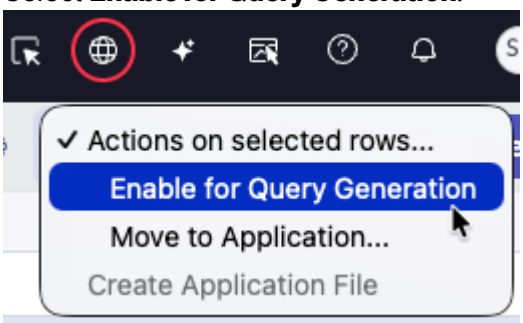
> **Important:**
> To add a database view, you must select the same application scope as that database view.

3. Select the checkboxes for the desired tables or database views.

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4. Expand **Actions on selected rows...**
5. Select **Enable for Query Generation**.



When successful, a banner says `Selected tables have been successfully added to Query Generation semantic layer. View.`

6. Select **View** to see a list of the tables or database views you just added to Semantic Table Configurations.
   You can disable semantic generation for any of the tables/database views or add support for their child hierarchies. You can also remove the tables/database views from Semantic Table Configurations.

Enable semantic generation for tables in the semantic layer

Tables can be included in the semantic table configuration but have semantic generation turned off. Enable semantic generation to include that table in Query Generation. Deactivate irrelevant data to improve results.

Before you begin

Query Generation must be activated, and the desired table must have a Semantic Table Configuration record. For more information, see Query Generation skills and Add a table to the semantic data layer.

Role required: admin, now_assist_explorer_admin, sn_query_gen.admin

About this task

When a query is generated, the system searches for tables and table columns by looking through the Entities [sn_query_gen_entity] and Dimensions [sn_query_gen_dimension] tables. It selects a limited set to provide as context for the language model that creates your query. By turning off unused Entities or Dimensions, you help the system focus on the most important data, which makes your queries more accurate and useful.

On the other hand, sometimes a table or table hierarchy is included in the Semantic Table Configuration [sn_query_gen_table_config] table, but semantic generation is deactivated. For example, some CMDB tables are supported by default but have semantic generation disabled.

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In this case, the performance impact of including these tables can be significant, and you have the option of turning semantic generation on for these tables only if you are sure that you want to. You could also turn semantic generation on and off for a table to test its performance impact, for example.

You can control semantic generation at different levels of granularity depending on whether you control it through the Semantic Table Configurations, Entities, or Dimensions tables, as follows:

- Semantic Table Configuration: Changes to semantic generation enablement affect the Entities for the main table and all child tables, if included. Changes also affect all Dimensions for those tables.

  Note:
  After you disable semantic generation for a Semantic Table Configuration record, you can reactivate individual Entities in the affected table hierarchy. Doing so reactivates the Dimensions for that Entity and only that Entity.

- Entity: If you activate or deactivate an Entity record, the change affects only that table but not its parent or sibling tables. However, all of its associated Dimensions are activated or deactivated.
- Dimension: If you deactivate a Dimension record, only that record is affected.

Procedure

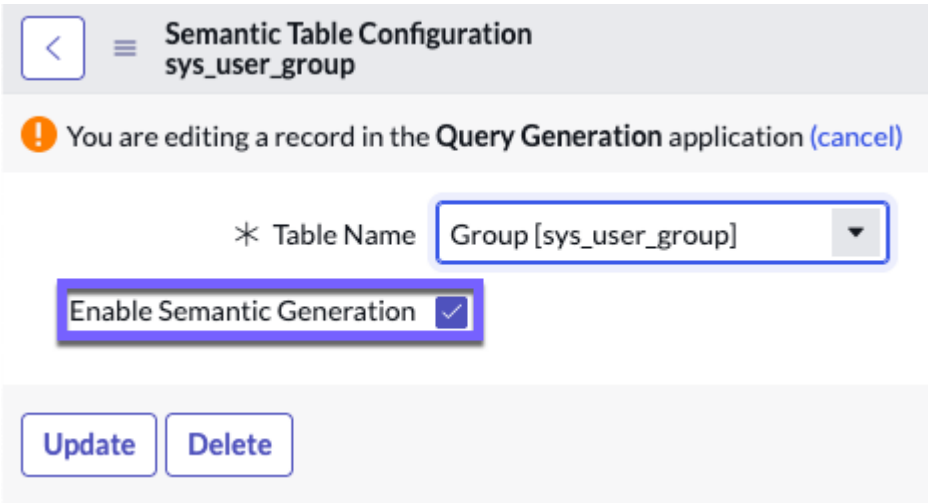
1. Navigate to **All** > **Query Generation**.
   If you do not have this navigation path despite having the correct roles, you may be missing the entitlement.
2. Open one of the following tables:
   - To disable or enable semantic generation for an entire table hierarchy, navigate to **Administration** > **Semantic Table Config**.
   - To disable or enable semantic generation for a single table and all its columns, navigate to **Semantic Layer** > **Entities**.
   - To disable or enable semantic generation for individual columns of a table, navigate to **Semantic Layer** > **Dimensions**.
3. Locate the table or column of interest.

   Tip:
   - If you are in the Semantic Table Configurations table and the table is not listed, consider adding it as described in Add a table to the semantic data layer.
   - If you are searching for a deactivated Entity or Dimension, ensure that you have removed the Active = true condition from the list filter.
   - If you are searching for an Entity that represents a child table in a hierarchy, look for the Semantic Usage Instructions entries that begin with the parent table.
   - If you are looking for a Dimension record that is associated with a particular Entity, consider searching for that Entity value.

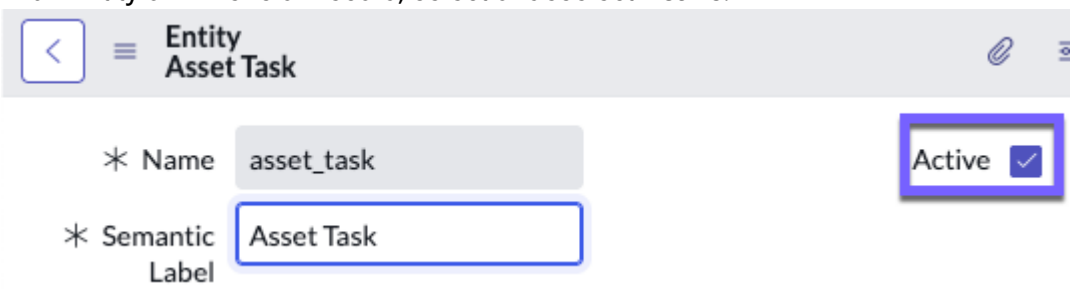
4. Open the table record.
5. Toggle semantic generation.

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- In a Semantic Table Configuration record, change to the correct application scope and select or deselect **Enable Semantic Generation**.



- In an Entity or Dimension record, select or deselect **Active**.



6. Select **Update**.

Tuning the semantic layer

The semantic layer maps natural language questions to ServiceNow AI Platform® tables and fields. Tune the semantic layer to improve AI Data Explorer accuracy for your organization's terminology and data structure.

The semantic layer identifies the best matching entities (tables), dimensions (fields), and segments (filters) when users ask questions in AI AI Data Explorer. Tuning improves these matches so users consistently get the right table, field, and filter.

How the semantic layer works

When a user asks a question, the system identifies the best matching components and passes that context into query generation. The semantic layer has three building blocks:

Entities

Represent tables such as Incident [incident], Change Request [change_request], or CMDB Class Information [cmdb_class_info].

Dimensions

Represent fields on those tables such as Priority, Assigned to, or State. Dimensions can follow reference fields across tables. For example, caller_id.department traverses from an incident's caller to their department.

Segments

Pre-defined filter conditions such as "Open incidents" = active=true.

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When to tune the semantic layer

Before you tune, verify that the issue is repeatable. The LLM occasionally makes incorrect decisions. Try the same question or a similar one multiple times first. Only tune if the problem is consistent.

Tune the semantic layer when:

- The system selects the wrong table or cannot find one
- A field is missing or the wrong field is selected
- Your organization uses different terminology than the auto-generated labels
- The right table or field is selected, but the query is constructed incorrectly
- Special terminology of your organization is not translated accurately to filter conditions

Validation and iteration process

1. Capture the utterance and expected result.
2. Classify the failure as entity, dimension, segment, or ACL.
3. If results are wrong for only some users, verify read ACL access to the intended table and fields before retuning.
4. Apply one targeted tuning change.
5. Retest the same utterance.
6. Check **Query Generation** > **Logs** and confirm the improved match path.
7. Repeat only if still incorrect.

Semantic descriptions and labels

Semantic descriptions and labels are the primary fields that AI search uses to select the right table or field. Edit these fields when the system selects incorrect tables or fields.

Every entity has a Semantic Description and every dimension has a Semantic Label. These fields function as search keywords that help AI search identify the correct table or field.

When to edit descriptions and labels

Edit semantic descriptions and labels when:

- The system selects the wrong table or cannot find one
- A field is missing or the wrong field is selected
- Your organization uses different terminology than the auto-generated labels

Note:
Descriptions and labels are auto-generated and work well out-of-the-box. Only edit them if selections are wrong. There are thousands of dimensions, so do not try to review them all.

Where to edit descriptions and labels

Descriptions and labels for tables are in the Entity [sn_query_gen_entity] table. Descriptions and labels for columns/fields are in the Dimension [sn_query_gen_dimension] table. To edit these tables, you must have the sn_query_gen.admin role or higher.

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Writing effective descriptions and labels

Follow these guidelines when writing semantic descriptions and labels:

- Keep descriptions to 1-2 sentences focused on how users refer to this data
- Include common synonyms and abbreviations your users would say
- Avoid full paragraphs. Concise descriptions match better than verbose ones

Example

For an Incident entity, instead of using just "Incident table", use a description like "IT incidents, outages, service disruptions, and IT support tickets" to include terminology your users actually say.

Related topics

Roles, tables, and scheduled jobs included with Query Generation

Semantic usage instructions

Semantic usage instructions teach the system how to query data by defining matching strategies, expansion logic, and data conventions. Use these instructions when the right table or field is selected but the query is constructed incorrectly.

The Semantic Usage Instructions field is injected directly into the LLM prompt when a table or field is selected. This field functions as a custom prompt at the field level, teaching the system how to query the data.

When to edit semantic usage instructions

Edit semantic usage instructions when:

- The right table or field is selected, but the query is constructed incorrectly.
- A field has non-standard data that needs special handling, such as free-text, abbreviations, or hierarchical values.

Where to edit semantic usage instructions

Semantic usage instructions for tables are in the Entity [sn_query_gen_entity] table. Semantic usage instructions for columns/fields are in the Dimension [sn_query_gen_dimension] table. To edit these tables, you must have the sn_query_gen.admin role or higher.

Writing effective usage instructions

Follow these guidelines when writing semantic usage instructions:

- Be specific and structured. Include rules, examples, and edge cases
- Use numbered steps or labeled sections if the logic is complex
- Include example user questions and what the query should look like
- For free-text fields, specify matching strategy (CONTAINS, exact match) and expansion rules
- Keep instructions focused on one entity or field's needs

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Usage instructions vs. Segments

Usage instructions teach the LLM how to query a field dynamically, allowing the LLM to handle many scenarios based on your rules. Segments hard-code specific filter values. For fields like free-text location, usage instructions are the correct approach because you cannot predefine every possible location query. Segments are better for fixed business terminology such as "Sev1" = priority 1.

Examples

The following examples show different types of usage instructions:

Example: Data conventions

For a State field that stores abbreviations:

```
"Values in this field may be full state names or two-letter
 abbreviations (e.g. 'California' or 'CA'). Always query for
 both forms. For country names, also include common aliases
 (e.g. 'United Kingdom' OR 'UK')."
```

Example: Complex query logic

For a free-text Approximate Location field with hierarchical expansion and synonym handling:

Field: Approximate Location - Usage Instruction

The Approximate Location field is a non-normalized, free-text string. All queries must use case-insensitive CONTAINS matching and handle hierarchical expansion.

Core Query Logic

1. Identify the geographic entity (Neighborhood, City, State, Country, Region, or Continent).
2. Expand broader entities into explicit lists of sub-entities before querying.
3. Use OR logic for all expanded terms and synonyms.

Expansion Rules

- Continents: Expand to a list of all major countries within that continent.
- Regions: Expand to relevant states or countries (e.g. "Atlantic Coast" -> NC, VA, FL, etc.).
- States/Provinces: Include both full names and standard abbreviations (e.g. "North Carolina" OR "NC").
- Countries: Include common aliases (e.g. "UK" OR "United Kingdom").

Implementation Pattern

1. Extract geographic intent.
2. Classify entity level.
3. Expand downward (Continent > Country) or include synonyms (State > Abbreviation).
4. Construct a single query string using OR-based CONTAINS filters.

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Notice the pattern: the instruction defines rules and examples, and the LLM can handle many related queries dynamically based on the rules you provide. You teach the logic once, and the model applies it to any input.

Examples of user questions converted to queries

- User: "Show me things in Japan" → Query: location CONTAINS "Japan"
- User: "Show me things in Asian countries" → Decomposition: Asia -> [Japan, China, Indonesia...] → Query: location CONTAINS "Japan" OR location CONTAINS "China" OR location CONTAINS "Indonesia"...
- User: "Show me things in North Carolina" → Query: location CONTAINS "North Carolina" OR location CONTAINS "NC"
- User: "Show me everything in Europe" → Decomposition: Europe > [UK, Spain, France, Germany...] → Query: location CONTAINS "UK" OR location CONTAINS "United Kingdom" OR location CONTAINS "Spain" OR location CONTAINS "France"...

Related topics

Roles, tables, and scheduled jobs included with Query Generation

Database views for cross-table data

Database views combine fields from multiple tables into a single queryable entity. Add views to the semantic layer to answer cross-table questions in one query instead of requiring separate questions.

Database views in the semantic layer enable you to answer questions that join data across tables in a single query, rather than requiring separate questions or complex queries.

When to use database views

Use database views when:

- Users ask questions that join data across tables, such as incidents and changes
- A cross-table report already exists as a database view
- The same fields from different tables keep appearing together in user questions

Implementation guidelines

Follow these guidelines when working with database views:

- Views are added to Semantic Table Configuration the same way as regular tables, requiring the sn_query_gen.admin role or higher.
- Dimension names include a source-table prefix, such as inc_number or chg_priority
- Entity descriptions are auto-generated from the source tables and update automatically
- The Include child hierarchy setting has no effect for views

Related topics

Add a table to the semantic data layer

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Segments in the Query Generation semantic layer

Segments are predefined filter conditions that map business terminology to specific query filters, helping the semantic layer translate natural language questions into accurate database queries.

Segments provide non-obvious context to assist the semantic layer in selecting the correct entity, dimension, and values. For example, in the utterance "How many open emergency change requests are there?", a segment identifies that "open" means "active=true" and "emergency" is a Type, not a Priority.

How segments work

The system uses AI search to find segments that are semantically similar to the user's query. AI search indexes the Name, Description, Entity, and Filter fields in the Segments table, comparing them to the user's query to produce a subset of relevant segments.

In the LLM call, the system passes the Name, Description, Entity, and Filters. The LLM uses the segments as building blocks for generating a new query. For example, if a user asks "Unassigned Incidents located in San Diego" and the segment "Unassigned Incidents" is passed to the LLM, the LLM uses the segment's filter as the starting point and attaches the location filter "San Diego" on top of the segment.

Segment process summary

Step	Purpose	Output
1: Input	Capture user's natural language query	Raw query text
2: Search	Find semantically similar prebuilt segments	Subset of relevant segments
3: Context	Provide segment metadata to LLM	Structured segment data
4: Generate	Combine segment logic with new conditions	Complete executable query

Automatic segment sources

The system auto-generates segments from existing ServiceNow data sources on a schedule. The Query Generation Sync Segments job creates segments automatically, running at installation and then weekly by default.

Automatic segment sources

Source	What it pulls
Saved Reports (sys_report)	Report filters from recently viewed reports
Report Sources (sys_report_source)	Analytics data source filters
PA Indicators (pa_cubes)	Performance Analytics indicator conditions
Saved Filters (sys_filter)	Global saved filters only (excludes user-specific and group-specific filters)
App Modules (sys_app_module)	Module-level list view filters

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Automated segment rules

To reduce noise from outdated and irrelevant segments, the job follows specific rules. Segments based on reports, report sources, or indicator sources are active only if the records meet certain criteria:

- Reports must be shared, created by a user with an analytics manager role (admin, dashboard_admin, report_admin, pa_admin, or viz_admin), and have run recently (within 180 days by default).
- Report sources must be included in a data visualization or used in a report that has run recently.
- Indicator sources must be linked to indicators with scores that have recently changed.

Important:
Segments cannot be created from indicator sources or modules on domain-separated instances.

For reports, "run recently" is defined by the *sn_query_gen.segments.reports.last_viewed_threshold_days* system property. The default value is 180 days.

For indicator sources, the time span for "recently changed" depends on the indicator frequency:

- Daily: last 7 days
- Weekly: last 30 days
- Bi-weekly: last 30 days
- Monthly: last 90 days
- Four weeks: last 90 days
- Bi-monthly: last 90 days
- Quarterly: last 180 days
- Fiscal quarterly: last 180 days
- Six months: last 12 months
- Yearly: last 24 months
- Fiscal yearly: last 24 months

You can change the time spans for indicator sources by applying a multiplier using the *sn_query_gen.segments.indicator.inactivity_threshold_multiplier* system property. The value must be an integer, meaning you can only lengthen the periods, not shorten them.

Disabling segment sources

You can disable segment creation altogether, or for individual source types. You might disable segment generation to troubleshoot, or if segments from a source are "noisy." Each source type has a corresponding *sn_query_gen.segments.disable.** system property. Disable segments for that source by setting the corresponding system property to **true**. All existing segments created from sources of that type are excluded from AI Data Explorer search results. No new segments of that type are created. During the next Sync Segments job, all segments of that type are deactivated. For more information, see Query Generation properties.

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Related topics

Roles, tables, and scheduled jobs included with Query Generation

Query Generation properties

Create a manual segment

Manual segments are admin-created filter conditions that map business terminology to specific query filters.

Before you begin

Role required: sn_query_gen.admin or higher

About this task

Create manual segments in the following circumstances:

- Your organization has standard terminology that maps to specific filters (for example, "Sev1", "VIP", "overdue")
- Users repeatedly ask the same filtered question and the system does not automatically pick up the right filter
- You want to encode business logic that cannot be inferred from field values alone (for example, "at-risk accounts" = combination of multiple conditions)
- The special terminology of your organization is not translated accurately to filter conditions

Tip:
The name and description are what AI search matches against. Use natural phrasing your users would say, keep one segment per concept, and test by asking the question and checking if the segment appears in the logs.

Procedure

1. Navigate to **Query Generation** > **Administration** > **Manual Segment Config**.
2. Press **New**.
3. In the Manual Segment Config form, fill in the following information.

Field	Description
Name	A clear and specific phrase using words users are likely to use when referring to this segment, such as "Overdue incidents" or "Release blocker." Avoid abbreviations or special characters unless they are commonly used.
Description	An optional short phrase that expands on the name using similar, commonly used terms. Use a description to clarify the segment when the name alone may not be sufficient. Avoid irrelevant notes or long explanations. If there are no abbreviations or special characters in the name, don't put any in the description, either.
Entity	The table on which the segment is based. The system looks for the entity table first, then the segment within that table.

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Field	Description
	The LLM can use a segment to select an entity if the segment fits the user query. The LLM can also select the entity separately and then select a segment based on the entity. The prompt instructions give it this freedom.
Application	Read-only field for the application scope of the Entity table.
Active	Whether the system uses the segment or not. Manual segments are active by default.
Filter	Conditions to apply for identifying records from the Entity table that may contain the segment.

General guidelines

Follow these suggestions to help you use segments in the semantic layer effectively.

- Test segments by asking the question and verifying the segment appears in **Query Generation** > **Logs**.
- Disable noisy auto-generated segments rather than trying to overfit with multiple manual ones.
- Use natural phrasing that matches how your users actually speak.
- Keep one segment per concept to avoid confusion.
- Monitor segment usage through the logs to identify which segments are most valuable.

Query Generation reference

A list of Now Assist applications that come with Query Generation and the tables, jobs, and logs included in Query Generation.

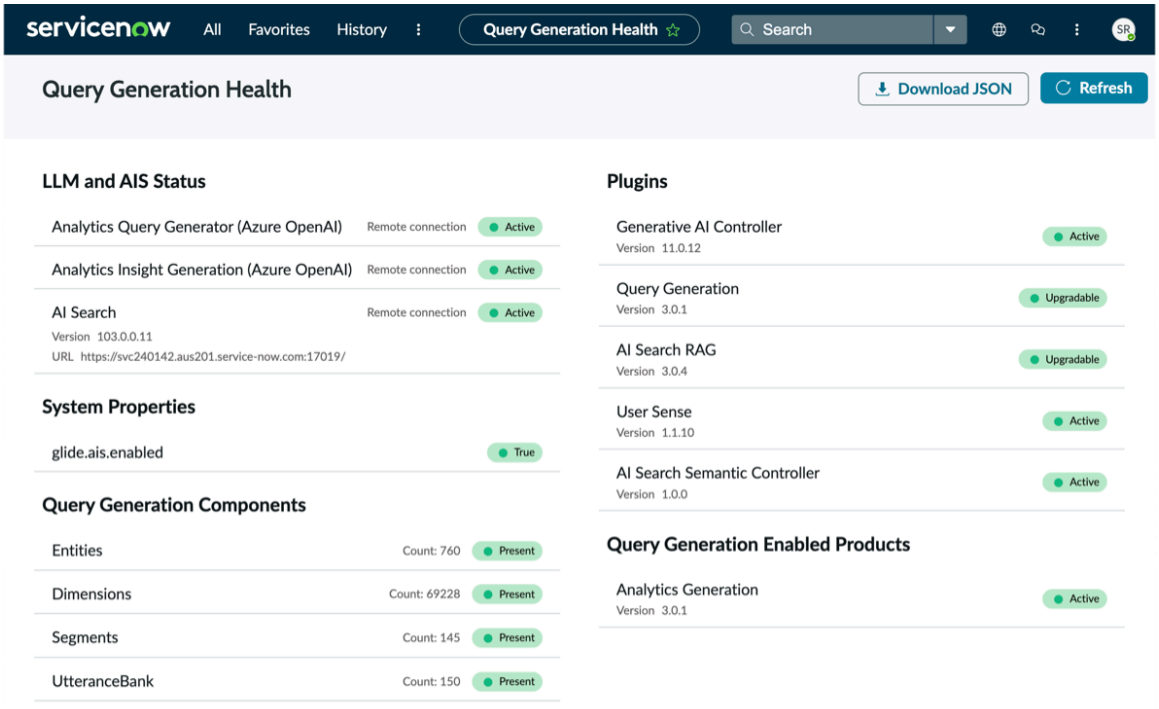
Query Generation Health page

The health page shows the state of the Now LLM and AI Search, along with the states of Query Generation system properties, enabled products, and dependency plugins.

Health page overview

Navigate to **All** > **Query Generation** > **Health page** to see the state of Query Generation dependencies. The admin role is required.

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Query Generation enabled products

This section lists the products on the instance that require Query Generation to function. Two of the products are included anonymously in the Generative AI Controller plugin, but their skills can be activated by users with the admin role.

Applications inside Generative AI Controller that use Query Generation

Hidden Product	Skill
Analytics Generation	Data visualization generation
Analytics Export	Dashboard and visualization export

For more information about these skills and their functions, see Generate or export dashboards and data visualizations in the Now Assist panel.

For more information about the other products that Query Generation enables, see:

- Use AI to explore data with AI Data Explorer
- Now Assist for Configuration Management Database (CMDB)

Supported chart types

Query Generation and the applications that use it to generate data visualizations support these visualization types

- Scores: single score, dial, gauge
- Bar: horizontal and vertical bars
- Donut, pie, and semi-donut
- Time series: area, line, column, scatter, spline, step
- List

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Supported query operations

The following encoded query operators are supported for creating context objects.

- ">=": ">=",
- "!=": "!="
- "<=": "<=",
- "=": "=",
- ">": ">",
- "<": "<",
- "IS_NOT_NULL": "IS_NOT_NULL",
- "ISNOTEMPTY": "ISNOTEMPTY",
- "NOT_CONTAINS": "NOT_CONTAINS",
- "EMPTYSTRING": "EMPTYSTRING",
- "STARTSWITH": "STARTSWITH",
- "ANYTHING": "ANYTHING",
- "ENDSWITH": "ENDSWITH",
- "ISEMPTY": "ISEMPTY",
- "IS_NULL": "IS_NULL",
- "CONTAINS": "CONTAINS",
- "NOT LIKE": "NOT_CONTAINS",
- "BETWEEN": "BETWEEN",
- "LIKE": "CONTAINS",
- "DYNAMIC": "DYNAMIC",
- "NOT_IN": "NOT_IN",
- "IN": "IN",
- "ON": "ON"
- "INSTANCEOF":"INSTANCEOF"

Query Generation logs

Every call to a Query Generator and its results are logged in the Query Generation Log [sn_query_gen_log] table.

Using the logs

Go to **Query Generation** > **Administration** > **Logs** to inspect failed or incorrect queries.

1. Find the entry by user, date, or utterance.
2. Check **Semantic Entities/Dimensions/Segments Count**
3. Open **Query Constitutor Output** to see what was selected.
4. Compare with **Semantic Filter Result** for raw semantic matches.

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AI Data Explorer troubleshooting guide

Symptom	Likely cause	Fix
"Unable to understand" response	System cannot find a matching table	Improve entity description; rephrase with table name; verify AI search is running; verify that all Indexed Sources are fully processed.
Wrong table selected	Similar table names, no disambiguation	Add semantic usage instructions to differentiate.
Wrong table selected (permissions)	User lacks read access to the intended table or fields	Verify and grant table and field read ACLs for the intended data.
Missing field in results	Dimension turned off, unclear label, or field not in semantic layer	Check dimension is active; update label.
Related fields not pulled in	Referenced table missing from semantic layer or reference dimension turned off	Add and enable the referenced table entity; enable the reference dimension.
Wrong filter applied	Bad segment match	Fix segment name and description; disable the segment.
No filter when expected	No matching segment; phrasing too vague	Create a manual segment; rephrase question.
Segment from report is wrong	Auto-generated segment has stale or irrelevant filter	Disable the report segment source or the specific segment.

Query Generation log columns

Column	Description	Shown by default?
Created	Timestamp of the call to Query Generation	Yes
User	The user from the User [sys_user] table who made the call. If this is blank, try Created by.	Yes
Utterance	The plain language question asked by the user	Yes
Status	The success or otherwise of the call	Yes
Error message	If the status is "error," this is the error message that is returned to the user.	Yes
Total time	Time in milliseconds it took for the AI to process the query and return the response	Yes
"X" time	Time in milliseconds each component X spent processing the query	Yes

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Query Generation log columns (continued)

Column	Description	Shown by default?
Semantic Filter Results	Fields in the semantic layer tables that the query references, in JSON	Yes
Utterance Bank Results	Questions similar to the user's question (Utterance) that were found in the Utterance Bank and used to interpret the user's question, in JSON	Yes
Response	The JSON response to the query	Yes
Entities	The records in the Entities table that are referenced by the query. Each record corresponds to a facts table.	Yes
Query Constitutor Output	JSON of the query that is generated	Yes
Source	The application from which the question was asked. If the question was asked from the Now Assist panel when it was open in a page that is not part of an application, the UUID of that page is shown instead.	Yes
Response	The response that the LLM returns	Yes
Generative AI Log	The LLM used for the query	Yes
Conversation	Unique chat conversation ID, such as in a Now Assist Panel to Query Generation conversation	Yes
ACL Time	Time it took to validate the Access or Security of the user for the underlying table	No
Additional info	Start time, total calls, and other metadata about the AI Search run	No
Created by	Person who created the query. Includes ServiceNow® staff members logged on as maint.	No
Domain	Domain in which the query was created	No
Dot walked	Whether the query included dot walking between tables (true/false)	No
Entity has usage score	Whether the entity has a usage score (true/false)	No
Entity source	Whether the Source was in ENTITIES, USER SENSE, or SEGMENTS	No
Error code	The error code, if there was an error	No

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Query Generation log columns (continued)

Column	Description	Shown by default?
Follow Up Generated	The number of follow-up questions that the LLM generated in response to the query	No
Follow Up Returned	How many of the generated follow-up questions are actually returned. The questions must refer to tables that the querying user can access and are in the semantic layer, for example.	No
LLM Time	Time spent by the large language model (LLM) on the query	No
Query Constructor Time	Time spent by the query constructor on the query	No
RAG time	Time spent by the retrieval-augmented generation (RAG) on the query	No
Semantic Dimensions count	Number of table records (dimensions) examined for the query	No
Semantic Entities Count	Number of tables (entities) examined for the query	No
Semantic Filter Results	Results of running the semantic filter	No
Semantic Filter Time	Time spent by the semantic filter	No
Semantic Segments Count	Number of segments examined for the query	No
Source Table	Name of table corresponding to Source Id	No
Tags	Any tags that you add to the log	No
Updated	Date stamp when log entry was last updated	No
Updated by	User responsible for last log entry update	No
Updates	Count of updates to the log entry	No
Utterance bank results	Similar examples extracted from utterance bank	No
Utterance bank time	Amount of time spent searching the utterance bank	No

Related topics

Common AI Data Explorer issues and fixes

Roles, tables, and scheduled jobs included with Query Generation

Several types of components are installed with Query Generation, including tables and scheduled jobs.

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Roles included

Role name	Description	Contains roles
sn_query_gen.user	Allows the person with the role to call the Query Generation service through the app they are using.	None, but applications that call Query Generation should contain this role in their own user roles.
sn_query_gen.admin	Allows the user to access the Query Generation tables like an admin user. Can configure sn_query_gen_table_config records and modify Entity and Dimension records as well as set up segments in the utterance bank.	• sn_nowassist_admin.nsa.admin • ais_admin • sn_query_gen.user

Scheduled jobs installed

Scheduled job	Description
[Query Generation] Sync Segments Job	Generates segments from report sources, reports, indicator sources, modules, and filters. Synchronizes manual segments with segment table. Cleans up unused segments and Entity and Source records. Cleans up segments based on unused or otherwise ineligible reports, report sources, and indicator sources. Runs when Query Generation is first installed and then weekly by default.
[Query Generation] Generate Semantic Layer	Generates segments from report sources, reports, indicator sources, modules, and filters. Synchronizes manual segments with segment table. Cleans up unused segments and Entity and Source records. Runs on demand. Intended for use only when you believe some entities or dimensions are missing. Otherwise, rely on the scheduled [Query Generation] Sync Segments Job.
[Query Generation] Semantic Entity Auto-Scaling Job	Synchronizes entity activation states and helps with semantic entity scaling. Runs daily by default.

Tables installed

All tables require the admin role for access and are available under Query Generation in the Navigator.

Table	Description
Entity [sn_query_gen_entity]	Representations of the tables that have semantic generation enabled for them (explicitly or through their parent tables) on the Semantic Table Configuration [sn_query_gen_table_config] table. Each Entity record

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Table	Description
	corresponds to one supported table. Entity records are generated automatically, and this table is read-only.
Dimension [sn_query_gen_dimension]	Representation of queryable columns for every table that an Entity record references. Each record corresponds to one column. Dimension records are generated automatically, and this table is read-only.
Segments [sn_query_gen_segment]	Reusable definitions that provide non-obvious context, to assist the semantic layer or LLM to select the correct entity, dimension, and values. For example, in the utterance "How many open emergency change requests are there?", a segment identifies that "open" means "active=true" and "emergency" is a Type, not a Priority. Admins can add new segments, delete existing segments, or edit segment names and descriptions.
Manual Segment Configs [sn_query_gen_segment_table_config]	Manually created segments. The [Query Generation] Sync Segments job syncs this table up to the Segments table.
Utterance bank [sn_query_gen_utterance_bank]	Predefined sentences and phrases mapped to database contexts and queries. User questions are compared to the utterance bank to see if a predefined mapping can apply. Admins can create, edit, and delete utterance banks.
AI Search Search Profile [ais_search_profile]	A container for all search experience configurations. A search profile is mapped to a specific experience you would like to expose in your app. Search Profile is#inked to a search box and can be used across applications. Admins can create, clone, and publish search profiles.
AI Search Indexed Sources [ais_datasource]	Records on this table reflect what content users can search on. The content can be tables on the instance or external tables. You have the necessary indexed sources by default. The sn_query_gen.admin role or higher is necessary to edit this table. The most likely use case is if the system cannot find the correct table and not all the indexed queries are fully applied. For more information, see Common AI Data Explorer issues and fixes.
Logs [sn_query_gen_log]	A log of every call to Query Generation. For more information, see Query Generation logs.
Semantic table configuration [sn_query_gen_table_config]	List of tables that Query Generation can search, whether semantic generation is enabled for that table, and whether child tables are included. Admins can create, edit, and delete these records. For more information, see Add a table to the semantic data layer.

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Query Generation properties

The properties included with Query Generation apply to segments. They define whether the record or indicator that is the basis for a segment has been recently used or changed.

These properties are available for Query Generation.

Note:
To open the System Properties [sys_properties] table, enter `sys_properties.list` in the navigation filter.

Properties for Query Generation

Property	Description
sn_query_gen.hidden_insights.groupby.min_fields	The target number of group-by fields for extended analysis in AI Data Explorer. These group-by fields are taken from the default list view of the relevant table. When this list view contains fewer eligible fields than the property value, the system looks for more eligible fields on the table to try to reach this count. • Type: Integer • Default value: 5 • Location: System Property [sys_properties] table • Learn more: Extended analysis
sn_query_gen.segment_enabled	When set to true, segments are created and used. When false, no segments are created, and all existing segments are excluded from AI Data Explorer search results. During the next Sync Segments Job, all segments are deactivated. • Type: Boolean (true/false) • Default value: true • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.filter	When set to true, excludes all segments from sys_filter from AI Data Explorer search results. During the next Sync Segments Job, all segments of that type are deactivated in the Segment table.

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Properties for Query Generation (continued)

Property	Description
	• Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.manual_segment	When set to true, excludes all segments from sn_query_gen_segment_table_config (manual segments) from AI Data Explorer search results. During the next Sync Segments Job, all segments of that type are deactivated in the Segment table. **Note:** The ability to disable manual segments is intended for testing and troubleshooting purposes. • Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.pa_cubes	When set to true, excludes all segments from indicator sources (pa_cubes) from AI Data Explorer search results. During the next Sync Segments Job, all segments of that type are deactivated in the Segment table. • Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.report	When set to true, excludes all segments from sys_reports from AI Data Explorer search results.

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Properties for Query Generation (continued)

Property	Description
	During the next Sync Segments Job, all segments of that type are deactivated in the Segment table. • Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.report_sources	When set to true, excludes all segments from sys_report_source from AI Data Explorer search results. During the next Sync Segments Job, all segments of that type are deactivated in the Segment table. • Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.disable.sys_app_module	When set to true, excludes all segments from sys_app_module from AI Data Explorer search results. During the next Sync Segments Job, all segments of that type are deactivated in the Segment table. • Type: Boolean (true/false) • Default value: false • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.indicator.inactivity_threshold_multiplier	Applies a multiplier to how long ago an indicator value can have changed for that indicator to be "recently changed." The [Query Generation] Sync Segments job deactivates segments based on indicators that have not recently changed. The value that is multiplied differs by indicator frequency (see Segments in the Query Generation semantic layer).

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Properties for Query Generation (continued)

Property	Description
	• Type: Integer • Default value: 1 • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer
sn_query_gen.segments.reports.last_viewed_threshold_days	Defines how many days ago a report can have run for that report to be considered "recently run." The [Query Generation] Sync Segments job deactivates segments based on reports that have not run recently. It also deactivates report sources whose reports have not run recently. • Type: Integer • Default value: 180 • Location: System Property [sys_properties] table • Learn more: Segments in the Query Generation semantic layer

Performance Analytics (Indicator data sources)

ServiceNow® Performance Analytics is an in-platform process optimization solution that utilizes indicators (KPIs) to answer key business questions. Performance Analytics can help increase quality and reduce the costs of service delivery.

Get started

Performance Analytics tools including KPI Composer, KPI Details, and Spotlight, empower administrators and other stakeholders with real-time data to address current status and accurately evaluate trends.

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Explore Performance Analytics



Learn about Performance Analytics concepts and features such as indicators, breakdowns, and data collection.

Configure Performance Analytics fundamentals



Learn how to design your Performance Analytics solution, configure indicators and breakdowns and apply aggregations.

Configure advanced Performance Analytics



Delve into advanced features such as Spotlight, diagnostics, and logging.

Reference



Roles, system properties, and a glossary of terms

Troubleshoot and get help

- Ask questions and share your expertise on the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support
- Performance Analytics Training
  - Platform Analytics Overview
  - Performance Analytics Fundamentals
  - Performance Analytics Advanced

Exploring Performance Analytics

Review the use cases, components, and architecture for indicator data sources and begin to implement indicators.

Indicators drive business transformation by enabling businesses to set, track, and analyze progress against goals. They connect more people with better data in less time and help them focus on the things that really matter. Watch this five-minute video to learn how you could use Performance Analytics indicators to solve a sample business scenario.

https://player.vimeo.com/video/1056082790?h=c51d5ad62a&badge=0&autopause=0&player_id=0&app_id=58479

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Note:
These days, Performance Analytics refers to the indicator data sources for Platform Analytics. Previously, Performance Analytics was its own independent product, with its own front end consisting of Performance Analytics widgets. That front end is deprecated, and instead indicators are shown in universal Platform Analytics data visualizations. The name Performance Analytics is retained for historical reasons.

For a video about how different dashboards with indicator data sources can help different personas in the ITSM department of your organization, see ITSM Success Dashboard indicators.

Indicator data sources improve performance and accelerate continual service improvement by:

- Tracking critical process metrics and trends.
- Measuring process health and behavior against organizational targets.
- Identifying process patterns and potential bottlenecks before they occur.
- Continually visualizing historical and real-time process health statistics in role-based dashboards enabling individual stakeholders to make informed decisions.

Benefits of using Performance Analytics indicators can include:

Delivering insights in an instant

Your people can get relevant, personalized insight by clicking a button instead of exporting data from databases and spreadsheets. You no longer manually create reports that quickly become stale and outdated.

Establishing a single version of truth

By defining visualizations and ensuring they are based on consistent, accurate data, you provide a single version of reality that teams can use to drive positive change.

Accelerate time-to-value

Implement Performance Analytics within weeks instead of months and quickly take advantage of data insights.

Drive toward continual improvement

Performance Analytics can help you pinpoint areas for improvement. Act based on key indicators, mobile-enabled scorecards, time charts, drill-downs, and dashboards.

Tip:
For an introduction to using Performance Analytics, take the Platform Analytics Overview course.

Performance Analytics concepts

Performance Analytics uses terms and concepts that can differ from industry norms due to the unique nature of the ServiceNow platform.

Note:
Performance Analytics is used by other applications, such as Benchmarks. The information below describes the core Performance Analytics functionality. For information about other applications that use Performance Analytics, refer to the documentation for those applications.

Performance Analytics includes the following concepts and components:

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Key components

Indicators

(KPIs) define a performance measurement taken at regular intervals of a business service, an activity, or organizational behavior. These performance measurements result in a series of indicator scores over time. Businesses track these scores to measure current conditions and to forecast trends.

Technically, an indicator combines a data set and a data aggregate, such as Count, along with optional conditions.

Key characteristics of indicators include:

- Indicator scores can be generated automatically from a set of records defined in an indicator source, entered manually, or calculated from other indicators.
- Indicator scores can be viewed or analyzed in Platform Analytics data visualizations and KPI Details. In the Core UI, view them in the Analytics Hub or in widgets on dashboards.

For convenience, you can organize indicators thematically into an indicator group.

Synonyms: Metrics, business metrics, KPIs

Breakdowns and elements

enable you to group or filter indicator scores by a qualitative attribute such as Priority, Category, or Assignment Group. You can apply a breakdown on the Analytics Hub, in KPI Details, and on dashboards.

For example, you can look at the Number of Open Changes by Assignment Group. Or you can see the Number of New Changes by Priority.

The values for each breakdown are called breakdown elements. For example, the Priority breakdown may have the elements Critical, High, and Low. Breakdowns are categorized as automated, manual, or external, depending on where these elements come from. Automated breakdown elements are specified in breakdown sources. Manual breakdowns have their elements entered manually to define an organization. Lastly, an external breakdown specifies the JDBC data source and SQL statement for retrieving breakdown elements.

You cannot apply more than two levels of breakdown to an indicator.

Synonyms: dimensions, drill-downs

Data collector

is the engine that takes periodic snapshots of your process tables and stores them in the Scores and Snapshots tables. You can set up data collector jobs to run automatically according to a schedule. Usually set a job schedule to match the frequency in the indicator source. One job usually generates scores for multiple indicators that use the same indicator source. You can also set up jobs that run manually, such as historical jobs, which you run only when collecting data for a new indicator.

Other concepts

Aggregate/Aggregation

can refer to either of the following functions:

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- The Performance Analytics function of aggregating, or collecting, indicator scores over time. The indicator configuration includes the frequency with which indicator scores are collected.
- Statistical functions applied to collected indicator scores over a time period. For example, you can apply a 3-month SUM to indicator scores. Aggregation functions can be added either in the indicator form or later in the the Analytics Hub or widget. Aggregation functions in the Analytics Hub or widget are named time series.

Breakdown mappings

specify the relationships, or 'map,' breakdowns to indicator sources. A breakdown mapping either specifies a field on the indicator source or specifies a script that queries the indicator source. The latter is sometimes called a scripted breakdown mapping, and a breakdown with such a mapping is called a scripted breakdown.

Breakdown sources

specify which unique values, called breakdown elements, a breakdown contains. A breakdown source is defined as a set of records from a table or database view or as a bucket group. Multiple breakdowns can use the same breakdown source. For example, instead of seeing ALL assignment groups for the Number of Open Changes indicator, you can limit the element list to just those groups that are part of the change process by configuring the Breakdown Source.

Bucket groups

are used to recategorize data so it can be used as a breakdown, for example by grouping a range of values into discrete buckets.

To work with a bucket group, create a breakdown source that uses Bucket [pa_buckets] as the facts table and specifies the bucket group in a condition. If a breakdown built on this source uses a breakdown mapping with a script, the breakdown groups the values that the script returns into buckets. If the breakdown mapping specifies a field instead of using a script, the breakdown groups the values of the mapped field into buckets.

In the data architecture, bucket groups are defined in Bucket Group [pa_bucket_groups] records and buckets in Bucket [pa_buckets] records. Each Bucket [pa_buckets] record contains a Bucket Group field that is a reference to a Bucket Group [pa_bucket_groups] record.

Day

A day in Performance Analytics is always defined as 24 hours. Performance Analytics does not use the concept of 'business days.'

Indicator sources

are data sets consisting of filtered records from one table or database view. An indicator source configuration specifies a table, such as Incident [incident], conditions for filtering records from that table, and a frequency that you base on the conditions. An indicator source cannot specify a rotated table. Multiple indicators can use the same indicator source. Data collection jobs query the database once for each indicator source. Thus, all indicators that use the same indicator source get data from the same point in time.

Typically, an indicator tracks the situation on a certain date. The indicator source conditions usually include a date-related filter, such as **[Opened][on][Today]**. Indicators collected less frequently might specify a larger date range, such as **[Closed][on][This month]**.

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Scripted breakdown

is a breakdown that uses a script to query the indicator source as its breakdown mapping.

Snapshots

are the lists of records (sys_ids) that are collected at the time that the scores for those records are collected. A snapshot is made only for automated indicators with **Collect records** selected.

The snapshot/list of records can be retrieved in the Analytics Hub or KPI Details.

Snapshots are kept for the main indicator and for first-level breakdowns. Second-level breakdown snapshots are derived as an intersection of the two first-level breakdown snapshot lists.

Put a Spotlight on records

Use the Spotlight feature to illuminate records that you might overlook.

You can define weighted criteria to identify and rank records that require attention, such as when triaging incidents or performing lead scoring. You can rank records based on multiple dimensions, instead of by a single field value such as priority. While most organizations address high-priority items in a timely manner, lower priority items sometimes are not addressed for an extended period of time. Spotlight helps you focus on items based on business need.

Try out Complimentary Performance Analytics for Incident Management

Complimentary Performance Analytics for Incident Management is a limited version of Performance Analytics that is included in the base system, enabling you to become familiar with the functionality. Subscribe to Performance Analytics for complete functionality.

Note:
As an alternative to using Complimentary Performance Analytics for Incident Management, you can activate a plugin with the full features of Performance Analytics without a subscription on a non-production instance.

Complimentary Performance Analytics for Incident Management has the following features and limitations:

- Includes the Performance Analytics Admin Console, which you can use to activate the full set of Performance Analytics features.
- Indicators cannot be added or deleted
- A maximum of 180 days of historic scores are visualized, counting from today's date.
- Is usable only in the global domain

To try out Complimentary Performance Analytics for Incident Management, navigate to **Performance Analytics** > **Guided Setup** and launch the Incident Management guided setup. This setup takes you on a tour of indicators, breakdowns, their sources, data collection, and viewing results.

You can also try out the Spotlight feature with Complimentary Performance Analytics for Incident Management. Spotlight helps prioritize work by evaluating records against multiple weighted criteria. Without a license you can only use Spotlight with incident records and you cannot access the Spotlight interactive analysis. To try out Spotlight, activate the Performance Analytics - Spotlight - Incident Spotlight plugin and follow the guided setup at **Spotlight** > **Guided Setup**. The admin role is necessary to activate the plugin.

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The free two-hour course Platform Analytics Overview provides an introduction to PA components and concepts you can use with Complimentary Performance Analytics for Incident Management. (Registration required.)

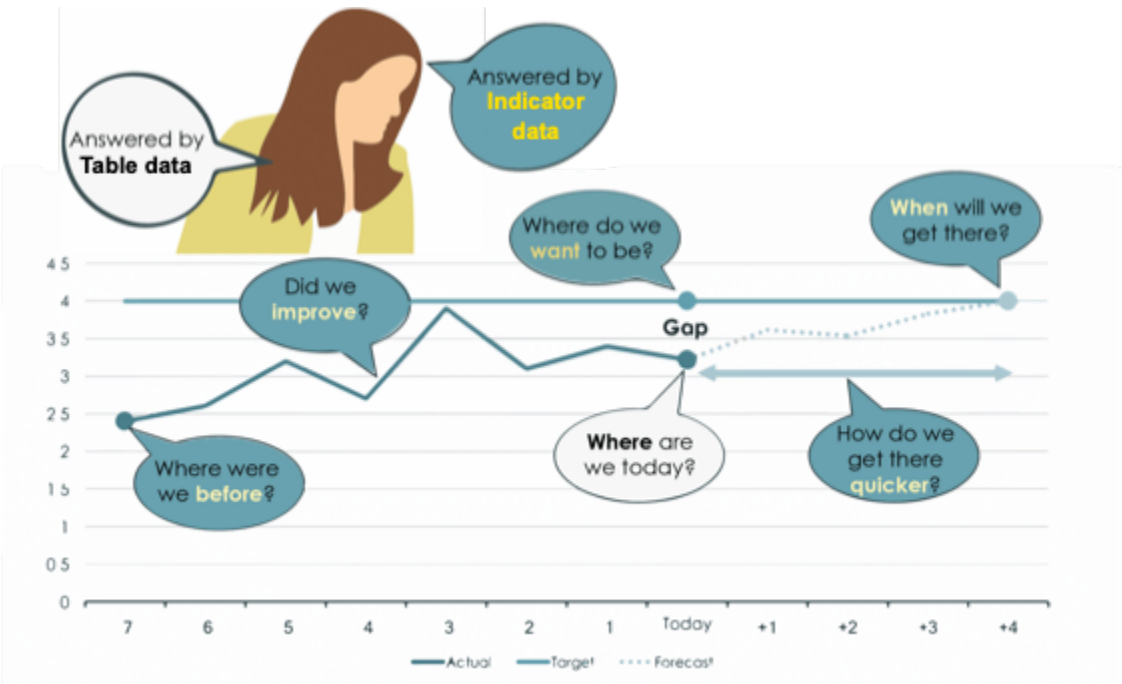
Performance Analytics indicators compared to table data

Indicator data sources address a different set of use cases than table data sources.

Generally speaking, table data shows current state and indicators show trends. Visualizations of table data are more suitable for managing records. Performance Analytics indicators focus on managing processes. You need both.

Performance Analytics is able to generate accurate historical trends by capturing continuous snapshots on a regular schedule. As illustrated by the following diagram, table data answers the question of "Where are we today," while indicators answer questions of what is happening over time.

Common process insight questions for table data and for Performance Analytics indicators



In addition to calculating trends from snapshots, Performance Analytics is able to:

- Track performance against Targets.
- Alert when Thresholds are met.
- Forecast future performance.
- Compare performance at different points in time.
- Accelerate time to value with best practice metrics.

Finally, while you can develop table data visualizations through trial and error, Performance Analytics requires background knowledge in how the feature works. You should carefully plan your Performance Analytics solutions and test them before implementing in a production environment.

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Important:
Do not try to configure Performance Analytics without training. A poorly-designed Performance Analytics solution can severely impact performance and even destabilize your instance. The initial training, Performance Analytics Essentials, is available free of charge.

Related topics

- Planning your indicators
- Workflow for creating indicators
- Design your Performance Analytics solution with KPI Composer

Implement Performance Analytics

Follow these steps to begin using Performance Analytics to improve your service levels.

A properly implemented Performance Analytics solution results in a set of dashboards tailored for the needs of specific people in your company. For an example, see the video linked from ITSM Success Dashboard indicators.

Plan and Prepare

Define goals and measurements to assess and drive improvement.

1. Identify the business processes you want to measure and improve.
2. Determine factors and behaviors which affect the health of these business processes.
3. Decide on the metrics to measure.

For a tool to help you plan and prepare your Performance Analytics solution, see Design your Performance Analytics solution with KPI Composer.

Start with Platform Analytics Solutions

Before you create new indicators, try out the built-in dashboards and indicators available in Platform Analytics Solutions.

Important:
Set up and test Platform Analytics Solutions on a non-production instance before enabling them in production.

1. Check your license entitlement and activate applicable Solutions, as described in Analytics solutions.
2. Verify that your indicator and breakdown sources refer to the correct tables.
3. Customize your indicators and breakdowns to meet the needs of your organization.

.

Collect data

Collection jobs need to be configured to run with the desired frequency and activated.

1. Schedule and activate data collector jobs.
2. Run historical data collector jobs as a one-off to populate empty indicators.

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Share results

Display actionable KPIs that tell the story of your business process and display the right level of information to their intended viewers.

1. Explore the available pre-configured content to get a feel for your data and decide on any dashboard customizations.
2. Grant dashboard access to stakeholders.
3. Empower everyone to take action with embedded, real-time analytics.

Planning your indicators

Before creating an indicator, clarify what goals you wish to attain with the indicator.

Ask these questions before you create an indicator:

- What
  - What do you want to measure? Are you basing what you want to measure on progress towards a business goal? Consider starting with a business goal and then deciding what to measure. You can use KPI Composer to help you.

    Do you want a simple count, like the number of open incidents, or something more sophisticated, like the average age to close an incident?
  - Is more better or is less better?

    For example, you would want the number of open incidents to be as low as possible, but the number of sales to go up.
  - What factors contribute the most to this number?
  - What factors would skew this number?

    Seasonality? A shift in staffing numbers or composition?
  - What will you do if the number goes from good to bad?
- Who
  - Who is responsible for this indicator?

    A request fulfiller? A manager?
  - Who should not see this information?
- Why
  - What is the next question you will ask?

    For example, once you know the number of open incidents, you may want to know what percentage of them has been open for more than 30 days.
  - Does this number predict what will happen or show what did happen?
- How
  - Do you measure this today?
  - If Yes, what do you do with it?
  - If No, why not?
- When

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- How fast does the data change?
- What is a meaningful period to look at?

  Are daily changes meaningful or too noisy? How much time does it take to establish a real trend?

- Is there already an indicator that matches my use case, or do I have to build my own?
  - Has the Platform Analytics Solution for the subject area been installed? These solutions contain indicators for many common use cases.
  - In the indicator list, is there an indicator that matches, or comes close to matching, your requirements? Can I duplicate an existing indicator and tweak it?
  - Can I create a formula indicator from existing indicators that will meet my requirements?

Related topics

Analytics solutions

Design your Performance Analytics solution with KPI Composer

Performance Analytics data flow

Before you get started with Performance Analytics, understand how the data flows through the platform, ultimately resulting in your ability to visualize process improvements.

1. Daily business operations and interactions generate data and populate the respective business process tables.

   Example: Submitting a new incident creates a record in the Incident table.

2. Active scheduled jobs run regularly to take periodic snapshots of process behavior. Each job calculates indicator (KPI) scores, based on metadata in PA indicators and breakdowns. Over time, this continuous stream of scores builds a trend.

   Example: A collection job counts the number of incidents in the Incident table daily. After one month, a trend containing about 30 data points can be viewed.

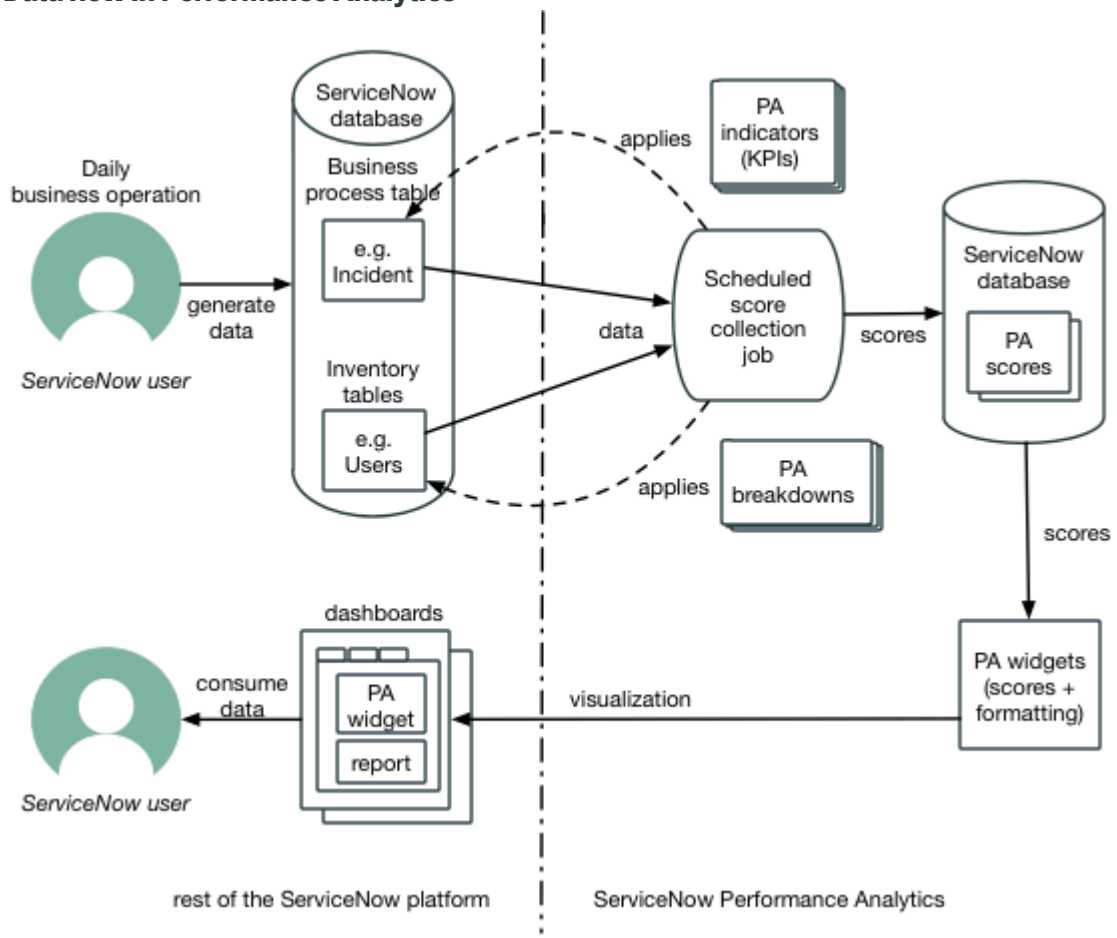
3. Data snapshots and scores are stored in Performance Analytics data tables. These tables are the source of all Performance Analytics visualizations.
4. Widgets present indicator scores in a specific format, such as a trend line or a bar chart.

   Example: The Number of new incidents is an indicator you may want to track. This indicator can be visualized as a single score or a trend of daily readings over time by configuring the appropriate widget.

5. Multiple Performance Analytics widgets are presented in a single Dashboard view, allowing stakeholders to view all relevant business process information in a single place.

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Data flow in Performance Analytics



Performance Analytics architecture

Before using Performance Analytics, familiarize yourself with how the layers of architecture take you from raw database entries to insightful visuals on dashboards.

Le	Component	Description	Creator persona
0	ServiceNow database tables	Business process tables, containing the raw data that you want to analyze to evaluate performance. Examples: Incident [incident], Problem [problem] Inventory tables, containing the information you need to filter, categorize, or break down data from the business process tables. Examples: User [sys_user], Choice [sys_choice]	N/A
1	Indicator sources	Metadata objects, each one of which can serve as the data source for multiple indicators. Indicator sources contain the following:	Performance Analytics Technical Expert, with at least the pa_data_collector role.

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Le	Component	Description	Creator persona
		• Reference to a business process table • Reference to a field on the table with unique values for every record • Conditions for filtering the records of the table • The indicator frequency for which this source is valid. An indicator frequency is the frequency for which data is collected for an indicator. The frequencies of the indicator and the indicator source must match.	
1	Breakdown sources	Metadata objects, each one of which can serve as the data source for multiple breakdowns. Breakdown sources contain the following: • Reference to an inventory table • Reference to a field on the table with unique values for every record • Conditions for filtering the records of the table	Performance Analytics Technical Expert, with at least the pa_data_collector role.

Configure Performance Analytics fundamentals

Create and configure indicators and breakdowns. Collect data. Display calculated indicator scores.

For an overview of the essential use of Performance Analytics, take the free training Platform Analytics Overview.

Note:
In all visualizations, high scores are abbreviated following the metric system. Thus scores in the millions are abbreviated with an M and scores in the (US) billions with a G.

Design your Performance Analytics solution with KPI Composer

KPI Composer ensures that your performance management strategy aligns with business goals and has support from executive sponsors. Use KPI Composer to bridge the gap between defining your performance measurement strategy and the realization of that strategy from within

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Performance Analytics. Start with your business goals and plan all your components through indicators up to the final dashboard.

KPI Composer helps you elicit performance management requirements and drive stakeholder alignment by visualizing implementation objectives, desired business outcomes, and required technical deliverables in a concise visual summary. This holistic approach ensures that stakeholders are completely aligned on the desired outcomes and requirements before implementers spend time working on any technical deliverables. When ready, Performance Analytics implementers get a task list of exactly what they need to create — indicators, breakdowns, reports, and dashboards — to support the goals, and you can even use KPI Composer to track the progress of the implementation.

A free training in KPI Composer is available at NOW Learning. You can also see examples of how a properly designed Performance Analytics solution can help different people in your organization at ITSM Success Dashboard indicators.

Activating KPI Composer

KPI Composer is available on the ServiceNow Store. Navigate to **System Applications** > **Search ServiceNow Store**, or point a browser to https://store.servicenow.com/sn_appstore_store.do#!/store/home. Search for the application named KPI Composer. If you are downloading the application to a production instance, you need a Now Support account.

After you download the application, navigate to **System Applications** > **All Available Applications** > **All**. Search for the KPI Composer application and install it. For an example, see Activate a ServiceNow Store application.

Note:
To get full use of KPI Composer, you should have the appropriate entitlement to use Performance Analytics.

Related topics

Performance Analytics roles

Access to KPI Composer

The level of access to KPI Composer determines whether a user can create, edit, or only view a KPI Composer project. It also determines which projects a user can access and whether they can access the underlying records or only the UI.

Access to KPI Composer depends on the following things, singly or in combination:

- User role
- Responsibility
- Access granted during sharing

Role-based access

An admin can grant a user the role of a KPI Composer admin or user. A KPI Composer admin has the same privileges as a ServiceNow AI Platform admin for KPI Composer. A KPI Composer user does not automatically have access to all projects and cannot associate indicator or breakdown definitions with actual Performance Analytics entities.

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User roles for KPI Composer

Role	Contains	Description
sn_kpi_composer.admin or admin	pa_viewer	• Full access to all components of KPI Composer, including records. • Full access to all projects. • Can share or assign responsibility for projects. • Can associate indicator and breakdown definitions with Performance Analytics indicators and breakdowns.
sn_kpi_composer.user	None	• Can access only projects that they have created. • Can share or assign responsibility for projects they create. • Can access only the design tabs, artifact properties, indicator definitions, and breakdown definitions of those projects. • Cannot add Performance Analytics indicators or breakdowns to the respective definitions. A user with this role may have access to more projects based on responsibility or on projects being shared with them.

The appropriate Performance Analytics roles are also necessary to implement KPI Composer designs in Performance Analytics.

Responsibility for projects

A responsible user has the following access to the projects they are responsible for:

- Can view and edit the projects.
- Can share or assign responsibility for the projects.
- Can access only the design tabs, artifact properties, indicator definitions, and breakdown definitions of those projects.
- Cannot add Performance Analytics indicators or breakdowns to the respective definitions.

This level of access is equivalent to what the sn_kpi_composer.user role grants. It is also equivalent to having a project shared with edit rights. Responsibility differs first in being independent of any role. The second difference is procedural, not technical: Responsible users are understood to be in charge of oversight and implementation of the project. Even the creator of a project is therefore not automatically responsible for it.

Responsible users are named in the project properties. Any user with edit rights can name responsible users. For more information about naming responsible users, see Define properties for a project.

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Shared projects

Any user with edit rights can share a project. When you share a project, you grant one of two levels of access:

Edit access

This level of access is technically the same as the access of a responsible user, or a user with the sn_kpi_composer.user role. The first difference is that no role is required. The second difference is that there is no implication of responsibility to oversee or implement the project.

View access

A user with view access can read the design tabs, artifact properties, indicator definitions, and breakdown definitions of the shared project. They can use all viewing utilities, like search and filter. However, they cannot change anything in the project. The only thing they can add is a journal entry.

For more information, see Share a KPI Composer project.

KPI Composer projects

KPI Composer is based on projects. Each project in KPI Composer consists of Key Performance Indicator (KPI) trees and the functional and technical definitions of all artifacts within those trees. You can create multiple projects.

The KPI Composer project UI provides you with a sequence of four tabs, each corresponding to a phase in your project:

Analysis

In this phase, you create a hierarchical tree of Business Goals, Critical Success Factors, and Measurements (or KPIs). Conceptually defining KPIs and mapping them to Goals and Success Factors produces a detailed functional specification of all required Performance Analytics configurations. This specification is vetted by the business sponsors and provides a clear direction to the technical implementers.

Dashboard Design

In this phase, you create a design specification for one or more Performance Analytics dashboards. Use the Dashboard Visualization tab in presentations early in your implementation to get timely feedback, so when your project is complete, the dashboard viewers get the visualizations they expect.

Data Definition

In this phase, you provide technical specifications for Performance Analytics Indicators that match the KPIs that you defined during Analysis. You can link the KPIs to appropriate Performance Analytics indicators that already exist or that you create later.

Review

In this phase, verify the design components in your project, run a system definition health check, and generate a task list for implementing the project in Performance Analytics.

Create a KPI Composer project

As the first step in using KPI Composer, create a project.

Before you begin

Role required: sn_kpi_composer.user, sn_kpi_composer.admin, admin

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Procedure

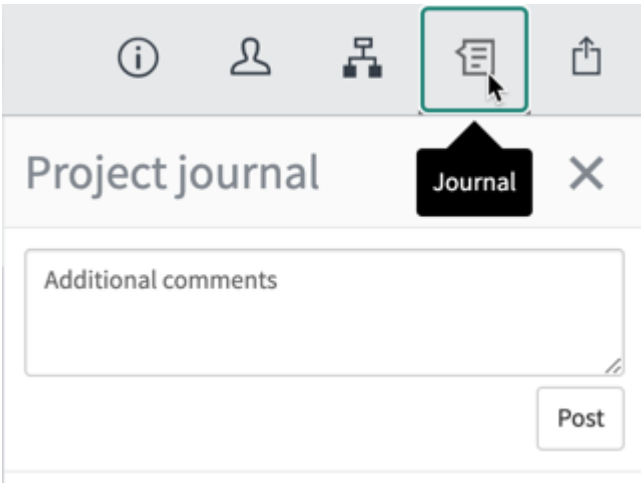
1. Navigate to **All** > **KPI Composer** > **Projects** and click **New**.
2. In the Create new project dialog, give the project a meaningful name and click **Save**.

Result

Your project is created and is visible in the **Projects** page.

What to do next

As you work on the project, keep track collaboratively in the Project Journal.



Define properties for a project

In the Project Properties, you can associate knowledge articles, owners, and contact persons with the project.

Before you begin

Note:
Project Properties are similar to the Info tab of Artifact Properties. Only the scope is different.

Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Procedure

1. Navigate to **All** > **KPI Composer** and create or open a project.
2. In the Analysis tab, click the Information icon ( ) at the top right of the screen.
3. Give the project a meaningful name.
4. Add a detailed description of the project, so other users can understand its purpose.
5. Specify the business objective you hope to reach with this project.
6. Specify any of the following details:

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- Knowledge articles that contain information relevant to the project. You can link any number of knowledge articles.
- Responsible users. A responsible user has full editing privileges but also is expected to be responsible for implementing the project. This responsibility distinguishes a responsible user from a user with whom the project has been shared with editing rights.
- Contact persons

Add personas to a project

Each project has several personas with different roles in the Performance Analytics solution that you are designing. A persona is a role within your company, such as service desk manager or service owner.

Before you begin

Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Prerequisites

Create a KPI Composer project

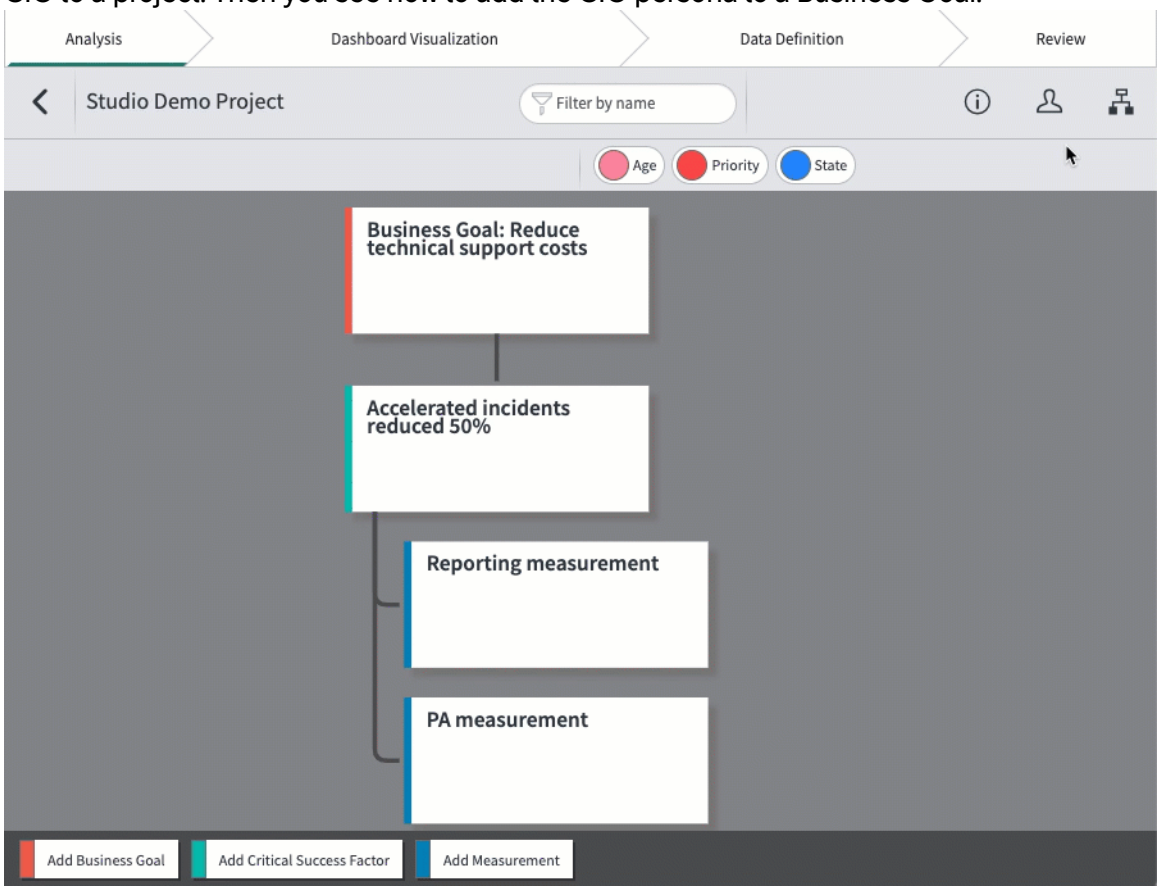
Procedure

1. Navigate to **All** > **KPI Composer** and create or open a project.
2. In the Analysis tab, click the persona icon () at the top right of the screen.
3. In the Persona dialog, click **Add item**.
4. Type the name of the new persona and click outside the text box.
   The persona appears in the header of the KPI tree canvas. Each persona automatically gets a 2-letter identifier, which is based on the first two words (or first two letters if only one word) that are in the name.
5. Repeat these steps to add more personas.

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Example: Adding personas to a KPI Composer project

In the following short animation, you see how to add the personas Agent and CIO to a project. Then you see how to add the CIO persona to a Business Goal.



What to do next

Drag personas onto existing artifacts on the canvas to add them to those artifacts. You can add an unlimited number of personas to any artifact. If an artifact has more than three personas, the full names of the personas are hidden. To see the full names, point to the personas.
By holding down the Ctrl/Command or Alt/Option key while dropping a persona onto an artifact, you activate the following advanced functions:

Hold Ctrl while dropping

Add the persona to the artifact on which it is dropped and to all child artifacts of that artifact.

Hold Alt while dropping

Remove the persona from the artifact on which it is dropped.

Hold Ctrl and Alt while dropping

Remove the persona from the artifact on which is dropped and from all child artifacts of that artifact.

Group data by breakdown definitions

Each project can have a set of breakdown definitions that you can use to group the data in KPIs. These breakdown definitions provide the specifications for Performance Analytics breakdowns that you eventually create.

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Before you begin

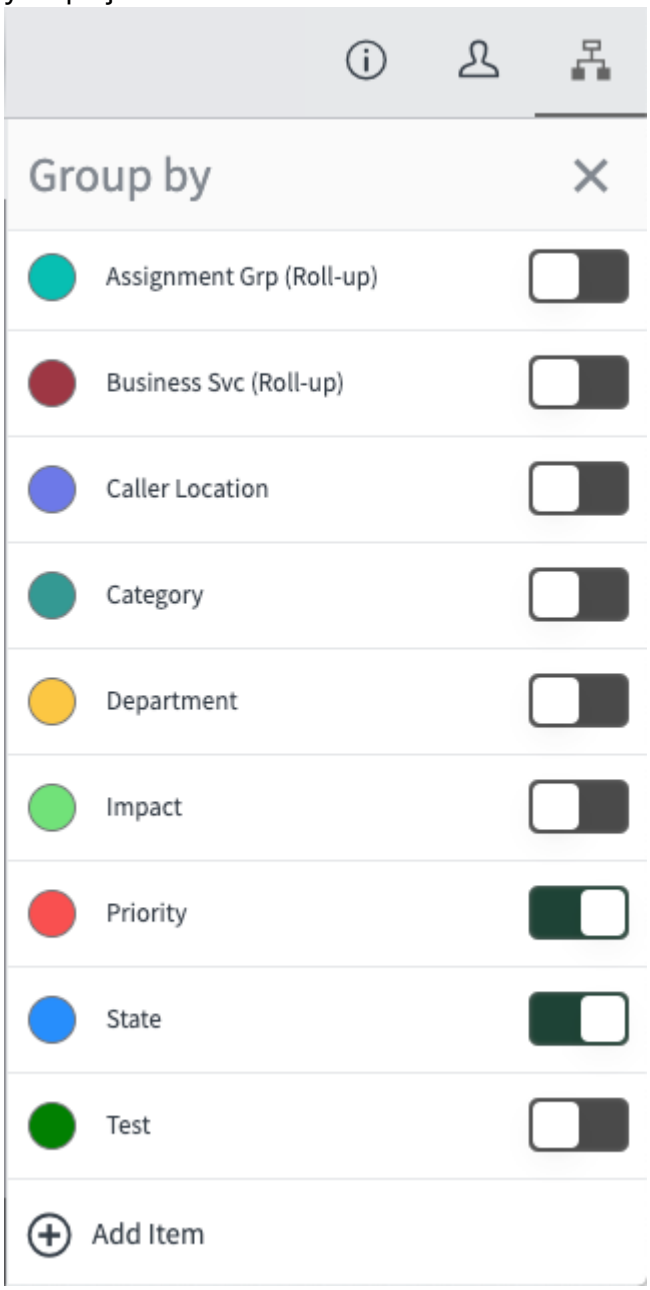
Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Prerequisites

Create a KPI Composer project

Procedure

1. Navigate to **All** > **KPI Composer** and create or open a project.
2. In the Analysis tab, click the 'Group by' icon ( ) at the top right of the screen.
3. In the 'Group by' dialog, use the sliders to select which breakdown definitions to include in your project.



The selected breakdown definitions appear in the header of the KPI tree canvas. From here, you can drag them onto artifacts.

4. To add a new breakdown definition to your project, click **Add Item** and enter the term.

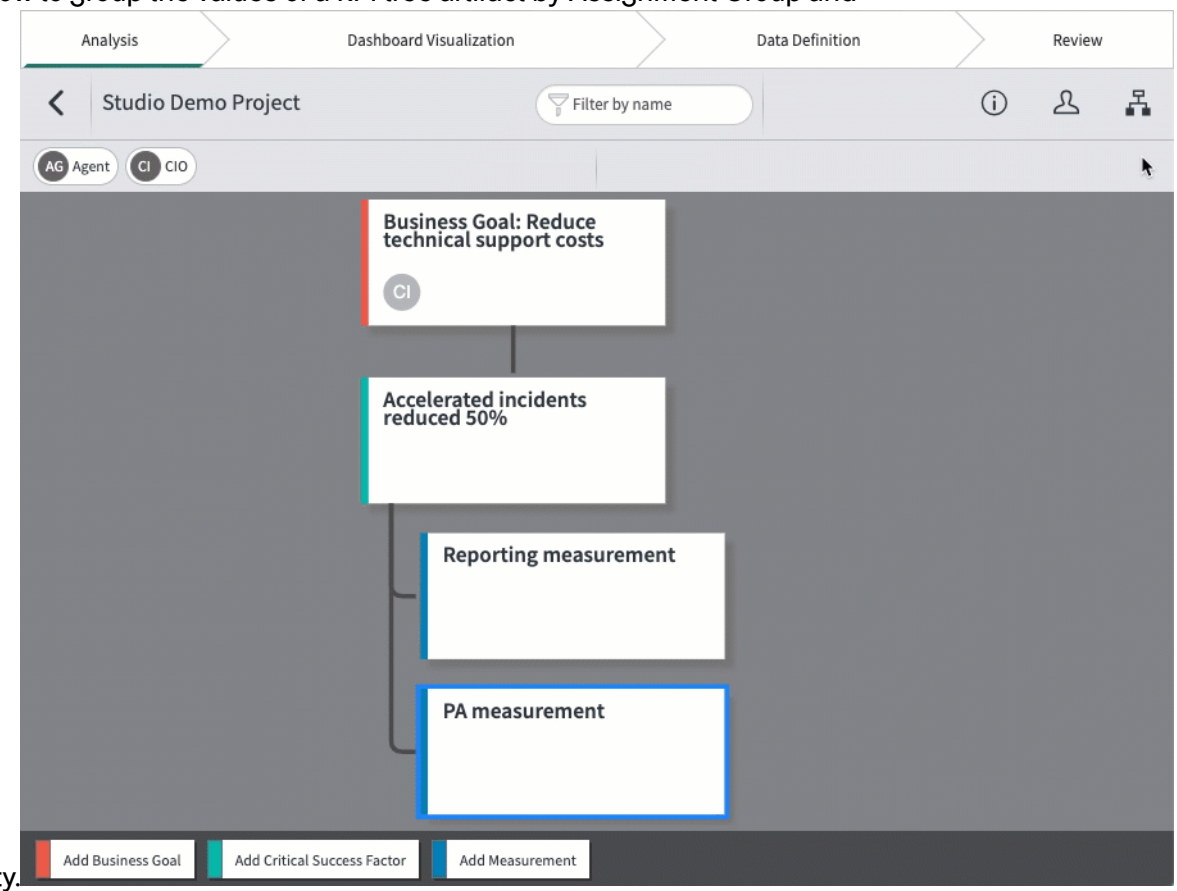
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The new item appears in the 'Group by' list, and a matching breakdown definition record is created.

Example: Selecting breakdown definitions for a KPI Composer project

In the following short animation, you see how to select the breakdown definitions Assignment Group, Impact, and Priority to a project. Then you see how to group the values of a KPI tree artifact by Assignment Group and Priority.



What to do next

Drag breakdown definitions ('Group by' items) onto existing artifacts on the canvas. You can group the data associated with an artifact by any number of breakdown definitions. The colored dots on an artifact show which breakdown definitions the artifact is grouped by. To see the names of these breakdown definitions, point to any of the colored dots on the artifact.
By holding down the Ctrl/Command or Alt/Option key while dropping a breakdown definition onto an artifact, you activate the following advanced functions:

Hold Ctrl while dropping

Add the breakdown definition to the artifact on which it is dropped and to all child artifacts of that artifact.

Hold Alt while dropping

Remove the breakdown definition from the artifact on which it is dropped.

Hold Ctrl and Alt while dropping

Remove the breakdown definition from the artifact on which is dropped and from all child artifacts of that artifact.

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Define a breakdown

Provide the functional description of how to build an actual Performance Analytics breakdown in a breakdown definition. Once an appropriate Performance Analytics breakdown exists, you can link to it in the breakdown definition.

Before you begin

Role required: sn_kpi_composer.user, sn_kpi_composer.admin (to link to Performance Analytics breakdown), admin. No roles required for responsible user or user with edit access, except to link to link to Performance Analytics breakdown.

About this task

The breakdown definitions that you add to KPI Composer projects are not actual Performance Analytics breakdowns. They are only placeholders that describe what the Performance Analytics breakdown should be. In KPI Composer breakdown definitions, you provide either or both of the following pieces of information:

- The details that a Performance Analytics expert needs to create the actual breakdown.
- A reference to an existing Performance Analytics breakdown that meets your requirements.

Procedure

1. In the Analysis tab, click the 'Group by' icon ().
2. Click the name of the breakdown you want to define.
3. Fill in the following information:

Field	Description	Notes
PA Breakdown (Restricted to sn_kpi_composer.admin and admin roles)	A Performance Analytics breakdown that exists on this instance.	If a breakdown definition does not have a reference to a Performance Analytics breakdown, consider creating that breakdown.
Facts Table	The table that the breakdown source for the Performance Analytics breakdown has to reference.	Key information for creating a breakdown.
Conditions	The filter conditions to apply to the facts table either in the breakdown source or in the breakdown itself.	

Write journal entries for a project

Keep track of your KPI Composer project with journal entries

Before you begin

Role required: Anyone with access to a KPI Composer project, including view access, can write a journal entry.

Prerequisites

Create a KPI Composer project

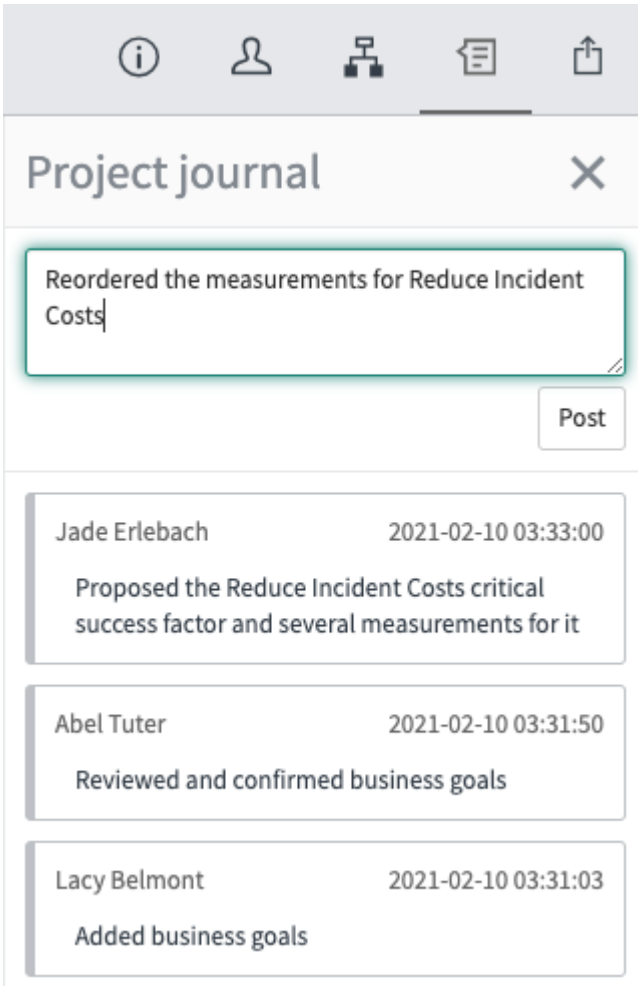
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Procedure

1. Click the journal icon ( ).
2. Write a journal entry.
3. Click **Post**.

Result

All posted journal entries appear in descending chronological order.



Share a KPI Composer project

You can share a KPI Composer project that you own or that you are responsible for. You can provide the user with either read-write or read-only access.

Before you begin

Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Prerequisites

Create a KPI Composer project

About this task

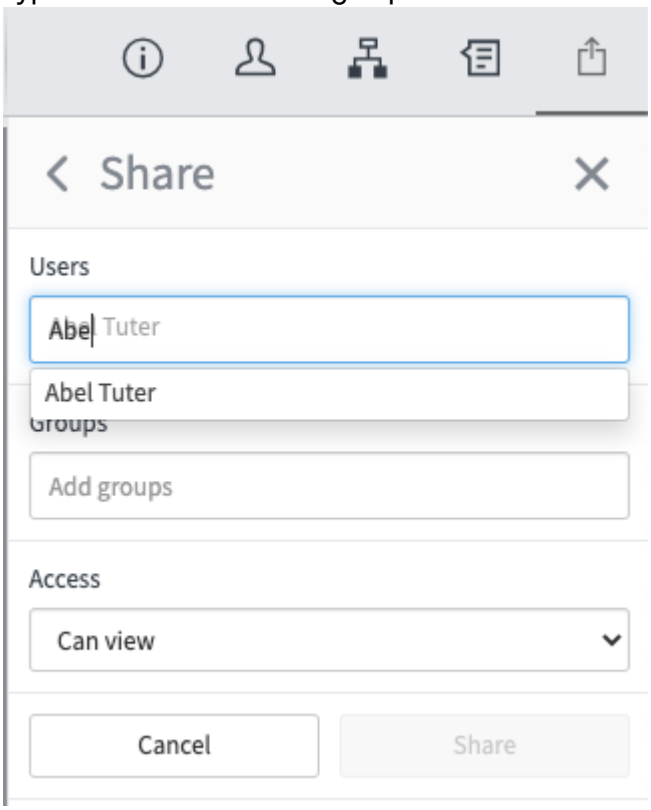
When you share a project with the right to edit, that user has the same rights technically as a responsible user. The difference has to do with project management: A user who has had a

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project shared with them simply can edit the project, whereas a responsible user is responsible for the successful implementation of the project.

Procedure

1. Navigate to **All** > **KPI Composer** and create or open a project.
2. Click the Sharing icon on the toolbar ( ).
3. Click **Add groups and users**.
4. Type to search for either a group or a user.



5. Select either **Can view** or **Can edit** access.
6. Select **Share** or **Cancel**.

Export a KPI Composer project

To copy a KPI Composer project between instances, first export the project as a JSON file.

Before you begin

Role required: sn_kpi_composer.admin

Prerequisites

Create a KPI Composer project

About this task

The following fields are not exported with a project:

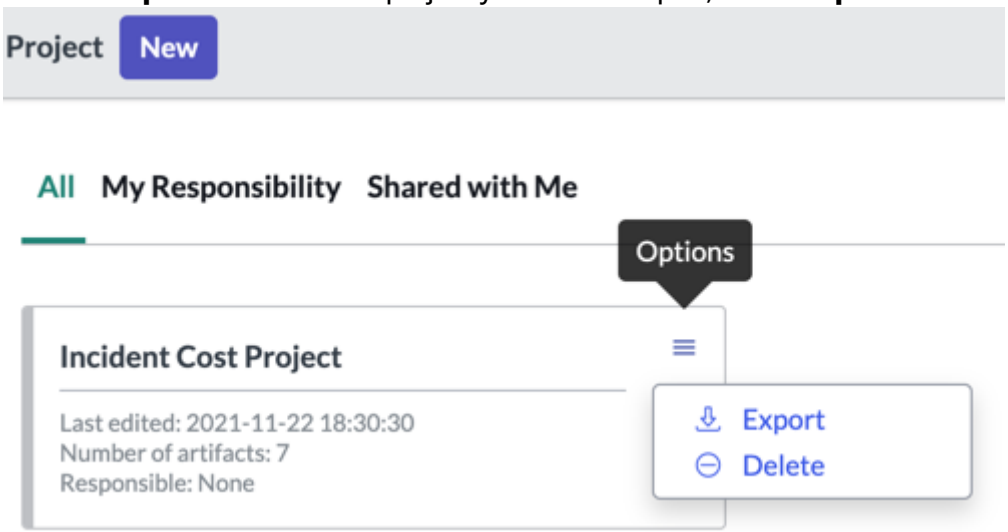
- Responsible users
- Contacts

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- Project journal entries
- References to knowledge articles

Procedure

1. Navigate to **KPI Composer**.
   The page of project cards opens.
2. From the **Options** menu of the project you want to export, select **Export**.



3. Read the notice about which fields are not exported.
4. Click **Download**.

Result

The KPI Composer project is saved in a JSON file in the download destination of your computer. The file name has the format `ProjectExport.[Project_name].[Timestamp].json`. For example, for a project named Incident Cost Project, the export file name is `ProjectExport.Incident_Cost_Project.2021-11-22_19_13_20.json`.

Import a KPI Composer project

If you have an exported KPI Composer project, you can import it to your instance.

Before you begin

Role required: sn_kpi_composer.admin

Prerequisites

Create a KPI Composer project

Procedure

1. Navigate to **All** > **KPI Composer** > **Import project**.
2. Select **Choose file** and navigate to the exported project in your file system.
3. Select **Import**.
   If you already have a copy of the same project, the import overwrites it.

Result

You now can open the project in KPI Composer.

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Analysis and the KPI tree

In the Analysis tab of KPI Composer, design your KPI tree. Specify your business goals, their associated critical success factors, and the measurement related to those factors. Chart the logical relationship between these factors and the personas who are responsible for them.

A KPI tree contains the following hierarchically related artifacts:

Business goals

Typically, you put a business goal at the top of your KPI tree. This goal represents what you want to achieve with the dashboards coming forth from this project. A business goal can be something like "Cost Efficiency" or "Quality Assurance."

Critical Success Factors

Put these factors under your business goals to identify what your organization needs to do to achieve the business goal. Critical success factors can be placed under a business goal or under other critical success factors.

Measurements

Decide how to measure the performance of a critical success factor. Measurements are the most 'indicator-like' artifact in the KPI tree. They contain the functional description of how to make the measurement. Additionally, you can store who is responsible for the measurement and who to contact in case this measurement is used in different projects.

The KPI tree has a header and a footer with the following drag-and-drop icons:

- Artifacts, on the left of the footer
- Breakdown definitions, on the right of the header (See Group data by breakdown definitions)
- Personas, on the left of the header (See Add personas to a project)

Filtering

The following filter options are available on the Analysis tab:

- Filter by persona. Select a Persona icon in the header to highlight the artifacts that are linked to the persona. You can select multiple personas. In this case, any artifact that is linked to at least one of the selected personas is highlighted.
- Filter by breakdown definition. Select a Breakdown definition icon in the header to highlight the artifacts that are linked to the breakdown. You can select multiple breakdowns. In this case, any artifact that is linked to at least one of the selected breakdowns is highlighted.
- Filter on text. Enter text in the filter field, then leave the field. All artifacts that contain the text are highlighted.

All filter functions can be used with each other.

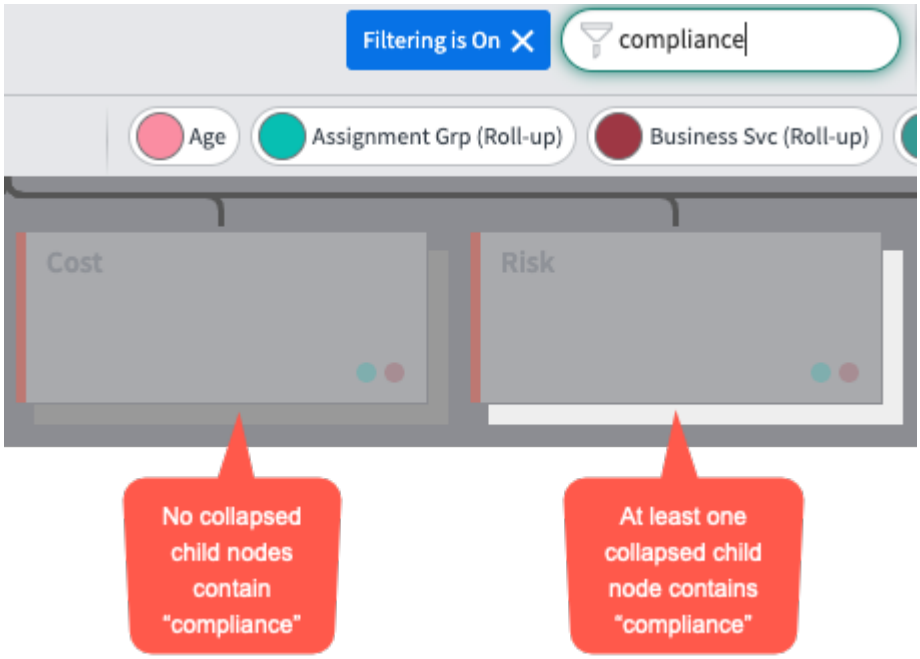
Expanding and collapsing tree nodes

When working with large KPI trees, you can close those parts of the tree that you are not currently working with. To collapse part of a tree, click the minus - icon on an artifact that has child artifacts. Collapsed nodes appear as a shadow under the top-level node. To expand collapsed nodes, click the plus + icon.



When a filter or a search matches a collapsed, hidden artifact, the tree does not expand. Instead, the "shadow" turns white although the top-level element remains grey.

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Add artifacts to a KPI tree

Add artifacts to the KPI tree by using the drag-and-drop tiles at the bottom of the project canvas.

Before you begin

Think about your business goal and critical success factors before you begin to work on a project.
Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

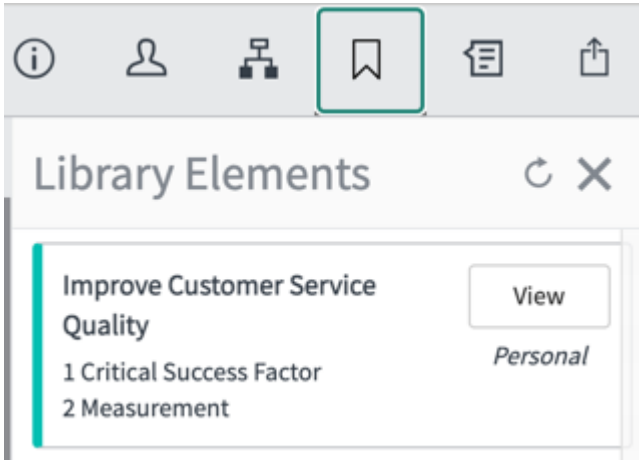
Procedure

1. Navigate to **KPI Composer** and open or create a project, then navigate to the Analysis tab.
2. Locate the KPI tree artifacts at the bottom of the screen.
3. Drag a Business Goal icon to the top of your project.
   To keep your planning simple, usually you have one business goal for each project, but you can have business goals as children of other business goals.
4. Set the Business Goal properties as described in "Artifact properties."
   You can edit these properties later by clicking the Edit icon ( ) on the artifact tile.
5. Repeat this process with Critical Success Factors and Measurements.
   Drop an artifact on top of another artifact to have the new artifact displayed as a child of the existing artifact. Critical Success Factors can be children of Business Goals or other Critical Success Factors. A Measurement can be a child of any artifact.
6. As an alternative to creating and configuring all your artifacts, you can add an existing Library Element.

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a. Select the bookmark icon to open the **Library Elements** list.

b. Drag an appropriate library element into your KPI tree.



For more information, see Cross-project library elements.

What to do next

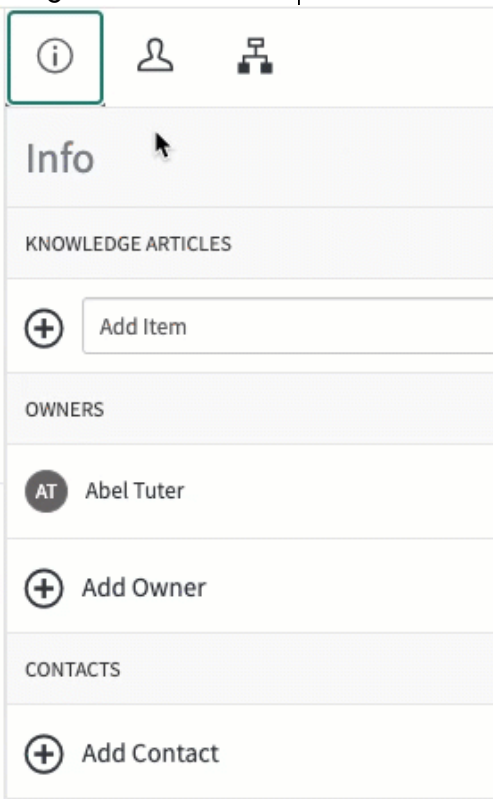
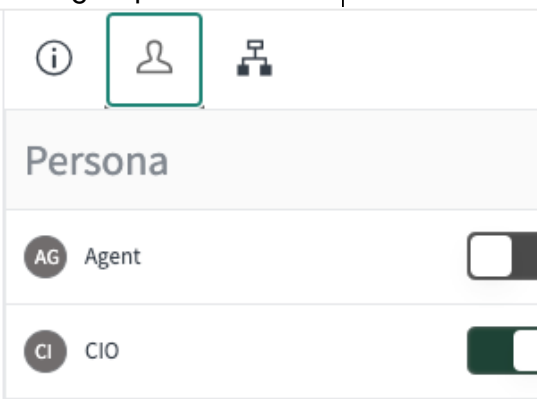
If you change your mind about the relationships in a tree, you can select and drag an existing artifact to a different artifact. You can also change the ordering of artifacts. Drag a child artifact onto its parent to move it into the top position among its siblings.

Artifact properties

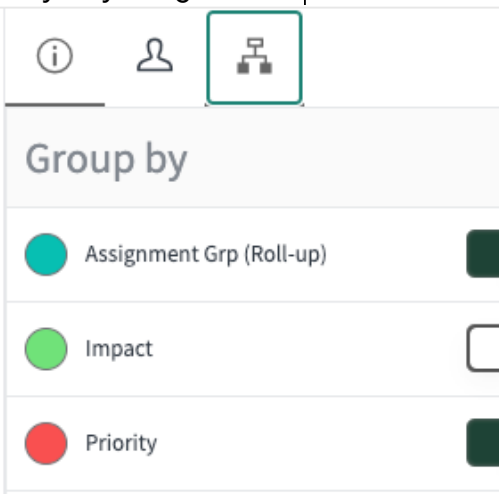
Each artifact in a KPI tree can reference knowledge base articles, personas, or breakdown definitions.

Property	Description	Example
Name	A unique, meaningful name	High-quality cost-effective business resolution (for a business goal artifact) Total incident resolution cost (for a measurement artifact)
Description	A detailed description of the artifact to help others understand its purpose and to avoid redundancy	Total monetary cost from when an incident is raised until it is resolved, including estimated salary and opportunity costs
Target	The future performance improvement you want from Performance Analytics. If you do not yet have a quantitative target score for an indicator, describe the target qualitatively.	A 10% reduction every month until a final value of 40 is reached.
Add this element to the library link	Adds this artifact and any child artifacts in the KPI tree	For more information, see Cross-project library elements.

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Property	Description	Example
	to a multi-project, reusable library element.	
Info	Specify any of the following details: • Knowledge articles that contain further explanation about the artifact. You can link any number of knowledge articles. • Artifact owners • Contact persons	This short animation shows a knowledge article being added to an artifact. 
Persona	The personas currently linked to the project. In the artifact properties, you can only add and remove personas to the artifact. For information about adding personas to the project, see Add personas to a project.	In this image, the Agent and CIO personas are linked to the project. The CIO persona is linked to the artifact and the Agent persona is not. 
Group by	Group the data associated with an artifact by one or more of the breakdown definitions selected for the project. For information about adding breakdown definitions to the	In this image, the Assignment Group, Impact, and Priority breakdown definitions are available for the artifact. The data in the artifact is

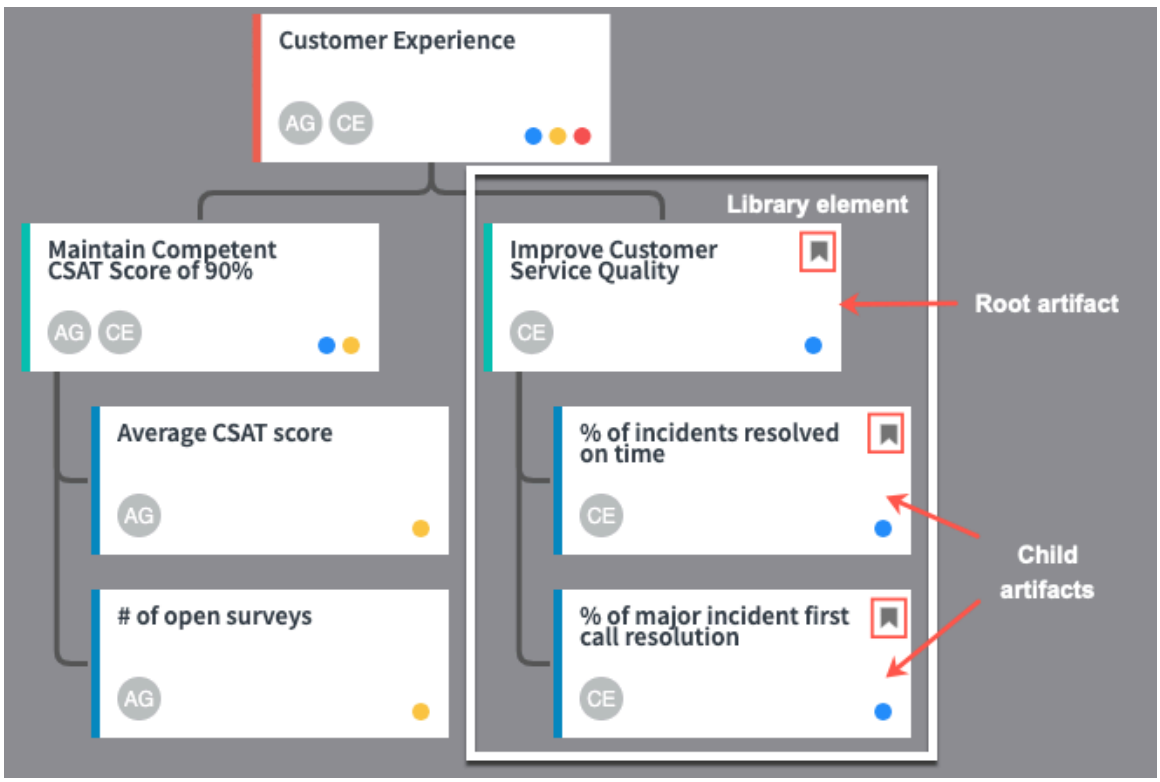
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Property	Description	Example
	project, see Group data by breakdown definitions.	grouped by only Assignment Group. 

Cross-project library elements

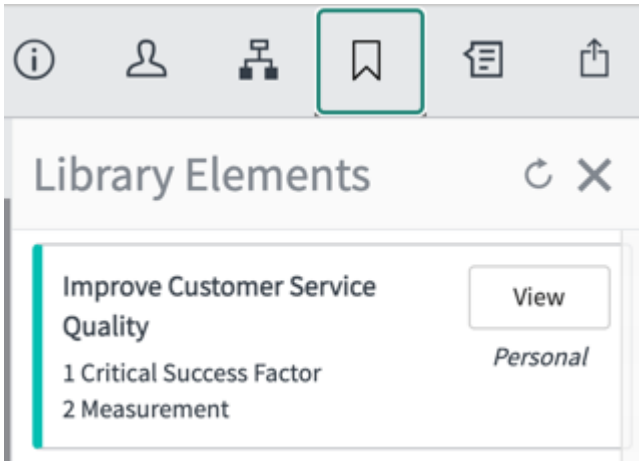
Library elements are single artifacts or trees of artifacts that you can reuse in multiple projects.

Each library element has a single root artifact. All child artifacts of that artifact are included in the library element. The following image shows a library element based on the Improve Customer Service Quality critical success factor. The two measurement artifacts that are its children are included automatically in the library element.



You can drag a library element into a KPI Tree from the **Library Elements** menu on the Analysis tab of any project.

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Create a library element

Convert an artifact and its children in a KPI tree into a KPI Composer cross-project library element.

Before you begin

You need an existing project with a KPI tree with at least one artifact.
Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

About this task

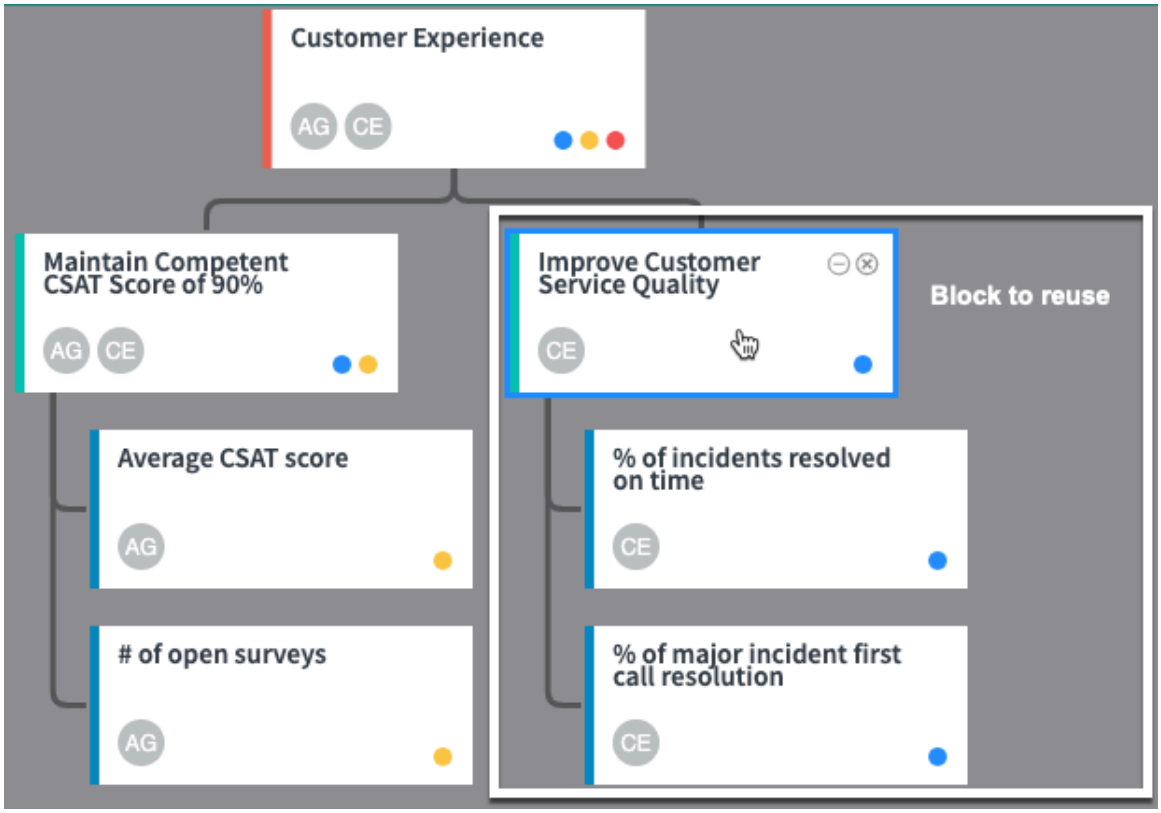
Note:
You can nest library elements. In other words, you can create a library element from an artifact that includes another library element among its descendants. The elements of the original library element are included in the new, higher-level one. The original library element still exists and can be included in a KPI tree on its own.

Procedure

1. Open the Analysis tab of a KPI Composer project.
2. Select an artifact in the tree.
   Select an artifact that you want to be able to reuse in other projects. If you want to reuse a group of artifacts, select the root artifact. All descendant artifacts of the root artifact will be included in the library element.

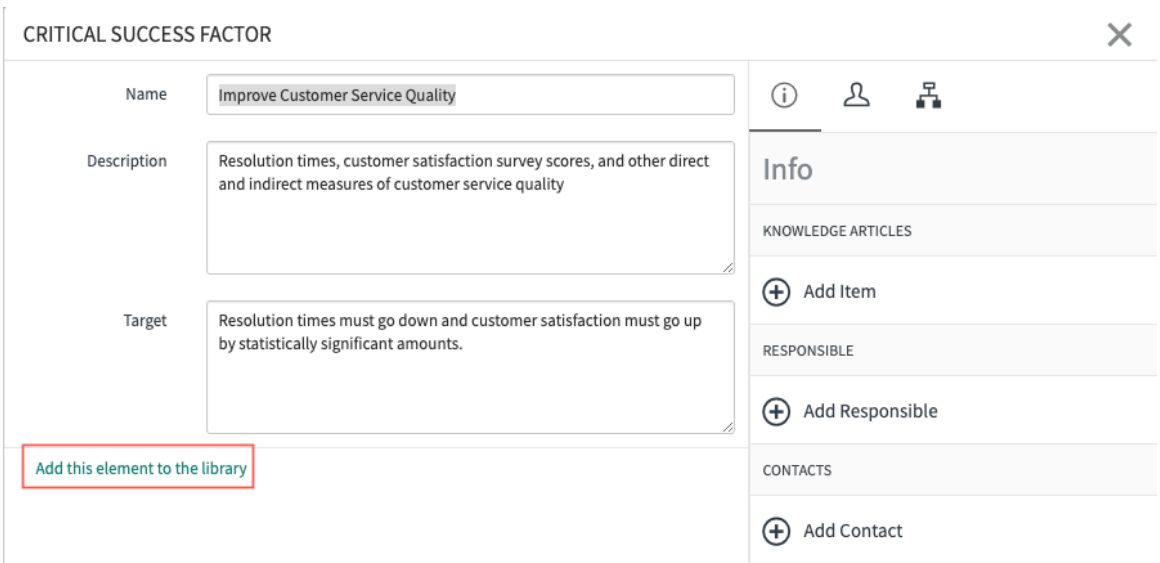
   Example
   In this example, you want to reuse the "Improve Customer Service Quality" critical success factor. You want to use it with its two child measurements "% of incidents resolved on time" and "% of major incident first call resolution."

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3. In the properties window of the artifact, select **Add this element to the library**.

Example
In this example, you have opened the properties of the "Improve Customer Service Quality" artifact and are about to click **Add this element to the library**.

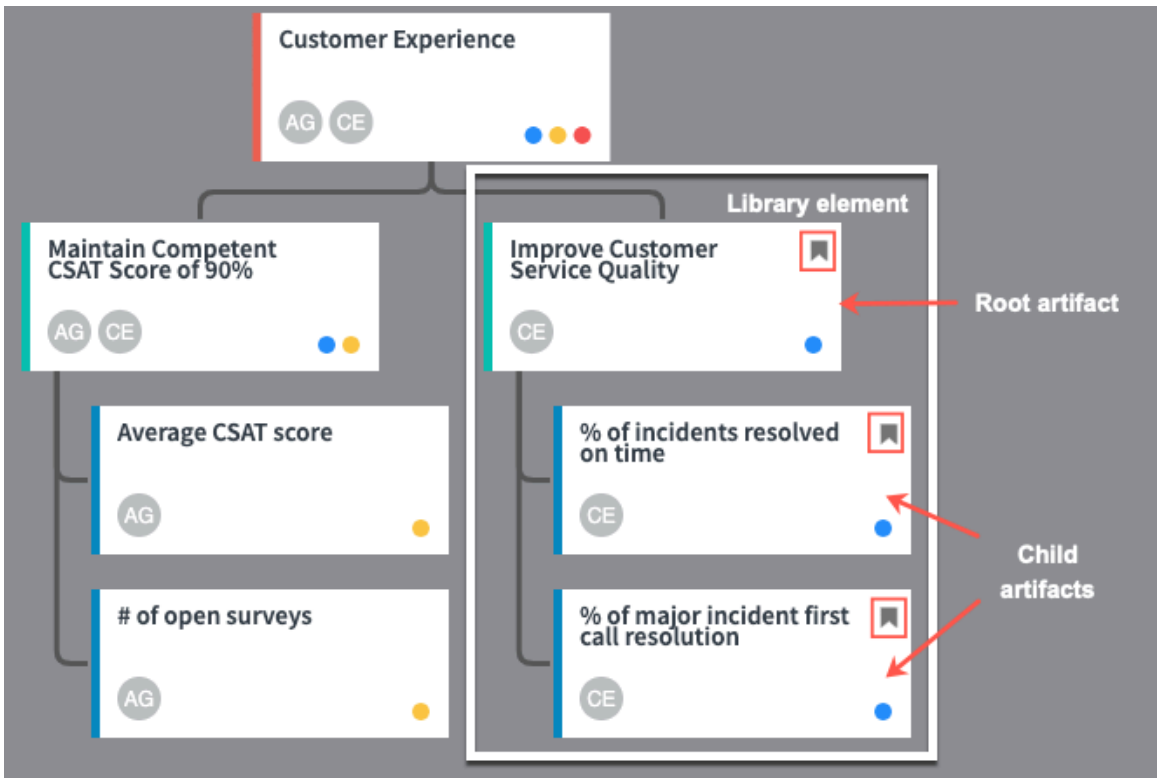


Result
The selected artifact and its descendants are converted to a library element. A bookmark icon is added to each of their tiles to identify them as belonging to a library element. You can no longer edit them in the original project.

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Example: "Improve Customer Service Quality" library element

This example shows the library element that results from the procedure steps. The root artifact is "Improve Customer Service Quality." The library element consists of it and the two measurements "% of incidents resolved on time" and "% of major incident first call resolution".



What to do next

A library element starts out as Personal in scope. Only the user who created it can add it to a KPI tree. If you have the admin or sn_kpi_composer_admin role, you can change the scope of a library element to Global. All users can add Global library elements to their KPI trees.
You cannot edit a library element from inside a project.

Use a library element

Add a library element to a KPI tree in any KPI Composer project.

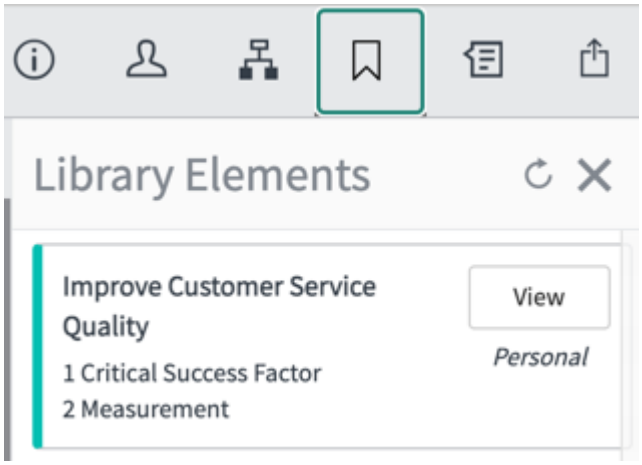
Before you begin

You must have at least one library element you can use.
Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Procedure

1. Navigate to **All** > **Application** > **Module**.
2. Select the bookmark icon to open the **Library Elements** list.
3. Drag an appropriate library element into your KPI tree.
   The tile for a library element lists the number and type of artifacts included in the element. The following image shows the tile for a library element with one critical success factor and two measurements.

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4. To remove a library element from a KPI tree, delete the root artifact.
   You do not have the delete option from any other artifacts in the library element.

What to do next

You can add as many library elements as you want to a KPI tree. You can add the same library element as many times as you want.

Edit or delete a library element

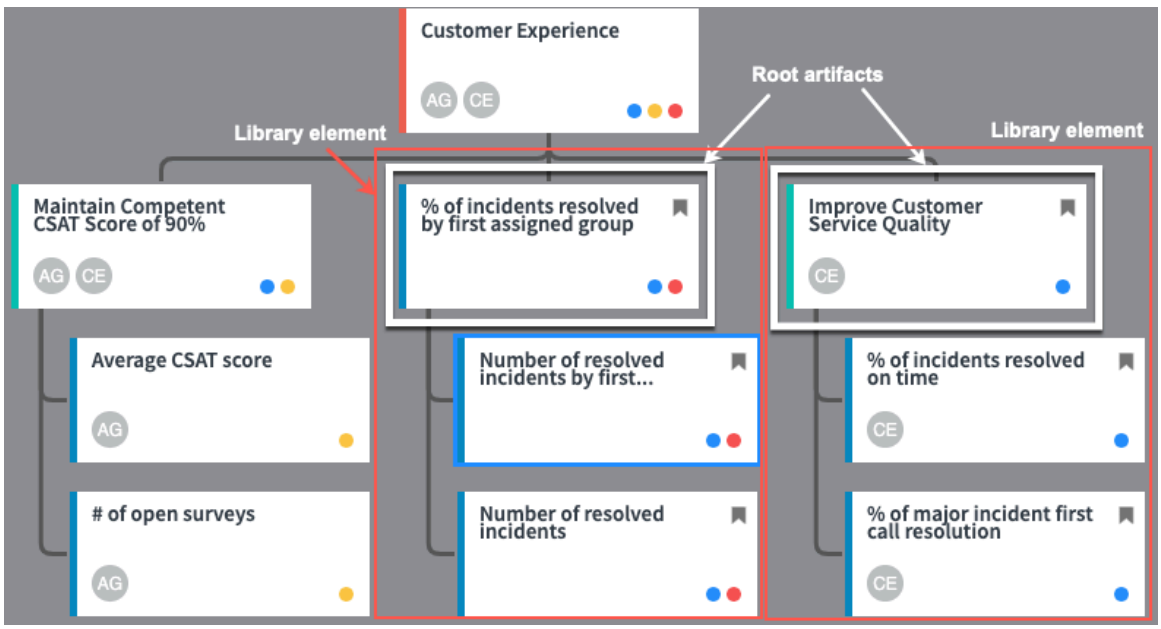
You can add artifacts to a library element, or convert a library element back to project-based artifacts. You can also edit the data definitions of artifacts in a library element.

Before you begin

Role required: sn_kpi_composer.admin or admin for full editing functions

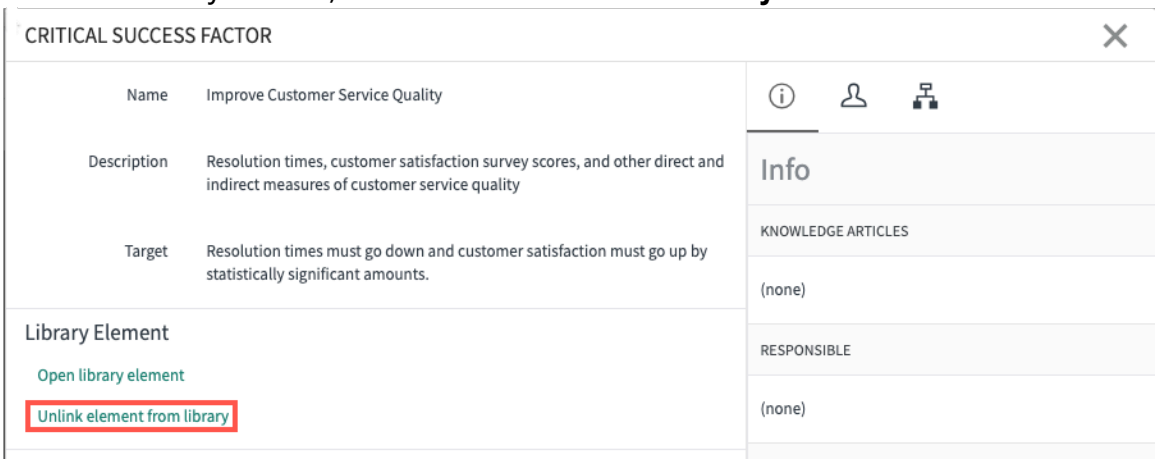
Procedure

1. Open the Analysis tab of a KPI Composer project.
2. Select the root artifact of one of the library elements in the KPI tree to open its properties.
   Bookmark icons ( ) identify the artifacts that are in a library element. The root artifacts, or parent artifacts, are the most top-level artifacts in each library element.



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3. To delete a library element, select **Unlink element from library**.



The artifacts are no longer members of that library element. However, every KPI tree that contained that library element still contains those artifacts, only now they are a separate set of ordinary artifacts in each tree.

4. To edit a library element, select **Open library element**.

Note:

- You can open a library element from any artifact in that element, not only the root artifact.
- If you have the sn_kpi_composer.admin or admin role, you can instead navigate to **KPI Composer** > **Library** and open a library element from a set of library element tiles.

5. To add an artifact to the library element, follow the instructions in Add artifacts to a KPI tree.

Note:

- You do not need to click **Add this element to the library** in the properties of the new artifact. If you click this link, you add the new artifact to a new library element that is nested inside this library element.
- Instead of adding a new artifact, you can add another library element, which is then nested inside this library element. For more information, see Use a library element.

6. To add indicator and report definitions to the artifacts in a library element, open the Data Definition tab and follow the instructions in Defining indicators and reports.
7. Select the information icon ( ) to view or edit the library element properties, such as whether the library element is global or personal in scope.
You need the sn_kpi_composer.admin or admin role to edit properties. Otherwise, they are read-only.

Library element properties

Each KPI Composer library element has the following properties. You need the sn_kpi_composer.admin or admin role to edit them.

Property	Description	Example
Name	A unique, meaningful name	By default, the name is the same as the name of the root artifact, such as Improve Customer Service Quality.

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Property	Description	Example
Description	A detailed description of the artifact to help others understand its purpose and to prevent redundancy	Total monetary cost from when an incident is raised until it is resolved, including estimated salary and opportunity costs
Objective	The future performance improvement you want from Performance Analytics. If you do not yet have a quantitative target score for an indicator, describe the target qualitatively.	A 10% reduction every month until a final value of 40 is reached.
Global Yes | No	When Yes, all users can add this library element to their KPI trees. When No, this library element is personal and only the user who created it can use it. Default: No	N/A
Knowledge Articles	Articles in the knowledge base that contain further explanations about the library element.Specify any of the following details: • Knowledge articles that contain further explanation about the artifact. You can link any number of knowledge articles. • Artifact owners • Contact persons	KB0000006 Dealing with Spyware and Viruses
Responsible	A responsible user has full editing privileges but also is expected to be responsible for maintaining the library element. For more information, see Access to KPI Composer.	Abel Tuter
Contacts	A person who is not responsible for the library element but is an interested party or a relevant subject matter expert to consult.	Abraham Lincoln

Designing dashboards

In the Dashboard Visualization tab, you can create mock-ups of multiple dashboards with visualizations corresponding to artifacts in the Analysis tab. You can link widgets in this mock-up to Performance Analytics widgets.

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Note:
This feature supports only Core UI dashboards and is in the process of deprecation. If you install KPI Composer 4.2.8 from the ServiceNow® Store, only users with the pa_admin role will be able to use the Dashboard Visualization tab on new projects.

The final outputs of your project are Performance Analytics dashboards, with perhaps separate dashboards or separate tabs corresponding to your Critical Success Factors and widgets displaying the measurements. In Performance Analytics, you cannot create these dashboards until all of the underlying indicators and breakdowns are created. Designing the widgets for these indicators is also somewhat technical, requiring at least a pa_power_user role. When you share the final dashboards, too often the viewers who need the dashboards send feedback that your designs did not quite meet their needs or expectations.

The KPI Composer Dashboard Visualization tab lets you start dashboard design much earlier in the workflow. You can start work on the visualization when you have only a conceptual tree of your success factors and measurements on the Analysis tab. Furthermore, you can involve other stakeholders earlier in the process. Use KPI Composer in presentations early on to get timely feedback, so when your project is complete, the dashboard viewers get the visualizations they expect.

Add a dashboard

As the first step in designing your dashboards, add an empty dashboard to the KPI Composer Dashboard Visualization tab.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab.

Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Procedure

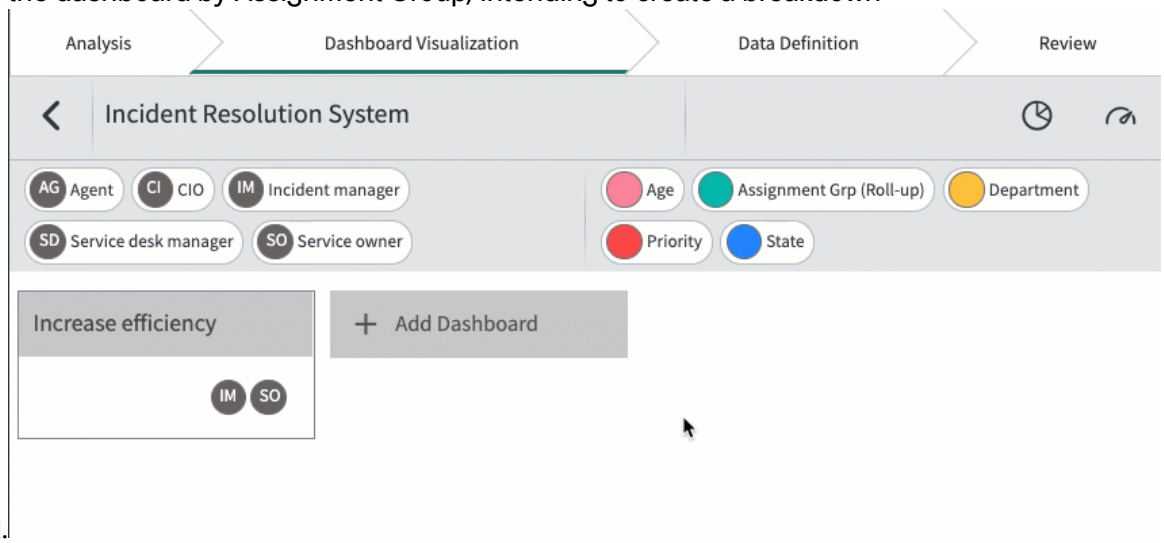
1. Navigate to **All** > **KPI Composer** and open the project.
2. Navigate to the Dashboard Visualization tab.
3. Click **+ Add Dashboard**.
4. Give the Dashboard a meaningful name, probably corresponding to a Business Goal or a higher-level Critical Success Factor in the KPI tree.
5. **Optional:** Click the Edit Item icon () in the Dashboard artifact to edit dashboard properties.
6. Repeat this process for all Business Goals or Critical Success Factors for which you want to create dashboards.

Example: Add a Customer Experience dashboard to the Design tab

In the following short animation, you see the user create a dashboard named Customer Experience, after a Critical Success Factor. The user adds the Agent and CIO personas, who are expected to view the dashboard. The user groups all the

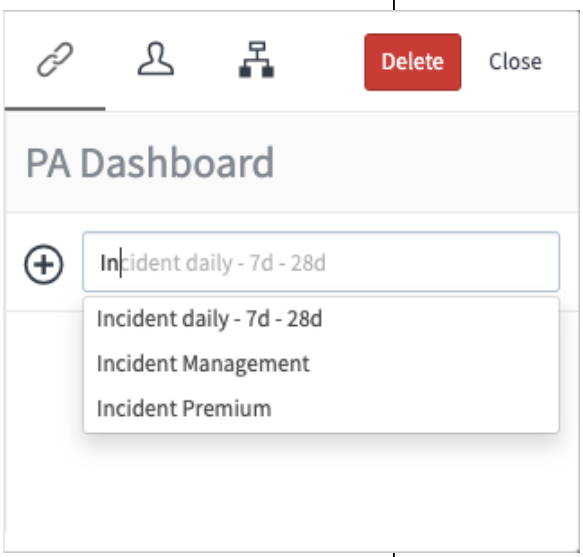
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widgets on the dashboard by Assignment Group, intending to create a breakdown dashboard.

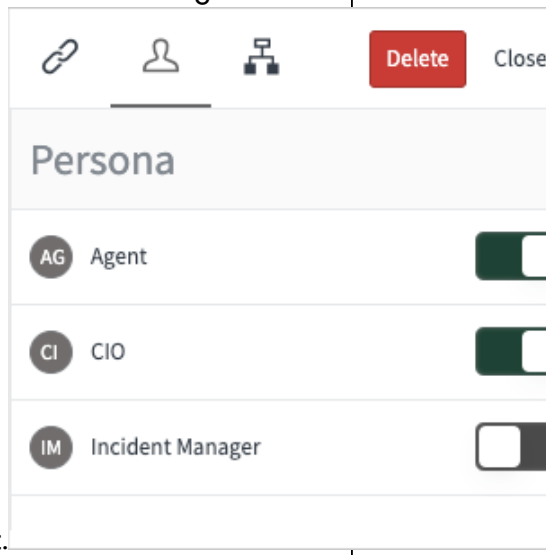
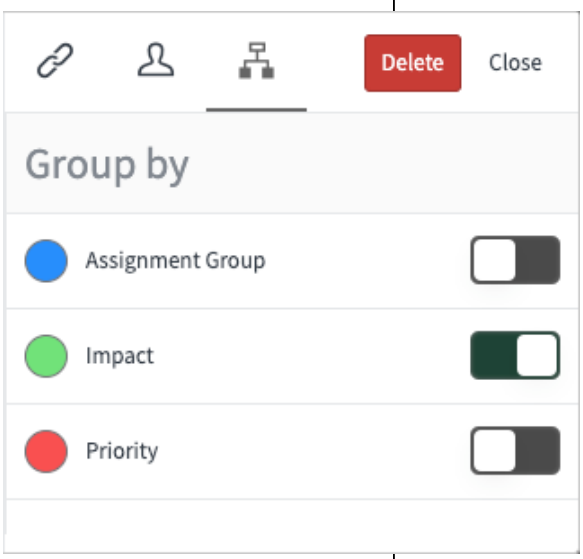


KPI Composer dashboard details

Each KPI Composer dashboard mock-up can reference project personas or 'Group by' categories, or an existing Performance Analytics dashboard.

Detail	Description	Example
PA Dashboard	Link to an existing Performance Analytics dashboard. This can be an older dashboard that corresponds to your use case, or a new dashboard that you create based on this KPI Composer design. By linking dashboards as you create them, you can keep track of the state of your project.	In this image, you see the existing Performance Analytics dashboards being filtered by the word "Incident". 
Persona	The personas you expect to view the final dashboard. Choose from the personas currently linked to the project. For information about adding personas to the project, see Add personas to a project.	In this image, the Agent, CIO, and Incident Manager personas are linked to the project. The Agent and CIO personas are linked to the dashboard.

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Detail	Description	Example
	After you link personas to a dashboard mock-up, only the artifacts from the Analytics tab that are associated with those personas are available.	The Incident Manager is not. 
Group by 	Group all the widgets you place on a dashboard by one or more breakdown definition. (The resulting design is for a Performance Analytics breakdown dashboard.) Choose from the breakdown definitions currently selected for the project. For information about adding breakdown definitions to the project, see Group data by breakdown definitions.	In this image, the Assignment Group, Impact, and Priority breakdown definitions are available to dashboards in the project. The data in the dashboard is grouped by Impact only. 

Related topics

Using breakdowns on dashboards

Add tabs and rows to a dashboard

A dashboard mock-up in KPI Composer requires you to lay out the tabs and rows before adding visual components.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab. You also have at least one dashboard defined in the Dashboard Visualization tab.

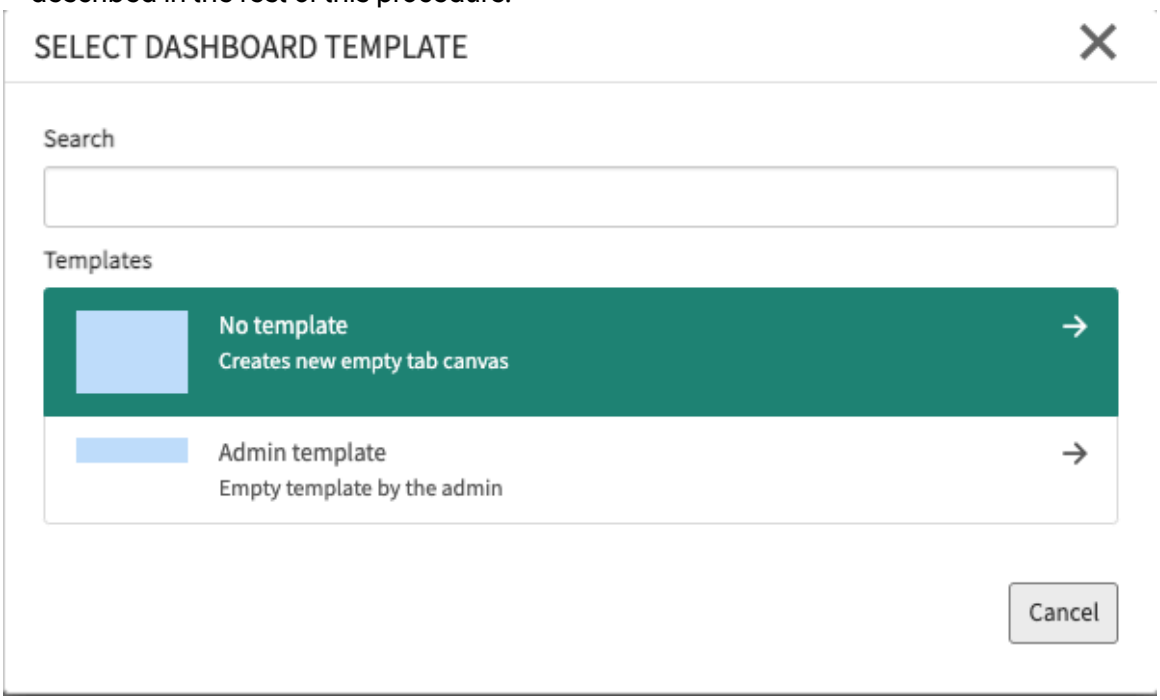
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Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Procedure

1. Open a **KPI Composer** project and navigate to the Dashboard Visualization tab.
2. Select one of the dashboards in the tab.
3. Click the + icon underneath the dashboards.

4. Either:
   - Select a tab template. The tab is created with a name, rows, and canvases inherited from the template. You do not have to add rows or canvases, but you can edit the ones you have.
   - Select **No template**. You create an empty tab and populate it with rows and canvases, as described in the rest of this procedure.

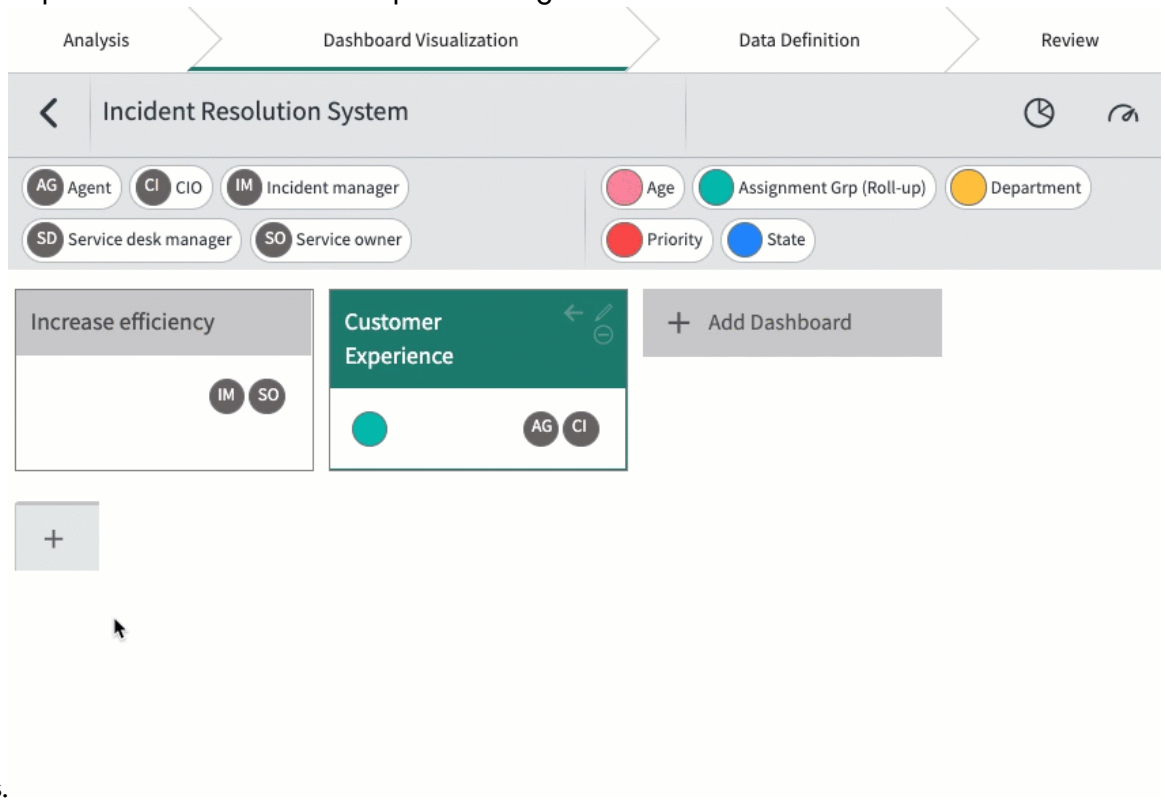


5. Give the tab a meaningful name, probably matching a lower-level Critical Success Factor.
6. Click **Add Row**.
   A row is a horizontal design area. Add at least one row to each tab.
7. In the Row details dialog, select the number of canvases in the row.
   The term 'canvases' here refers to spaces that hold widgets and refer to artifacts. Decide how many canvases you want placed horizontally in the row. You can select up to three canvases. You can change this number or move the row later.

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Example: Adding a tab and a row to a dashboard

In the following short animation, you see a user adding the Quality of service tab to the Customer Experience dashboard mock-up. The user gives the first row in this tab three



canvases.

What to do next

Add more rows or tabs following this procedure. Or, you can add canvases to the rows you have created and come back and add more tabs and rows later.

Add canvases to a dashboard tab

Combine analytics artifacts and widgets to create visual components, called canvases, on a KPI Composer dashboard mock-up. "Widgets" include reports, interactive filters, Spotlight, and content blocks.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab. You also have at least one dashboard defined in the Dashboard Visualization tab. Lastly, one of these dashboards has at least one tab, containing at least one row.

Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Prerequisites

Add a dashboard

Procedure

1. Open a **KPI Composer** project and navigate to the Dashboard Visualization tab.
2. Select one of the dashboards in the tab.
   Select a dashboard with at least one tab and a row with empty canvas slots.
3. In the upper right of the Dashboard Visualization tab, expand the Artifacts icon ( ).

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4. Select an artifact that you want to represent in a canvas slot, and drag the artifact to the slot. You previously defined these artifacts in the KPI tree in the Analysis tab.

   You can drop multiple artifacts into the same canvas slot. You can even drop artifacts onto a canvas slot after you have added a widget to that slot. However, you cannot drop artifacts onto a canvas slot that contains a content block or an interactive filter widget.

   When you drag an artifact onto an unnamed canvas, you give the name of the artifact to the canvas. Dragging additional artifacts onto the canvas does not change the name.

   If you have selected any personas in the dashboard properties, only the artifacts that are linked to those personas are available.

5. In the upper right of the Dashboard Visualization tab, expand the Widgets icon ( ).
6. Decide which widget represents the data in the artifact you previously selected, and drag it to the same canvas slot.
   Widget designs use static images and not actual data visualizations.

   Interactive Filter widgets only affect Report widgets that are on the same dashboard.

   Spotlight "widgets" represent Spotlight interactive analysis, which is usually accessed through a shared URL instead of a report on a dashboard. For more inforrmation, see Spotlight interactive analysis.

   To replace a widget on a canvas, drag another widget onto it. The title of the original widget remains, unless you replace it with a Content Block. Replacing widgets does not affect artifacts associated with a canvas.

   After you drag a widget, the Canvas Details dialog opens.
7. Fill in the Canvas Details, as follows:

Note:

To change the Canvas Details of an existing widget, click the pencil icon ( ) on the canvas. This icon appears when you point to the top-right corner of a canvas.

Canvas Detail options for all widgets

Field	Contents
Widget type	Select the type of widget that represents the artifact. If you have already selected a widget type, you can change that type. The other fields depend on which widget type you select.
Title	Enter a meaningful title, such as `Percent of incidents per assignment group`.
Description	Information about the widget for internal use, such as `Widget based on formula indicator % open incidents by assignment group` . This entry is not visible in the widget.

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Canvas Detail options for Performance Analytics widgets

Field	Contents
Visualization type	Decide which visualization best illustrates the element.
Follow element	Set whether this widget follows the breakdown element that a viewer selects on a Performance Analytics breakdown dashboard.
Time Series	Show results in daily, weekly, or monthly increments.
Measurement	The artifact measured in this widget. You can select any artifact in this field, not only Measurements.
PA Widget	Select an existing Performance Analytics widget that matches this mock-up widget. For more information, see Performance Analytics widgets.

Canvas Detail option for Content Block widgets

Field	Contents
Content block	Select from an existing content block. For more information, see Content blocks.

Canvas Detail options for Interactive Filter widgets

Field	Contents
UI control type	Choose the UI style for the interactive filter.
Interactive filter	Select an existing interactive filter. For more information, see Interactive Filters

Canvas Detail options for Report widgets

Field	Contents
Visualization type	Decide which visualization best illustrates the element.
Follow interactive filter	Set whether the report can be filtered by an interactive filter on the dashboard. If you select Yes, also include an interactive filter widget.

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Field	Contents
Measurements	Select the Measurements artifact that this report shows.
Report	Select an existing Report. For more information, see Creating reports

Canvas Detail options for Spotlight widgets

Field	Contents
Measurements	Select the Measurements artifact that this report shows.
Spotlight group	Select an existing Spotlight group. For more information, see Ranking records with Spotlight.

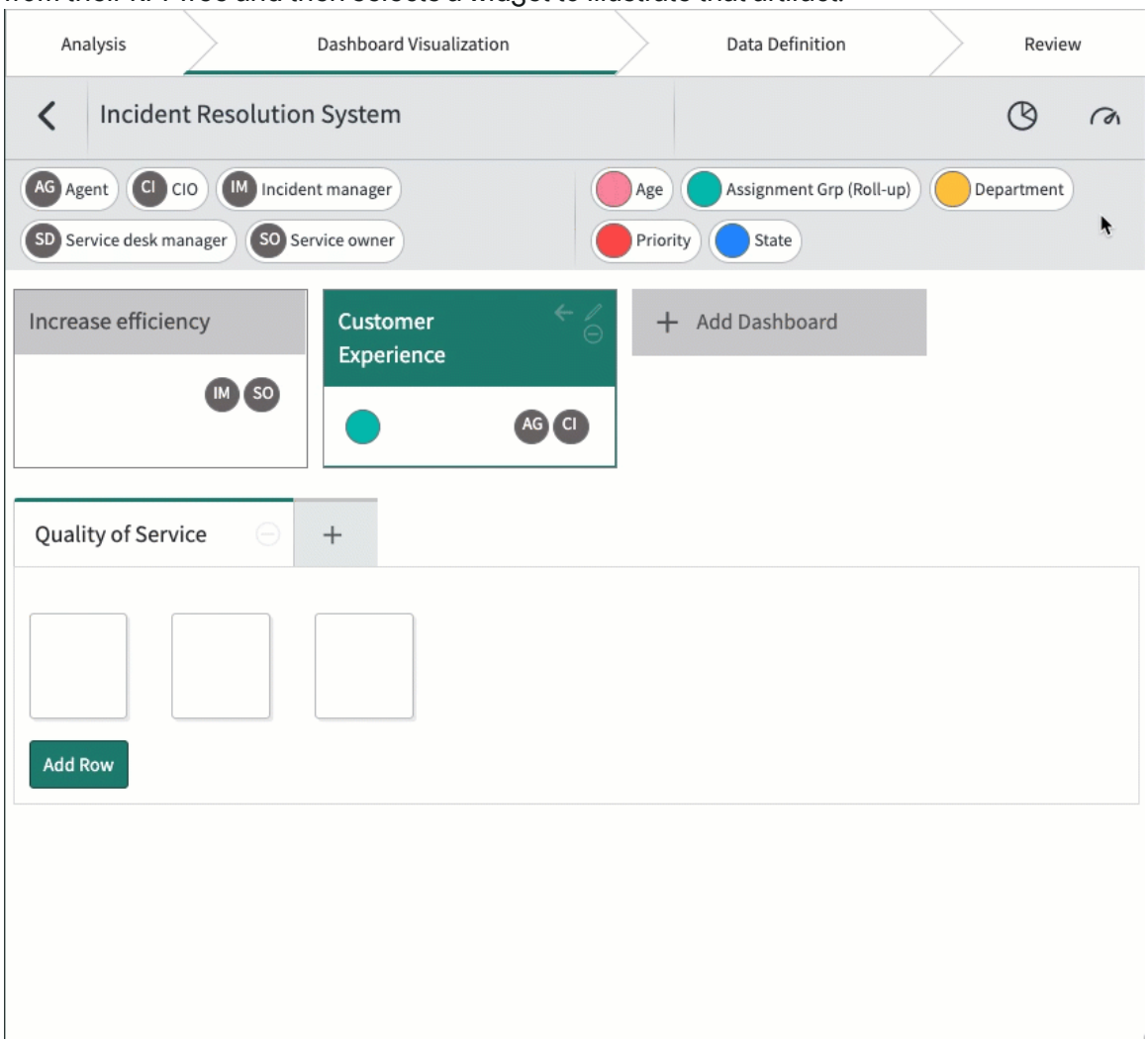
Result

You have an artifact from your analysis and a visualization to illustrate that artifact on your dashboard.

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Example: Adding a canvas to a dashboard

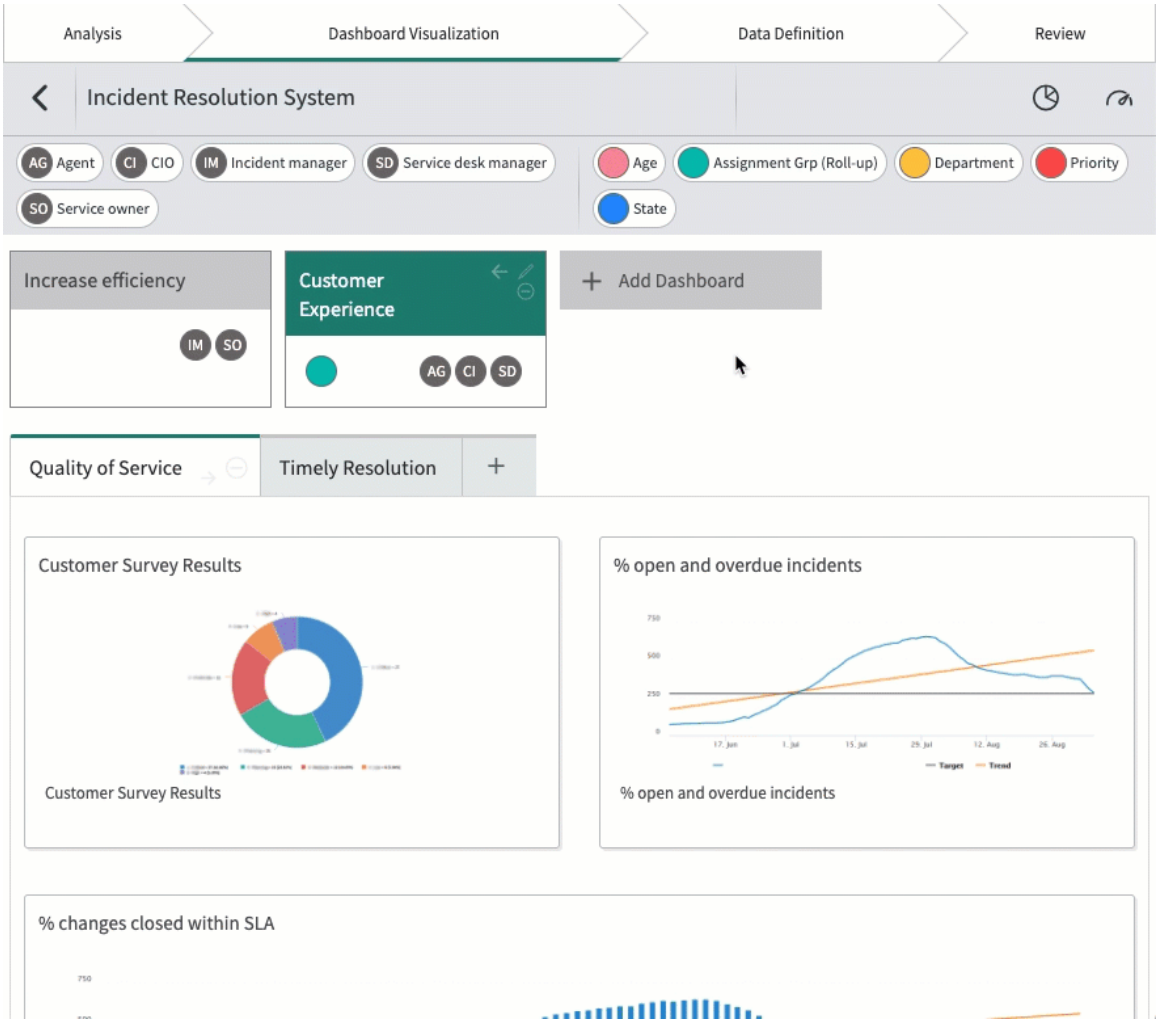
Note:
In this short animation, a canvas is added to the Quality of Service tab of the Customer Experience dashboard. The user first picks an artifact from their KPI Tree and then selects a widget to illustrate that artifact.



What to do next

When you have populated a dashboard, you can change the row order, widget order, or widget title in the artifact banner. The following short animation demonstrates how to move dashboard components.

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Create a dashboard tab template

To reuse a dashboard tab design, create a template from that tab.

Before you begin

Create a dashboard with a tab populated with canvases.
Role required: sn_kpi_composer.user (own project), sn_kpi_composer.admin (any project), admin. No role required for responsible user or user with edit access from project sharing.

Prerequisites

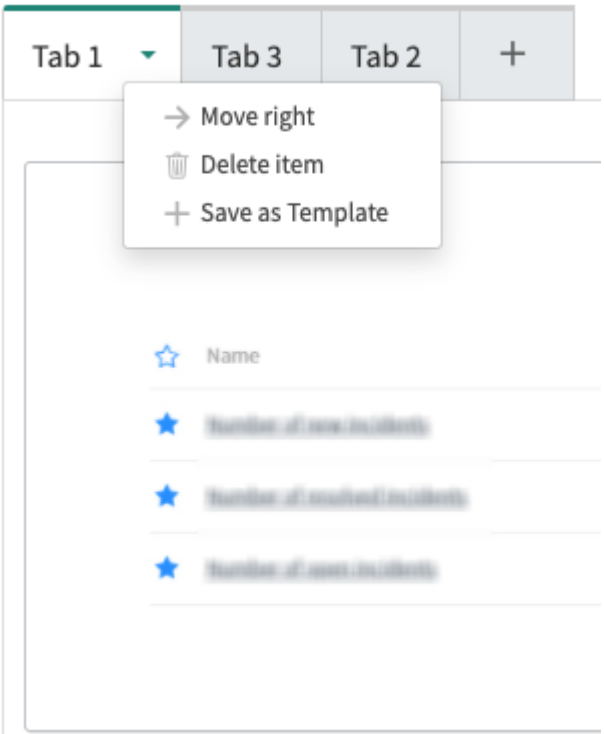
Add a dashboard

Add tabs and rows to a dashboard

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Procedure

1. Open the menu on the dashboard tab and select **Save as Template**.



2. Give the template a meaningful title and description.
3. Select **Save**.

Result

You have a personal template that you can use to create new tabs on dashboards. You cannot edit this template.

What to do next

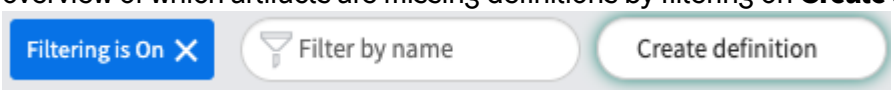
For this template to be available to other users, ask a KPI Composer admin to set the **Template global** value to `true` in **KPI Composer** > **Dashboard tab templates**.

Defining indicators and reports

On the KPI Composer Data Definition tab, you further specify the artifacts you defined during analysis and link them to indicator and report definitions.

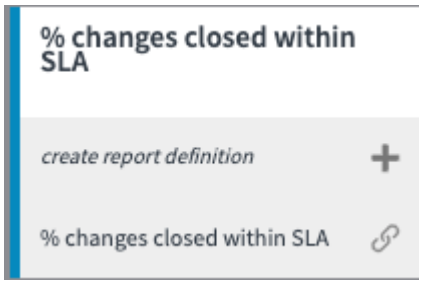
After you open the Data Definition tab, you see the same KPI tree that you defined in the Analysis tab. The header with personas and breakdown definitions and the footer with new artifacts are gone.

Each artifact that is associated with a Performance Analytics widget on the Dashboard Visualization should reference an indicator definition. Each artifact that is associated with a Reporting widget should reference a report definition. An artifact can be associated with both an indicator and a report definition. If a definition is missing, a clickable plus sign + appears with a message to create the definition. If the artifact is linked to any definitions, there is a hyperlink to open each definition. You can quickly get an overview of which artifacts are missing definitions by filtering on **Create definition**.



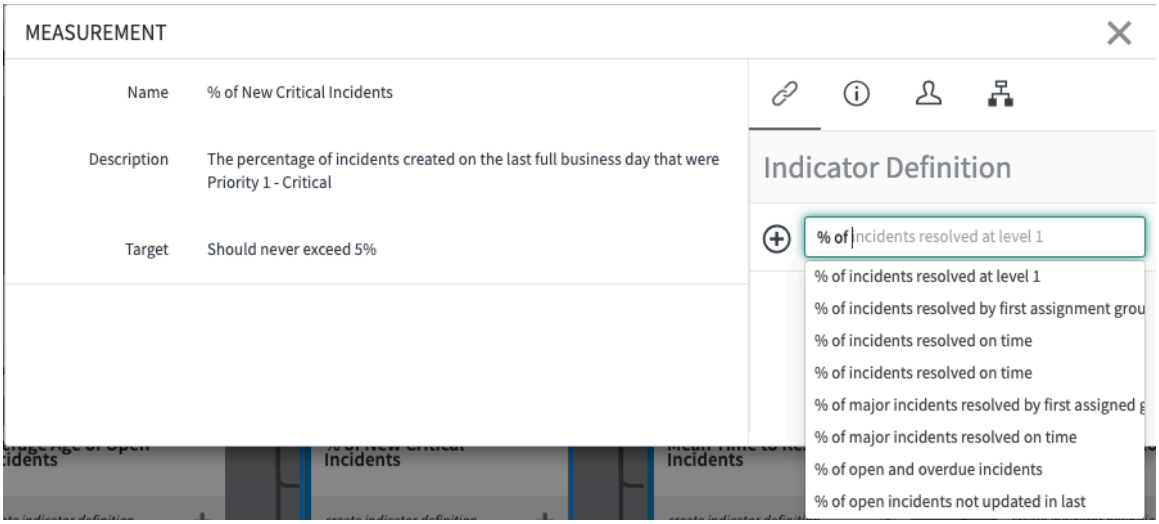
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The following illustration shows a measurement artifact that needs both a report and an indicator definition. An artifact definition named "% changes closed within SLA" is linked. The artifact still needs a report definition.



Before you create a new definition, see if a suitable definition already exists. Click on an artifact to open its properties. You see a read-only view of the properties you set on the Analysis tab, with one addition: You can link the artifact to an existing indicator and/or report definition. Start typing to populate the list of matching definitions. Linking existing definitions is simpler in the properties dialog than in the indicator or report definition records.

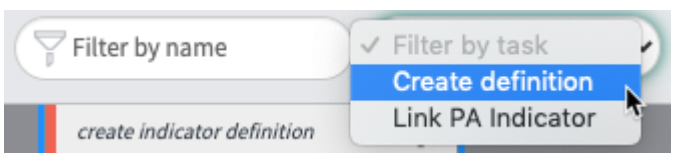
Measurement artifact in data definition tab



Filtering

The following filter options are available on the Data Definition tab:

- Filter by name, for filtering by one or more words that appear in the artifact name
- Filter by task
- Create definition, for filtering by whether an indicator or report definition is needed
- Link PA Indicator, for filtering by artifacts with indicator definitions that are not linked to Performance Analytics indicators



Indicator definitions

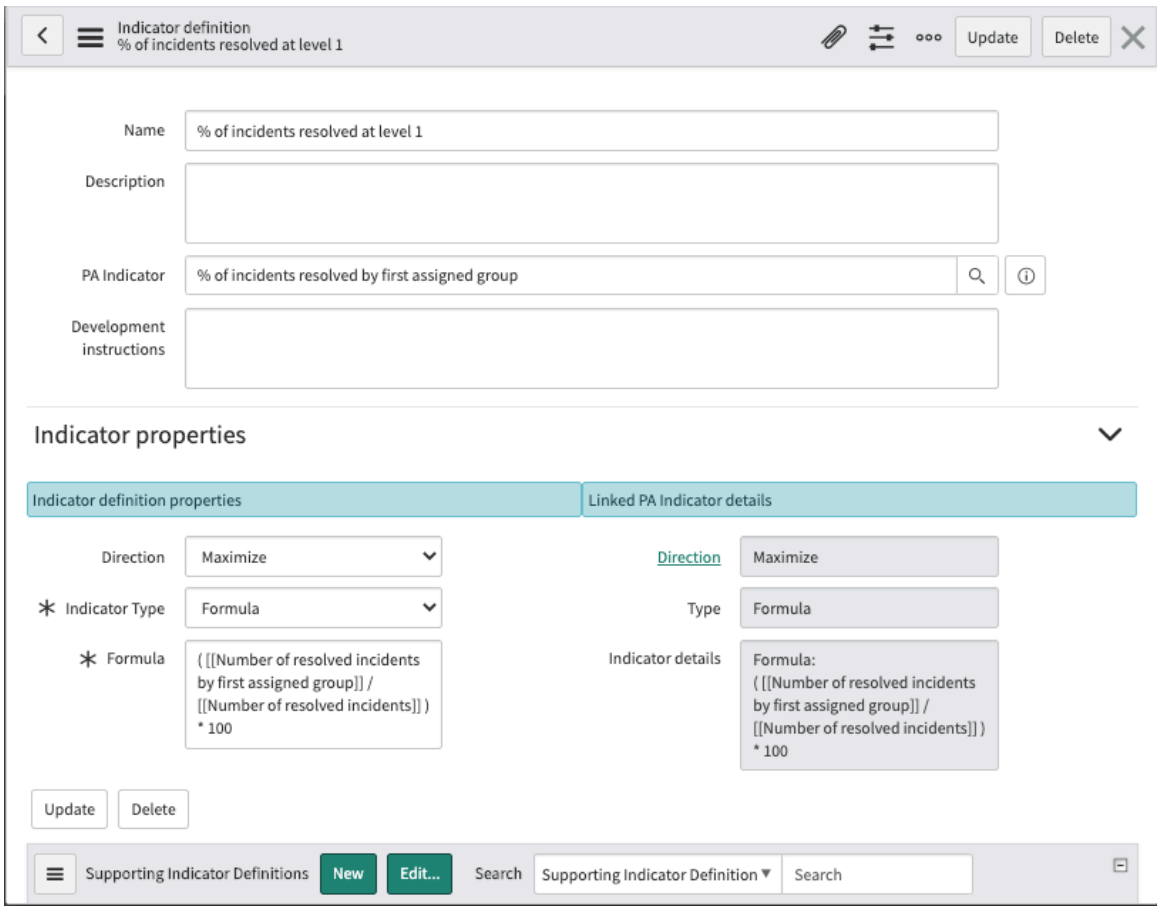
An indicator definition contains the description of how to develop a specific Performance Analytics indicator. The indicator definition itself is not a Performance Analytics indicator.

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The indicator definition bridges the function-oriented artifact in the KPI tree and the technical implementation of the indicator in Performance Analytics.

If a suitable indicator definition does not exist, click the **create indicator definition** link in the artifact tile. Specify the required properties of the indicator. Also write any development instructions in the field provided for them. If you are defining an automated indicator, specify the facts table for the indicator source. Also describe any conditions, either on the indicator itself or on the indicator source. You can describe the conditions qualitatively, not following condition builder format. If you are defining a formula indicator, add definitions of its contributing indicators.

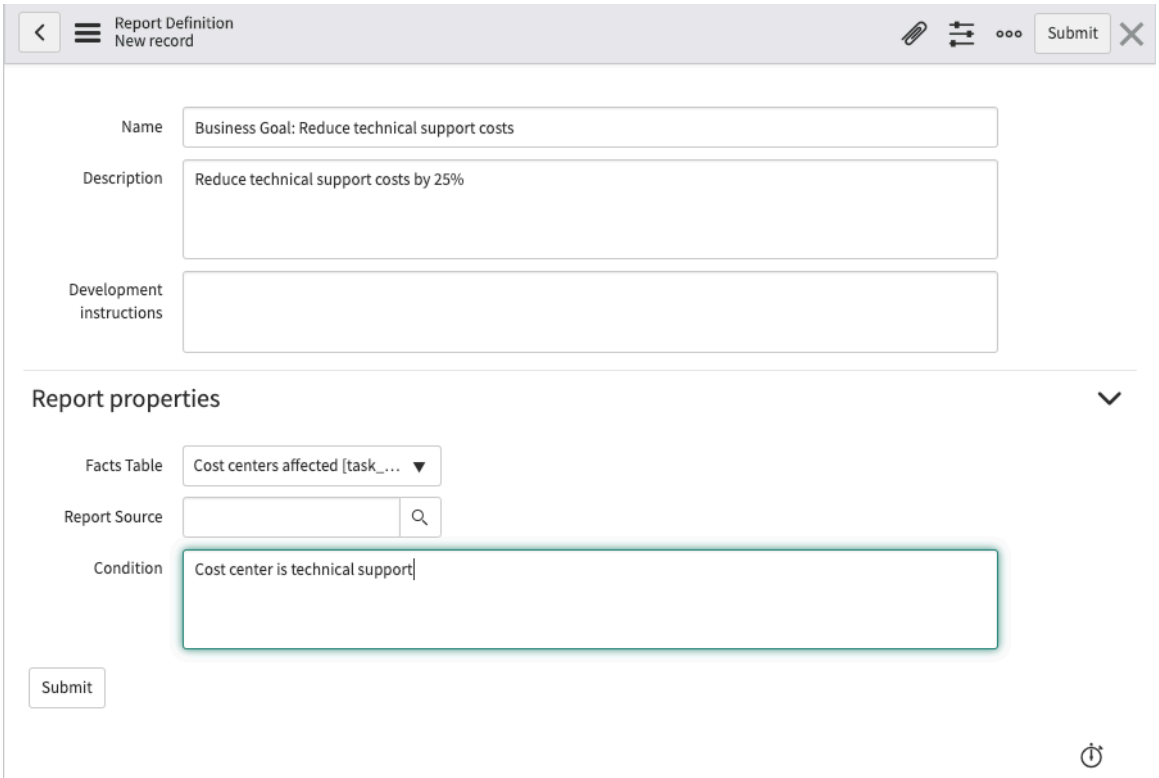
When a suitable Performance Analytics indicator exists, you can add a link to it in the indicator definition. You can see the technical details of the linked indicator. Reproduce the Performance Analytics indicator exactly or specify a modified version.



Report definitions

A report definition contains the description to create a report. The key information is the facts table or the report source, along with any conditions. You do not have to follow a technical format when writing the conditions.

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Create an indicator definition

You can create a new KPI Composer indicator definition directly from the relevant artifact in the Data Definition tab. Fill the indicator definition with the necessary information for creating a Performance Analytics indicator.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab. You also need technical knowledge of Performance Analytics indicators.

Role required: sn_kpi_composer.admin or admin to link to a Performance Analytics indicator, sn_kpi_composer.user for other functionality. No roles are required for responsible users or users with edit access, except to link to a Performance Analytics indicator.

About this task

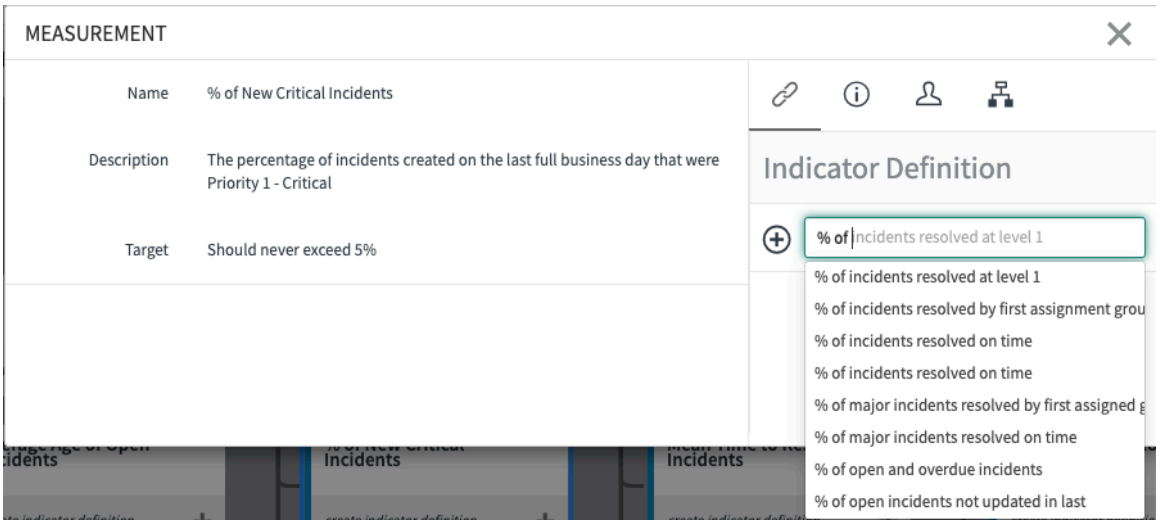
You can create an indicator definition for every artifact in your project, whether or not it is associated with a Performance Analytics widget. You cannot add more than one indicator definition for an artifact. However, if you link an artifact to a formula indicator, you automatically link it to all the contributing indicators in the formula.

Procedure

1. Navigate to **All** > **KPI Composer** and open the relevant project.
2. Navigate to the Data Definition tab.
3. Locate an artifact, probably a Measurement, that you want to define an indicator for.

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Tip:
Before you continue to create an indicator definition, check whether any suitable indicator definitions already exist. Click the artifact to open its properties. Then browse the list of available indicator definitions.

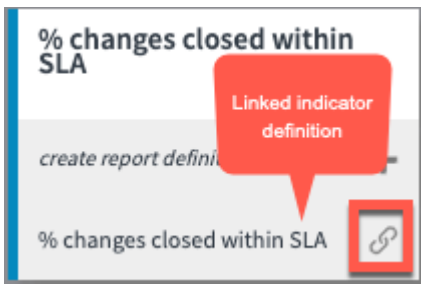


4. Select the plus sign, +.
5. In the **PA Indicator** field, you can search the existing Performance Analytics indicators on this instance to see if any match this indicator definition.
   If you select a Performance Analytics indicator, its properties appear read-only in the "Linked PA indicator details" column. This information is there to help you base the indicator definition on the linked indicator.

   Note:
   Requires the sn_kpi_composer.admin or admin role.

   You can only search the indicators by name.

   A link icon appears in artifacts next to the name of an indicator definition that is linked to a Performance Analytics indicator.



6. Fill in the **Development instructions** field with any information for your developers that is not in the rest of the form.
   The information in **Development instructions** is for your internal developers use only. You can also provide details about the indicator in the **Description** field. The information in the **Description** field should be replicated in the **Description** field of the resulting Performance Analytics indicator.
7. Decide on the **Direction** of the indicator.

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8. Decide whether an Automated, Formula, or Manual indicator best represents the information in the artifact.

9. Fill in any remaining fields.
   - If you are defining a Manual indicator, you do not have to add any more information.
   - If you are defining a Formula indicator, clearly describe to a Performance Analytics administrator how to build the formula. You do not have to use actual formula indicator JavaScript syntax.
   - If you are defining an Automated indicator, include the following information:

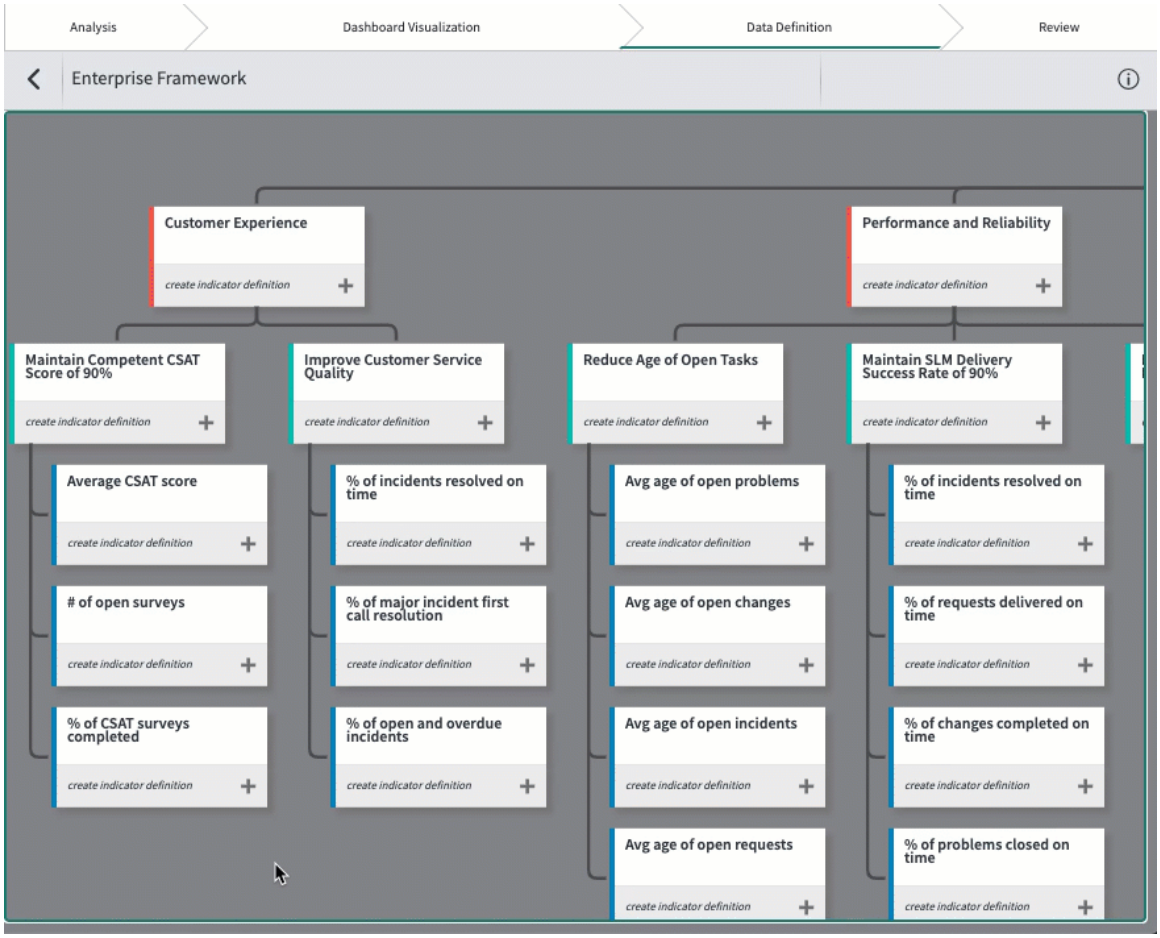
Field	Description
Aggregation	The aggregate function to apply to the data from the indicator source.
Frequency	Expected periodicity for collecting data. Usually the indicator Frequency matches the indicator source Valid for frequency value.
Facts table	The table that the indicator source references.
Condition	Textual description of the conditions for filtering records from the facts table. You do not have to use condition builder syntax.

10. Either click **Submit**, or, if you want to define supporting indicators, open the context menu and click **Save**.

Example: Creating an indicator definition

In the following short animation, the user defines a formula indicator for the measurement "% of major incident first call resolution." The indicator is based on an existing PA indicator that calculates a similar percentage but does not filter on Priority.

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Related topics

- Automated indicators
- Indicator sources
- Formula indicators
- Manual indicators

Add contributing indicators

After you create an indicator definition in KPI Composer, you can add contributing indicators to that definition. Formula indicator definitions, where the formula includes one or more other indicators, require contributing indicators to be complete.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab. This project has at least one indicator definition that requires references to other indicators.

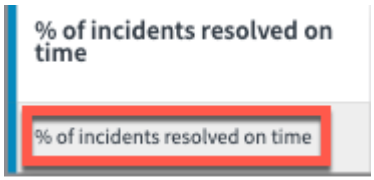
You need technical knowledge of Performance Analytics indicators.

Role required: Same as creating an indicator definition

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Procedure

1. In the relevant artifact on the Data Definition tab, click the indicator definition name to open the indicator definition.



2. In the Supporting Indicator Definitions related list, click one of the following buttons:
   - Click **New** to create a new indicator definition. Follow the same procedure as in Create an indicator definition.
   - Click **Edit** to open a list of existing indicator definitions in this project. You can select as many indicators as you need.

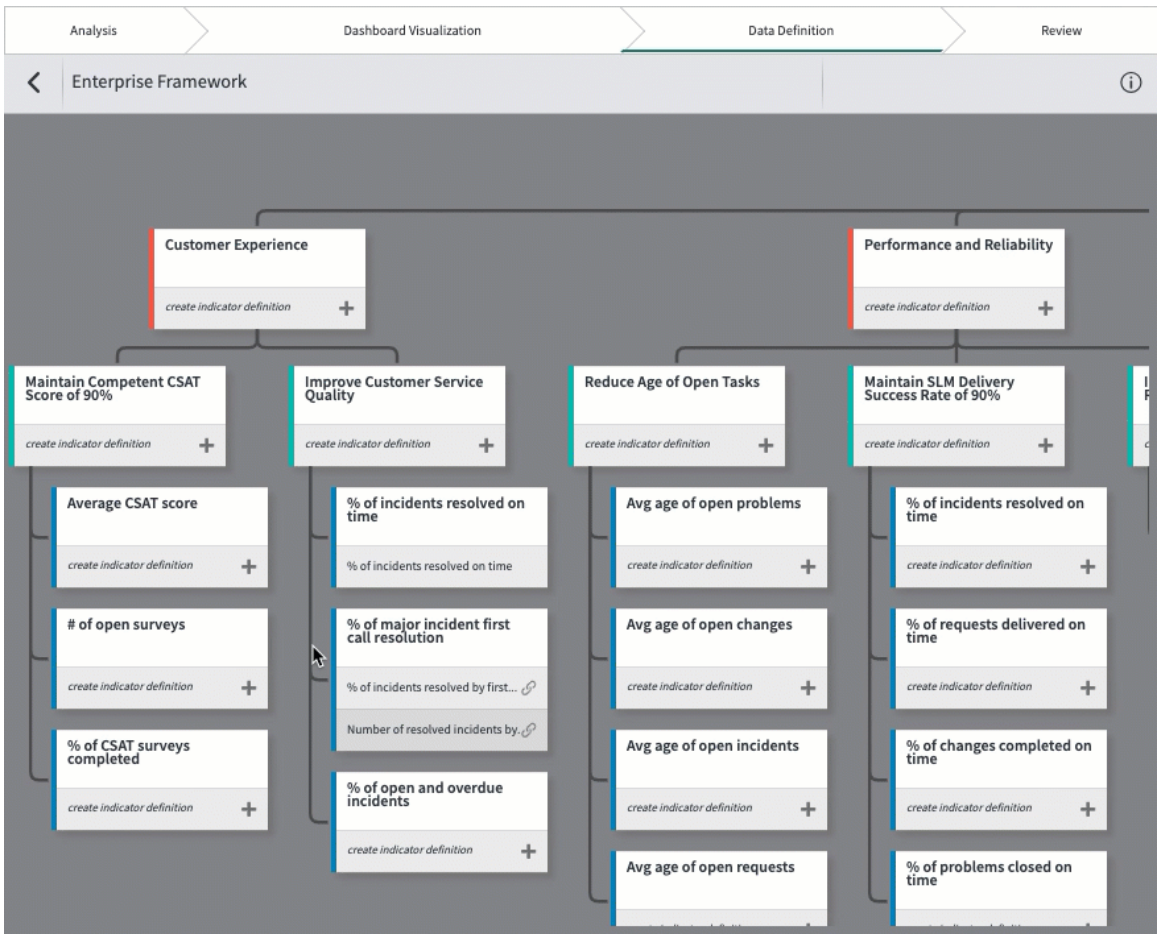
   Search the existing indicator definitions before you create new ones, so as not to duplicate indicators.

Result

After saving the changes, the artifact in the Data Definition tab shows the contributing indicator definitions under the main indicator definition, with a darker background.

Example: Adding a contributing indicator

In this example, the contributing indicator Number of resolved incidents is added to the % of major incident first call resolution artifact. This indicator matches an existing indicator definition.



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Create a report definition

You can create a new KPI Composer report definition directly from the relevant artifact in the Data Definition tab. Fill the report definition with the necessary information for creating a report.

Before you begin

You have an existing KPI Composer project with a complete draft of the KPI tree in the Analytics tab. You also need technical knowledge of Reporting.

Note:
This feature supports only Core UI reports on Core UI dashboards. If you install KPI Composer 4.2.8 from the ServiceNow® Store, only users with the pa_admin role will be able to use the Dashboard Visualization tab or create report definitions on new projects.

Role required: sn_kpi_composer.admin or admin to link to an existing report, sn_kpi_composer.user for other functionality. Responsible users and users with edit access also can use any functionality other than linking to an existing report.

Procedure

1. Navigate to **All** > **KPI Composer** and open the relevant project.
2. Navigate to the Data Definition tab.
3. Locate an artifact that has a **create report definition** link and open that link.
   Only artifacts associated with Report widgets in the Dashboard Visualization tab have links for creating report definitions.
4. Provide a name and a description for the report.
   By default, the report definition has the same name as the artifact that contains it. This default name is the same as the default for an indicator definition for that artifact, so consider differentiating them.
5. In the **Development instructions** field, provide the developer with any technical information they need besides the report properties.
   The **Description** field should contain information for the user. The **Development instructions** field should contain internal information for the developer.
6. Select either a **Facts Table** or a **Report Source**.
7. In the **Condition** field, describe the filtering conditions for the report.
   You can write the conditions in plain text instead of the condition builder syntax.

Reviewing your project

Summarize both the created KPI Composer project artifacts and the planned Performance Analytics components. Validate the contents of your project. Generate the tasks to build the planned Performance Analytics components.

Navigate to the Review tab at any time for an up-to-date account of completed design work and pending Performance Analytics configurations.

The review tab shows four boxes of information:

Summary

Sums up the number of artifacts and personas defined on the Analysis tab. Click an item type to open a list of those items.

PA Artifacts

Shows the number of Indicator Definitions and Breakdown Definitions in the project. Click an artifact type to open a list of those artifacts.

Project validation

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Click **Refresh Data** after adding new or editing existing definitions. The following levels of issues are identified:

- Warning: A Critical Success Factor is not linked to an Indicator Definition.
- Error: A Measurement is not linked to an Indicator Definition, or an Indicator or Breakdown definition is not linked to a facts table.

Tasks

Generate and list the tasks to create the Performance Analytics and Reporting elements you have defined in your project. For more information, see Generating tasks in KPI Composer.

Generating tasks in KPI Composer

For each KPI Composer artifact in your project, you can generate a task to create an equivalent Performance Analytics element. All tasks are created with one action. The tasks are assigned automatically to the responsible group for implementing analytics.

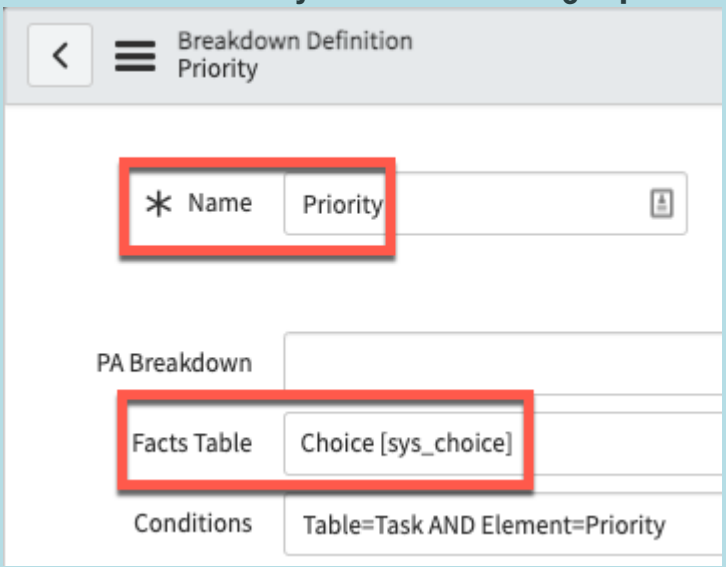
Tasks can be generated to create the following Performance Analytics and Reporting elements based on the definitions in your KPI Composer project. The tasks are generated for each type of element in this order:

- Breakdowns
- Reports
- Interactive Filters
- Indicators
- Widgets
- Spotlight groups
- Content Blocks
- Dashboards

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Important:
To generate a task to create an element, the associated KPI Composer artifact definition must include all the required information. For example, to generate a task to create a breakdown or an automated indicator, the Name and the Facts Table must be specified in their definitions.

Definition of the Priority breakdown showing required information for tasks



Assign KPI Composer tasks

Assign the tasks in a KPI Composer project to a group. By default, tasks are assigned to the Analytics Implementers assignment group. You can add users and groups to this group, or you can select a different assignment group.

Before you begin
Role required: sn_kpi_composer.user, sn_kpi_composer.admin, admin

About this task
All tasks in a KPI Composer project are assigned to the same assignment group. After you generate tasks, the group handles them through its normal workflow.

By default, tasks are assigned to the Analytics Implementers group, which is provided with KPI Composer. This group includes the pa_admin role by default. Any users whom you add to this group are granted this role. Access this group from **User administration** > **Groups**, or follow the **Analytics Implementers** link on the Tasks tile in the Review tab. You need the user_admin role to edit this group. For more information about adding and removing users from this group, see Create a user group.

To change the assignment group, follow this procedure:

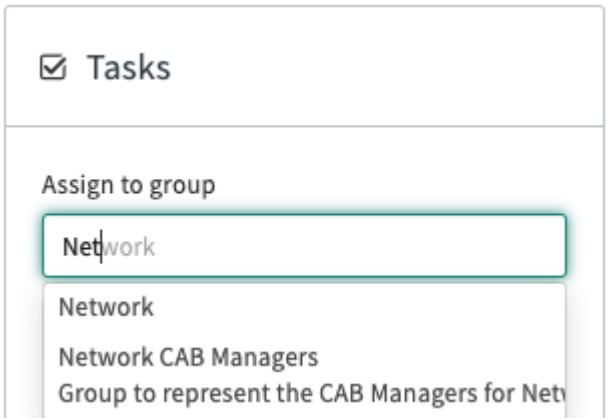
Procedure

1. Open your KPI Composer project.
2. Open the **Review** tab.
3. Locate the **Tasks** tile.
4. Find and select the **Clear** icon next to the name of the current assignment group.

5. Confirm that you want to clear the assignment group.

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6. Begin typing the name of the assignment group you want.
   KPI Composer gives you a list of predicted matches.



7. Select a group.

What to do next
Generate tasks to assign them to the selected group.

Generate tasks

Generate tasks for all sufficiently defined KPI Composer artifacts with a single action.

Before you begin

- Populate the Analytics Implementers group with users.
- Complete designing your KPI Composer project. The necessary artifacts should all be defined. However, if you change something later, you can regenerate the tasks. Regenerating tasks is a good way to track their completion.

Role required: sn_kpi_composer.user, sn_kpi_composer.admin, admin

Procedure

1. Navigate to KPI Composer and open your fully defined project.
2. Open the Review tab.
3. Locate the Tasks tile.
4. Select **Generate tasks**.

Result
You generate tasks for creating Performance Analytics and Reporting artifacts. These tasks are assigned automatically to the Analytics Implementers assignment group.

What to do next
View the tasks you have created. In the Tasks tile, you have links to active tasks, tasks on hold, and completed tasks. The links take you to the Task Definitions [sn_kpi_composer_task_definition] table.

Task Definition records

KPI Composer tasks are defined in Task Definition [sn_kpi_composer_task_definition] records. When you generate tasks, you create these records or update their statuses.

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You can access any existing Task Definition records from links on the Tasks tile of the Review tab. These links take you to a filtered list of records, as follows:

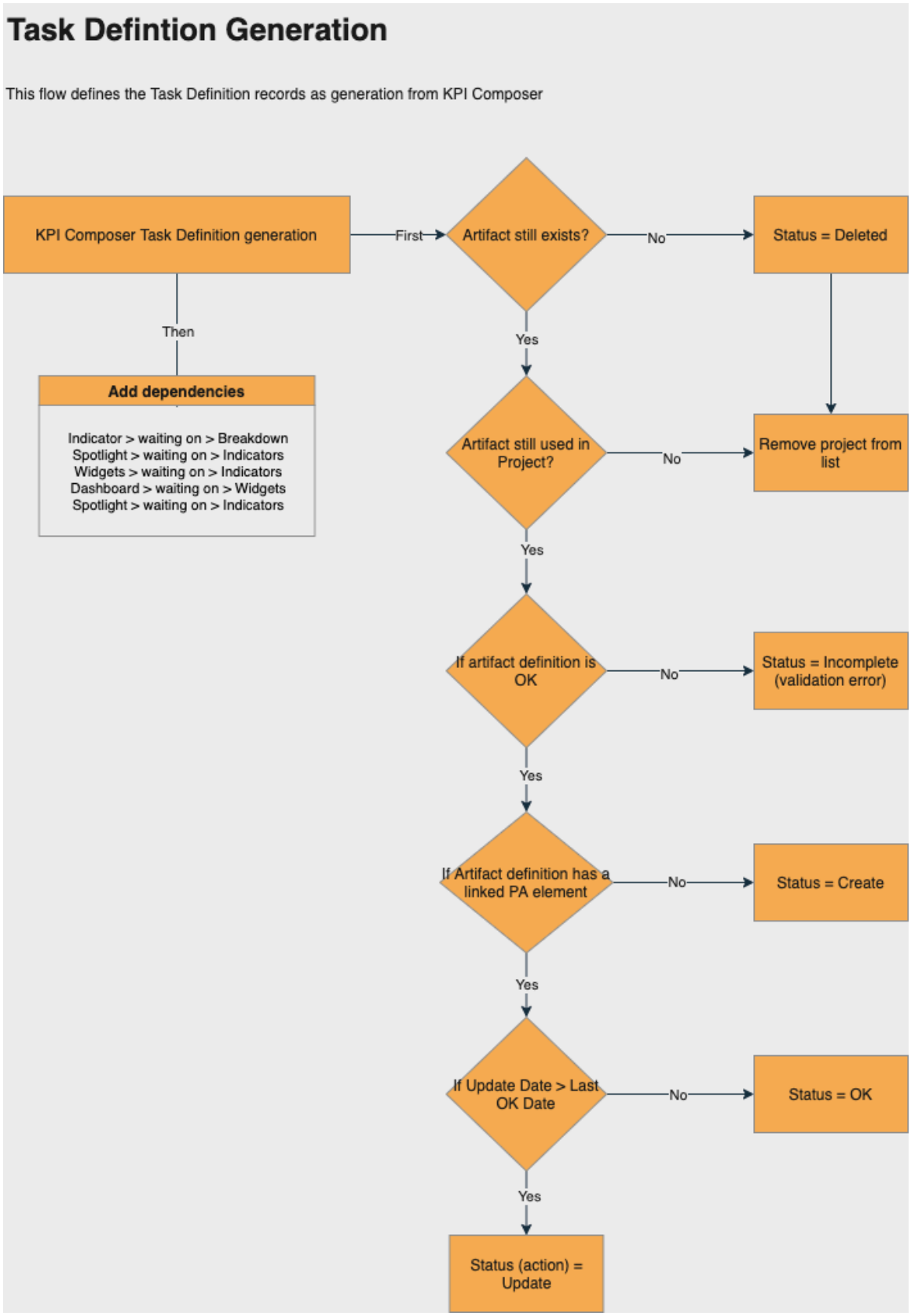
Link	Filter
Active Tasks	• Project CONTAINS <Your project name> • Status in (Create, Update) • Waiting on dependencies = false
Tasks on hold	• Project CONTAINS <Your project name> • Status in (Create, Update) • Waiting on dependencies = true
Completed tasks	• Project CONTAINS <Your project name> • Status = OK

Task statuses

When you run the task generator, it determines the status of all tasks. Task generation uses the following logic to create tasks and set their statuses:

1. Does the KPI Composer artifact still exist? If not, the status is Deleted.
2. Does the existing KPI Composer artifact have a valid definition? If not, the status is Incomplete.
3. Does the valid KPI Composer artifact definition link to an existing ServiceNow AI Platform element, such as a Performance Analytics indicator or CMS content block? If not, the status is Create.
4. If the linked element exists and the status was previously set to OK, was the artifact definition subsequently updated? If so, the status is Update.
5. Otherwise, if the linked element exists, the status is OK.

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Artifact update tracking

Task generation checks all task definitions, including those with the status OK. If the artifact definition has changed since the task status was set to OK, the next task generation job changes the task status to Update. The fields in the artifact definition that are checked for changes

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depend on the artifact type. Changes to other, related artifacts can also result in the status changing to Update. The following table lists the fields and the related artifacts.

Artifact definitions	Fields	Related artifact changes
Breakdown	Condition	
	Facts Table	
	Name	
Indicator	Aggregation	Added breakdown
	Condition	Removed breakdown
	Direction	
	Facts Table	
	Formula	
	Frequency	
	indicator Type	
	Name	
Report	Aggregation	
	Condition	
	Description	
	Facts Table	
	Name	
	Report Source	
	Source Type	
Interactive Filter	UI control type	
	Title	
	Description	
	Interactive filter	
PA Widget	Widget type	
	Visualisation type	
	Title	
	Description	
	Follow element	
	Time series	
	Artifacts	
Spotlight	Title	
	Description	
	Artifacts	
Dashboard	Name	Added breakdown

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Artifact definitions	Fields	Related artifact changes
	Description	Removed breakdown
		Changed canvas layout - reorder / delete / add canvas

Task flows

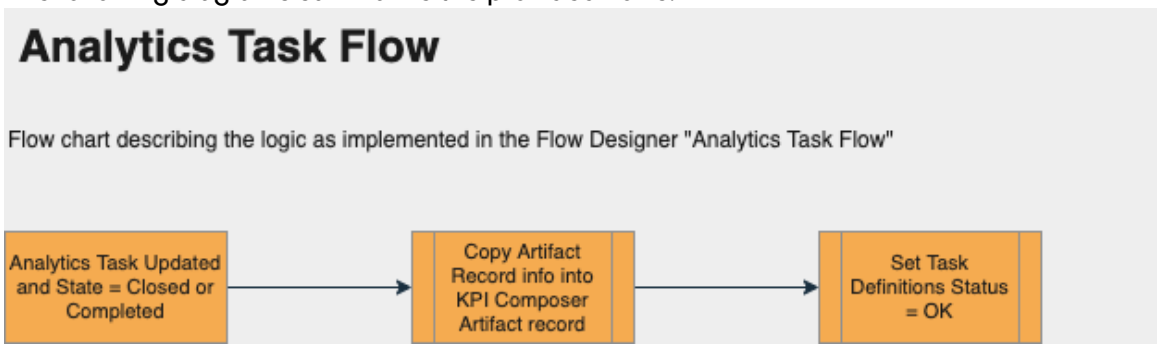
KPI Composer tasks utilize flows created with the ServiceNow AI Platform® Flow Designer.

KPI Composer provides two flows to manage the transition between task states:

- KPI Composer - Analytics Task flow
- KPI Composer - Task Definition flow

You can modify either of these flows in the Flow Designer. However, rather than modifying them directly, you should copy the flows and modify the copies. Make the copies active and deactivate the provided flows. The reason to do this is that updates to KPI Composer may include updates to the flows. If you change the provided flows, updates to them may fail. Instead, after an update, you can examine the provided flows for changes. Incorporate these changes in your copied flows.

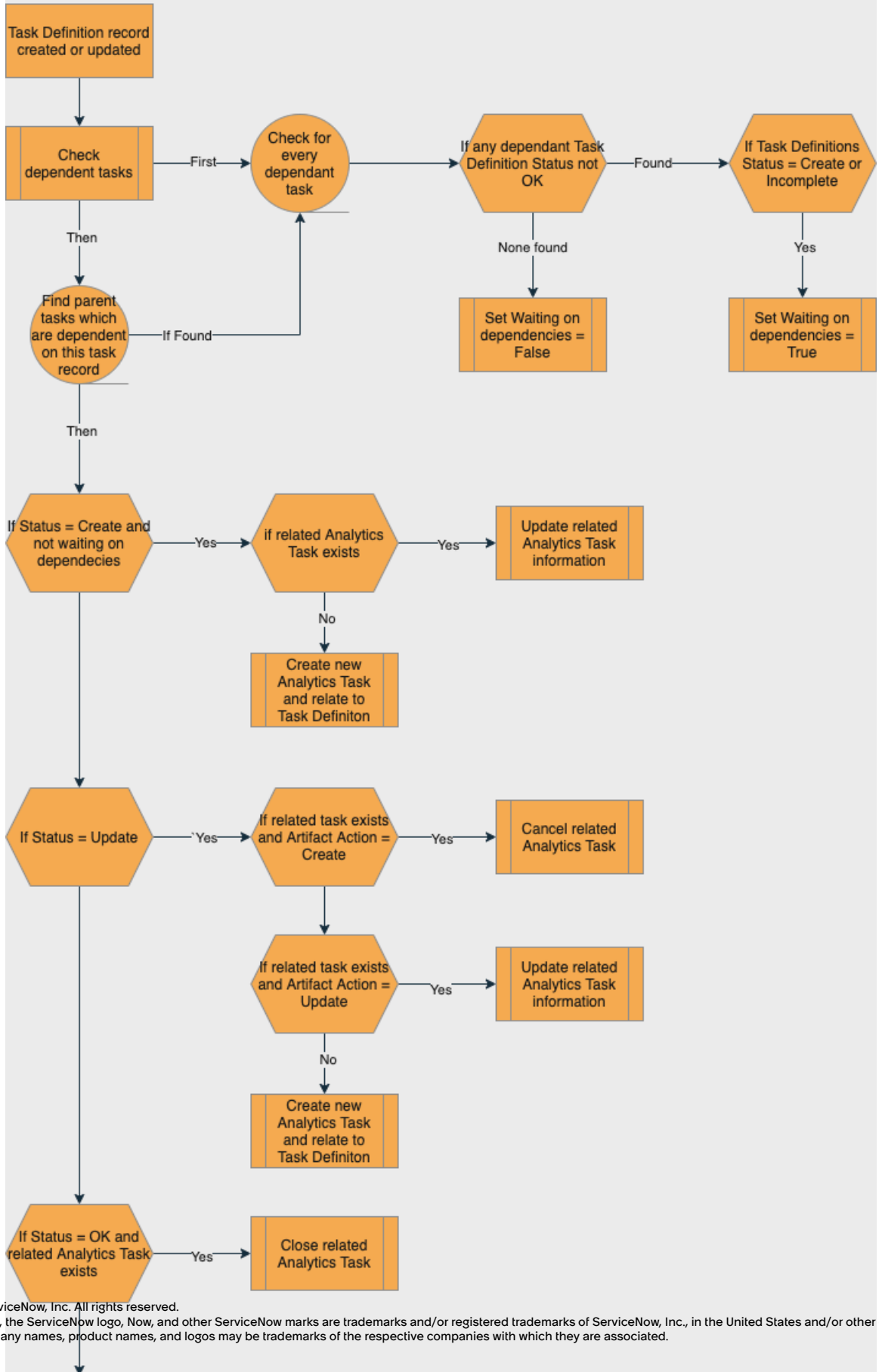
The following diagrams summarize the provided flows:



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Task Definition Flow

Flow chart describing the logic as implemented in the Flow Designer "Task Definition Flow"



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Related topics

Flow Designer

Performance Analytics indicators

Indicators (KPIs) define a performance measurement taken at regular intervals of a business service, an activity, or organizational behavior. These performance measurements result in a series of indicator scores over time.

https://player.vimeo.com/video/995194468?badge=0&autopause=0&player_id=0&app_id=58479

Watch this six-minute video to learn more about the different kinds of indicators and how to create them.

Key characteristics of indicators include:

- Indicator scores can be generated automatically from a set of records defined in an indicator source, entered manually, or calculated from other indicators.
- Indicator scores can be viewed or analyzed in Platform Analytics data visualizations and KPI Details. In the Core UI, view them in the Analytics Hub or in widgets on dashboards.

Indicators that are based directly on indicator sources are the most common type of indicator. These indicators are named automated indicators. Indicators that are calculated in a formula from the scores of other indicators are called formula indicators. Indicators whose scores are entered manually are called manual indicators. Manual indicators are meant to be used primarily for testing purposes. Lastly, as an advanced feature, you can create an indicator from an external data source.

For an example of an indicator, see the Number of open incidents automated indicator that is provided in the base system. This indicator measures the number of incidents that are open each day and saves these numbers over time. You can examine its indicator scores in KPI Details or the Core UI Analytics Hub. If you have the pa_power_user role, you can see the indicator record under Automated indicators and navigate from that record to the indicator source.

Related topics

Automated indicators

Formula indicators

Manual indicators

Using Performance Analytics with external data

Workflow for creating indicators

Start with ServiceNow AI Platform tables and work your way up to a completed indicator with score collection that you can share on a dashboard.

Before you begin

Design your KPIs before trying to create them. Using KPI Composer, start by deciding on the business goals you want to achieve with Performance Analytics. For each business goal, determine the critical success factors for that goal. Finally, decide what measurements you need to make to see your progress on those critical success factors. These measurements correspond to the KPIs you need to implement. For more information about designing your Performance Analytics Solution, see Design your Performance Analytics solution with KPI Composer.

Once you have your PA indicators designed, check whether one of the prepackaged Platform Analytics Solutions available from ServiceNow meets your needs. Generally speaking, it is a lot

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easier to customize one of these prepackaged Solutions than to build one from scratch. For more information, see Analytics solutions.

Role required: none

About this task

When you know what KPIs you need, you can begin to create indicators and breakdowns and, if necessary, their data sources. The following workflow applies to automated indicators, which are the implementation of KPIs that collect scores from ServiceNow AI Platform database tables. (Remember that you can combine and apply operations to automated indicators in formula indicators. You can also have manual indicators and external indicators, which do not refer to the ServiceNow AI Platform database at all.)

Important:
Performance Analytics should be implemented by qualified personnel. Several training courses are available, as described in this ServiceNow Community article. This documentation is not meant to substitute for training.

Whereas designing KPIs for Performance Analytics is a top-down process, the technical implementation of indicators is a bottom-up process:

Procedure

1. Identify the table with the data you want to analyze.

   Minimum Role: pa_data_collector.

   What tables do your KPIs refer to? For example, if your KPI is about incidents, the information is in Incident [incident]. If the KPI is about change requests, the table is Change Request [change_request]. If you use KPI Composer to design your KPIs, you already have this information.

2. Determine the subsets of records that are relevant to your KPIs.

   Minimum Role: pa_data_collector.

   Almost certainly you do not have a KPI that refers to all the records of a table. Instead you have KPIs that refer to subsets of the records, such as Number of Open Incidents, Open Incidents That Have Been Reassigned at Least Once, or Incidents That Were Resolved on the Day They Were Opened. For each table, note the conditions that you can use to define relevant subsets of records, such as 'open,' 'reassigned at least once,' 'resolved,' 'status > resolved on the day it was opened'.

   Again, if you use KPI Composer to design your KPIs, you already have this information.

3. Decide which indicator sources you need, based on the conditions that define the subsets of records that are relevant to your KPIs.

   Minimum Role: pa_data_collector.

   An indicator source is a data source that refers to a ServiceNow table and one or more conditions that filter the records on that table. You want as few indicator sources as possible. The main reason for this parsimony is efficiency. Data collection involves querying the database for sets of indicators that share an indicator source, not for each indicator. Minimizing the number of indicator sources also helps maintain a single source of truth across indicators. If you need to change a condition, you can change it on the indicator source and propagate this change automatically to all associated indicators.

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Look for common conditions that you can apply to multiple indicators when you are designing indicator sources. Consider the following KPIs:

- Number of incidents that are open.
- Number of open incidents that have been reassigned at least once.
- Incidents that have been open for more than 30 days.
- Incidents that are marked 'resolved'.
- Incidents that were resolved the day they were opened.

You could create two indicator sources that would get scores collected for all these KPIs:

- One on the Incidents table, filtering for incidents that are open.
- Another one on the Incidents table, filtering for incidents that have been resolved.

4. Search for existing indicators and indicator sources that match your needs.

   Minimum Role: pa_data_collector, pa_power_user (indicators only).

   Redundant indicators and indicator sources are a common problem. Only when you have verified that no suitable indicators or indicator sources exist, create the indicators and indicator sources.

   If you can find indicator sources that meet your needs, see if there are already indicators on those sources that match your designed KPIs.

   Note:
   KPI Composer incorporates a search for suitable existing Performance Analytics indicators into the design process.

5. Create any missing indicator sources that you need.

   Minimum role: pa_data_collector.

6. Create any missing automated indicators that match the KPIs you need.

   Minimum role: pa_power_user.

   After you have the indicator sources, someone with the pa_power_user role, such as a business analyst, can create automated indicators.

   When you create the indicators, add any additional conditions. These conditions apply only to one or two indicators and are not efficient to apply at the level of the indicator source. If you have efficiently divided your conditions between indicator sources and indicators, some indicators on an indicator source will have no additional conditions. These indicators are simply aggregations on a column in the indicator source.

7. Associate and map any relevant breakdowns with the new indicators.

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Minimum role: pa_power_user.

When you designed your indicators, you also should have designed any breakdowns to apply to the indicators. Breakdown design is included in KPI Composer. You may need to create new breakdowns or breakdown sources, but that is outside the scope of this workflow.

8. Collect and manage a matrix of breakdowns.

   Minimum role: pa_power_user.

   If you want to collect more than one level of breakdown, such as breaking down by both Priority and Category, set up the breakdown matrix. Be sure to exclude unnecessary or nonsensical breakdown combinations.

9. Edit a job for the indicator.

   Minimum role: pa_data_collector.

   Add one scheduled and (usually) one unscheduled data collection job to the indicator. Run an unscheduled job to collect historical data for the indicator, if historical data exists. Usually you only run this job when you create an indicator and never again. Activate the scheduled job to collect periodic data moving forward, usually following the frequency of the indicator. Collect only for one period. For example, when you have an indicator with the Daily frequency, set the scheduled job to collect every day for the previous (last completed) day.

Result

At the end of this workflow, you have an automated indicator that is populated with data. This automated indicator corresponds to a measurement, a critical success factor, or a supporting indicator that you designed in KPI Composer.

What to do next

You can include this indicator in a formula indicator. You can also design widgets to visualize the indicator and create dashboards to share these visualizations with the appropriate stakeholders.

Indicator sources

Indicator sources are data sets consisting of filtered records from one table or database view.

An indicator source configuration specifies a table, such as Incident [incident], conditions for filtering records from that table, and a frequency that you base on the conditions. An indicator source cannot specify a rotated table. Multiple indicators can use the same indicator source. Data collection jobs query the database once for each indicator source. Thus, all indicators that use the same indicator source get data from the same point in time.

Typically, an indicator tracks the situation on a certain date. The indicator source conditions should include a date-related filter, such as `[Opened][on][Today]`. Indicators collected less frequently might specify a larger date range, such as `[Closed][on][This month]`.

Create indicator sources carefully. Since multiple indicators may be linked to an indicator source, it is not easy to change the indicator source after you created it. Furthermore, changing an indicator source can cause a disjoint with scores that you have already collected.

Note:
Indicator sources must be created before you can create an indicator.

Define an indicator source

To provide a filtered data set of records that you can evaluate with one or more indicators, create an indicator source.

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Before you begin

Look at the list of indicator sources, for these reasons:

- An indicator source that meets your requirements may already exist. To help maintain your instance, you should not create duplicate indicator sources.
- Ensure that you give a unique name to any indicator source that you create. Giving the same name to different indicator sources can be confusing.

Role required: pa_data_collector or admin

Procedure

1. Use one of the following navigation paths:
   - If you are on an upgraded instance that has not migrated to Platform Analytics, navigate to **All** > **Performance Analytics** > **Sources** > **Indicator Sources** and select **New**.
   - If you are on a new instance or have migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Data Sources** > **Indicator Sources** and select **New**.
2. Enter a unique **Name** by which you can easily see what the indicator source is used for, such as **Incidents.Open**.
3. Add a detailed **Description** to help others understand the use and purpose of this indicator source and to help them avoid creating duplicates.
4. In the **Calendars** field, select either the standard calendar or a business calendar that is defined on the instance.

   Warning:
   If you use a business calendar and later alter that business calendar's entries, you invalidate your Performance Analytics data. The scores you collected before changing the entries will not be compatible with the scores you collect after you change the entries. This warning also applies to fiscal calendar schedules.

   If you use a business calendar, you can create data collection jobs that run on the Business Calendar: Entry start or Business Calendar: Entry end times.

5. Fill either the **Valid for frequency** or **Calendar Frequency** field.
   - If you select the standard calendar, you have the **Valid for frequency** field. This field gives you a choice of standard indicator frequencies. The default choice is **Daily**.
   - If you select a business calendar, you have the **Calendar Frequency** field. This field is required. The business calendar you selected determines the range of frequencies that are available.

   Indicators based on this indicator source use the value of this field as the indicator **Frequency**. By default, the score collection periods on the indicators follow this frequency. You can override this behavior on the indicator record.

   If you are uncertain about the frequency to set, base the frequency on your business cycle.

6. Select a facts table, either directly or by reusing a report source.

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Warning:

- Performance Analytics does not support remote tables.
- Performance Analytics does not support Workflow Data Fabric tables.
- Do not change the facts table for a source after you have started collecting data. If you change the facts table, you lose all historical scores for the associated indicators at the next score collection.

7. If you select a facts table directly, add **Conditions** that must be fulfilled before the data is included in the subset.

   Example
   For example, set the conditions `[Active] [is] [true]` or `[Created] [at or before] [date]`.

   Tip:

   - Indicator source conditions on text fields are not case-sensitive.
   - Conditions set on indicator sources and indicators all apply.
   - For an indicator to display real-time scores, set a condition either on the indicator or the indicator source.
   - Due to the reusability of indicator sources, use only high-level criteria to define indicator source conditions. Use the advanced filters on individual indicators to go deeper into the data.
   - Indicator sources should have at least one date condition, such as [Created][on] [Today].
   - Usually, your date conditions should refer to the same time period as the indicator frequency. For example, conditions about the number of days should only be on daily indicators. Conditions about the number of months should only be on monthly indicators.
   - Avoid dot-walking to the sys_id or display value of a table. Instead, use the reference field by itself, to avoid creating unnecessary joins.
   - If you design the indicator source conditions well, at least one of the indicators on that source does not have any additional conditions of its own.

   For general information about building conditions, see Condition builder.

8. **Optional:** Define **RELATED LIST CONDITIONS** to include a relationship with another table in the filter.
   For more information, see Add related list conditions.
9. To see how many records this indicator source would return, click **Preview**.

Warning:

You may exceed the maximum limit of collected records despite what the Preview function shows. The Preview function shows you a lower number of records than the number that the data collector actually fetches. The Data Collection job ignores ACLs and business rules when fetching records, but the Preview function follows them. For more information, see KB0756238.

10. In the Records View tab, in **List view**, select the default view.

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The default view applies on Workbench widgets and to the lists of records collected for this indicator source on the Analytics Hub and KPI Details. The available views vary depending on the facts table.

11. **Optional:** In the Records Collection tab, override the maximum number of records that a job can collect for a single indicator source, for this indicator source only.
    Select **Override record collection**, then enter a value in **Maximum number of records collected**. You are overriding the default value set on the property *com.snc.pa.dc.max_row_count_indicator_source*. For more information, see Performance Analytics properties.
12. Expand the context menu and click **Save**.
13. **Optional:** If you have configured this indicator source to use a business calendar, set the number of periods for retaining scores and snapshots and for finding seasonal patterns. These settings apply to all indicator sources and indicators that use the same calendar frequency. The owner of an indicator can override these settings for that indicator. If you do not set these values in the indicator source, the first time someone creates an indicator using this calendar frequency, they are prompted to set these values.

    a. In the Related Links, click **Configure retention periods**.
    A PA Business Calendar Retention Period record opens.

    b. In the **Number of entries to establish seasonality** field, enter the number of time periods, as defined in the business calendar or schedule entries, that are necessary to find seasonal patterns.
    For more information about business calendar entries, see Creating business calendars.

    c. Set the number of time periods, as defined in the business calendar or schedule entries, to retain scores and snapshots.
    A default value of one is provided, but you should consider changing it.

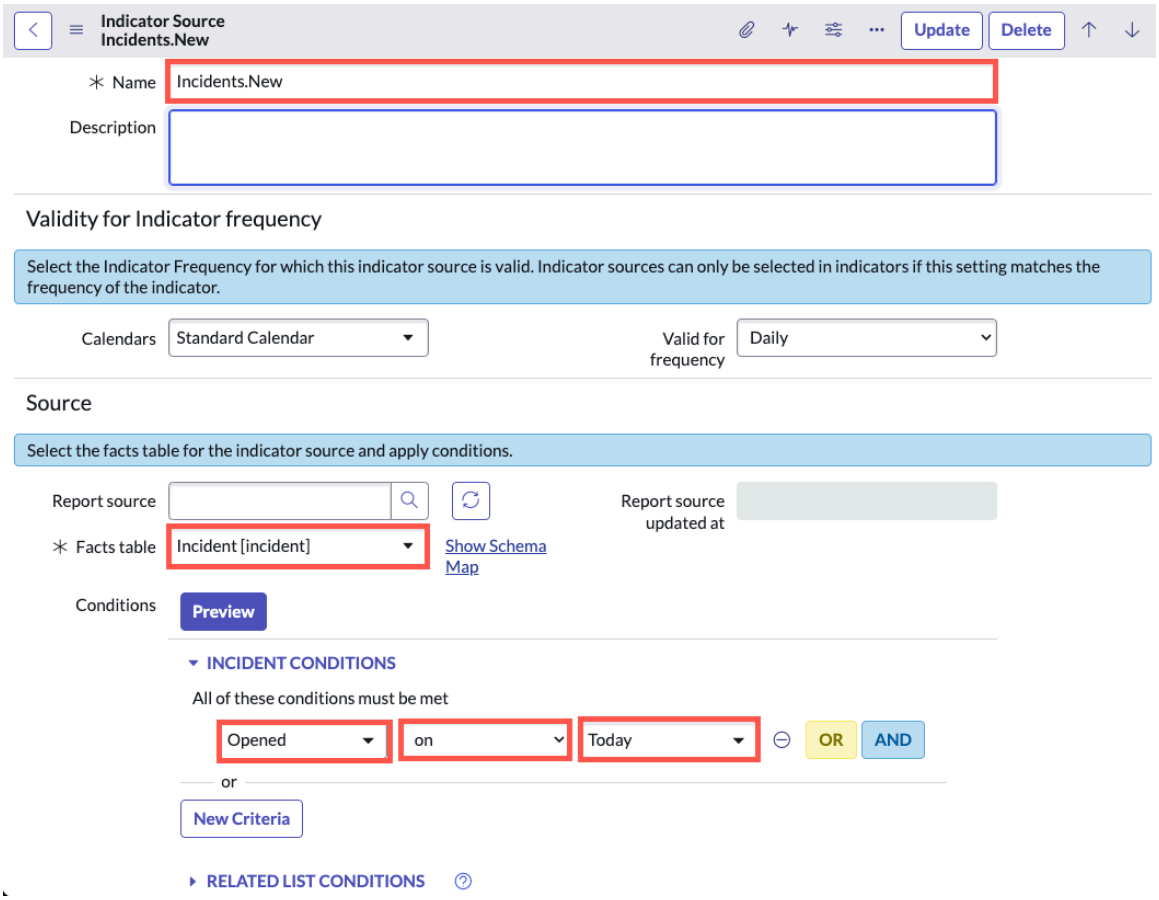
Example: Simple indicator source

The following settings create an indicator source that collects new incidents daily:

- **Name**: `Incidents.New`
- **Frequency**:`Daily`
- **Facts table**:`Incident [incident]`
- **Condition**:`[Opened] [on] [Today]`

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Create indicator sources



What to do next

After you create an indicator source, you can define text index configurations in a related list on the record. Use these configurations to create Performance Analytics text widgets with word clouds. For more information, see Set up text analytics.

If you are reusing a report source and the report source changes, a warning appears on the indicator source record. To update the indicator source to match the report source, click **Update report source**. You can also click the refresh button next to the **Report source** field.

The read-only **Report source updated at** field displays the last time the report source was updated. This date and time always appear in the GMT time zone.

Related topics

- Report sources
- Creating business calendars

Use a database view in an indicator source

You can select a database view as the facts table in an indicator source. Database views enable you to combine data from tables in your ServiceNow instance that are not connected by default.

Before you begin

Role required: pa_admin

About this task

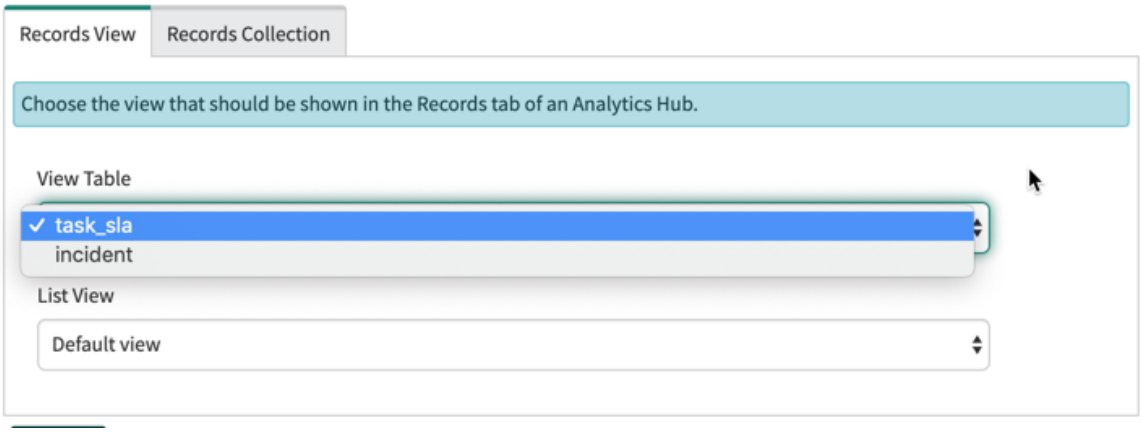
By joining tables in a database view, you can easily access them by calling up the view. Then you can select fields from any of the tables included in the view. For example, if you want to report on the number of SLAs breached, you need fields from both the SLA and the Incident tables.

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Procedure

If you select a database view as the facts table for an indicator source, provide additional configuration in the **Records view** section of the Indicator Source form.

Records View section on the indicator source form



Field	Description
View Table	A snapshot of records is collected from only one table in the database view. Select which table has its records collected. **Important:** If you change this value, you effectively remove all earlier snapshots. This change takes effect the next time that the data collection job runs. This change does not affect historical scores.
List View	Select the list view used to display collected record sets. **Default view** is suggested, but you can select any defined view, such as **Workspace**.

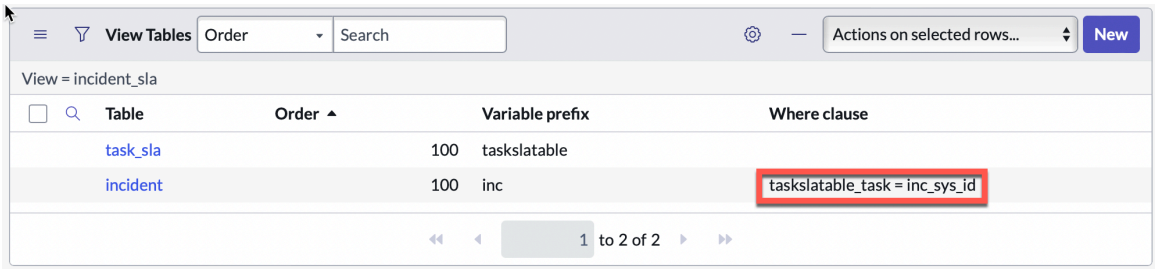
Note: If you collect second-level breakdowns on a view table that does not generate unique system IDs, the score and the number of records may disagree. If these values disagree, the score is correct. The record count is wrong because it is an artifact of non-unique sys_ids.

Example: Indicator source from database view

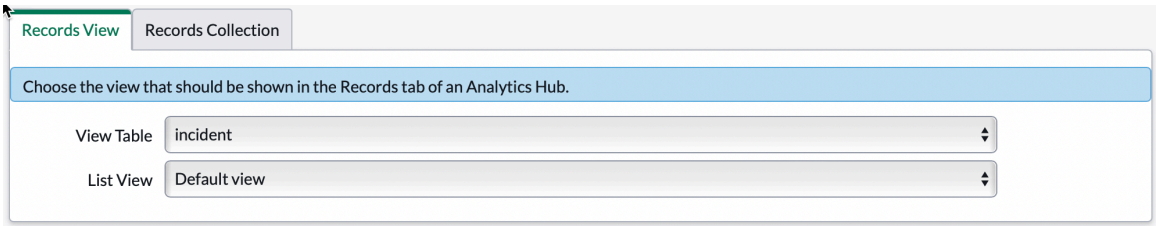
Let's say you want to create some indicators tracking the number of incidents that violate SLAs. You already have a database view included in your base system called incident_sla, which joins the Task SLA [task_sla] and Incident [incident] tables. Therefore, you create a new indicator source using this database view.

Looking at the database view, you see that it gets the records where the task on the Task SLA table matches the unique sys_id value on the Indicator table.

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You can only take snapshots from one table, and it is generally better to take snapshots of the table with a field with unique values. Therefore, you select Incident [incident] as the View table on the indicator source.



Related topics

Database views

Automated indicators

An automated indicator uses an indicator source as its data set. The indicator source specifies a table or database view, conditions for filtering records from that source, and the frequency at which you expect to display the data. The indicator applies an aggregator and optional conditions to this data.

Automated indicators are the most frequently used type of indicator and are perhaps the most fundamental component of Performance Analytics. Use an automated indicator to calculate scores on a set of records from a table that stores information about a business process, such as change requests or HR cases. You have the score calculated automatically in a scheduled data collection job, which follows the same periodicity as the frequency in the indicator source. You also set one or more data collection jobs that you run manually, for example to collect a span of historical data when you first create the indicator.

You can associate the indicator with any number of breakdowns to slice or filter the indicator scores. For example, if you have an indicator for the number of open incidents, you can associate this indicator with the Priority breakdown to see how many Critical priority incidents you have. You can also associate the indicator with the Category breakdown to compare the number of Hardware and Software incidents.

If you have an indicator source to use and want to create a fairly straightforward automated indicator, you can use the wizard. If you need to specify the indicator more fully, use the form that is described in this section. For more information about creating an indicator from a wizard, see Create an automated indicator with a wizard. Before creating an indicator through either means, plan out your indicator as described in Planning your indicators. Also see whether an appropriate indicator is already available in one of the baseline Performance Analytics Solution content packs.

You can use automated indicators as inputs to a formula indicator, for example to calculate the percentage of open incidents that are new incidents.

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Create an automated indicator

To analyze the performance of a business process that is recorded in a ServiceNow table, use an automated indicator. If a suitable indicator is not provided in a Platform Analytics Solution, create a new one.

Before you begin

You must have a suitable indicator source, as explained in Automated indicators. You also should design your KPIs as part of a business strategy before you create them, as described in Design your Performance Analytics solution with KPI Composer and Planning your indicators. Also familiarize yourself with the Workflow for creating indicators.

Note:

- You must have a subscription for Performance Analytics to create indicators.
- If you're using domain separation, the indicator is created in the domain that you're currently in.

Role required: pa_power_user, pa_admin, or admin

About this task

This form provides all the many options for creating an automated indicator. To create a simple automated indicator quickly, see Create an automated indicator with a wizard. However, for deeper information about indicator options and for tips, read this topic first.

Procedure

1. Use one of the following navigation paths:
   - If you are on an upgraded instance that hasn't migrated to Platform Analytics, navigate to **All** > **Performance Analytics** > **Indicators** > **Automated Indicators** and select **New**.
   - If you are on a new instance or have migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Indicators** > **Automated Indicators** and select **New**.
2. In the **Name** field, give the indicator a descriptive name, such as Number of Critical Incidents.
3. Add a meaningful **Description** to help other users understand the purpose of this indicator.
4. Scroll to Indicator properties.
5. If you prefer that the score of this indicator increases or decreases over time, select **Maximize** or **Minimize** in the **Direction** field.
   Analytical tools and graphic displays use this **Direction** with this indicator.

   Tip:
   Set a direction whenever you can. All key indicators should be set to Maximize or Minimize.

6. Scroll to the **Source** tab and select an **Indicator Source**.
   Entering a partial name in the field filters the list of available indicator sources accordingly.

   If you are using domain separation, you can select only indicator sources to which you have visibility.

7. In the **Aggregate** field of the **Source** tab, select the aggregate function to apply to the data from the indicator source.

   Count counts the number of records. **Count distinct** counts the number of unique values rather than the total number of records. For example, if the name of a user appears more than

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once in a list, the user is only counted once. Other choices perform the specified aggregate operation, such as summing the values in a field across records.

If you select a Sum, Minimum, or Maximum aggregate, consider excluding some types of time series from being applied to the indicator. For more information, see Exclude time series from an indicator.

Tip:
Try to avoid using the Average aggregate, because that aggregate can complicate the use of time series. Instead, create a Sum automated indicator and a Count automated indicator. Then create a formula indicator that divides the Sum indicator by the Count indicator to calculate the average.

8. Complete any remaining fields in the Source tab.
If the **Aggregate** is set to **Count**, only the **Collect records** and **Value when nil** fields are available.

Source tab fields

Field	Description
Collect records	Check box to indicate if the individual record sys_ids are stored when the indicator is collected. Selecting this check box enables you to drill down to those details in the Analytics Hub and widgets. When available, collected records appear on the **Records** tab. **Tip:** Generally avoid collecting records with aggregates other than Count and Sum. Users rarely want to see the records that go into a Min or Max, and the number of records in a Count Distinct may differ from the score. Consider collecting records for indicators with these other aggregates only if a user asks for them. You must enable this option for the main indicator of a Spotlight group. Otherwise, the Spotlight group can't evaluate a snapshot of collected records. For more information, see Evaluating a snapshot or platform data.
Scripted	A check box to indicate if the value should be aggregated based on a script. This option is available only if **Aggregate** isn't set to **Count**. Clear the **Scripted** check box to aggregate the values in a field.
Field	The field to perform the aggregate operation on. This field appears only if **Aggregate** isn't **Count** and **Scripted** isn't selected.
Script	Select a script or create a script for the aggregation. This option is available only if the **Scripted** check box is selected.

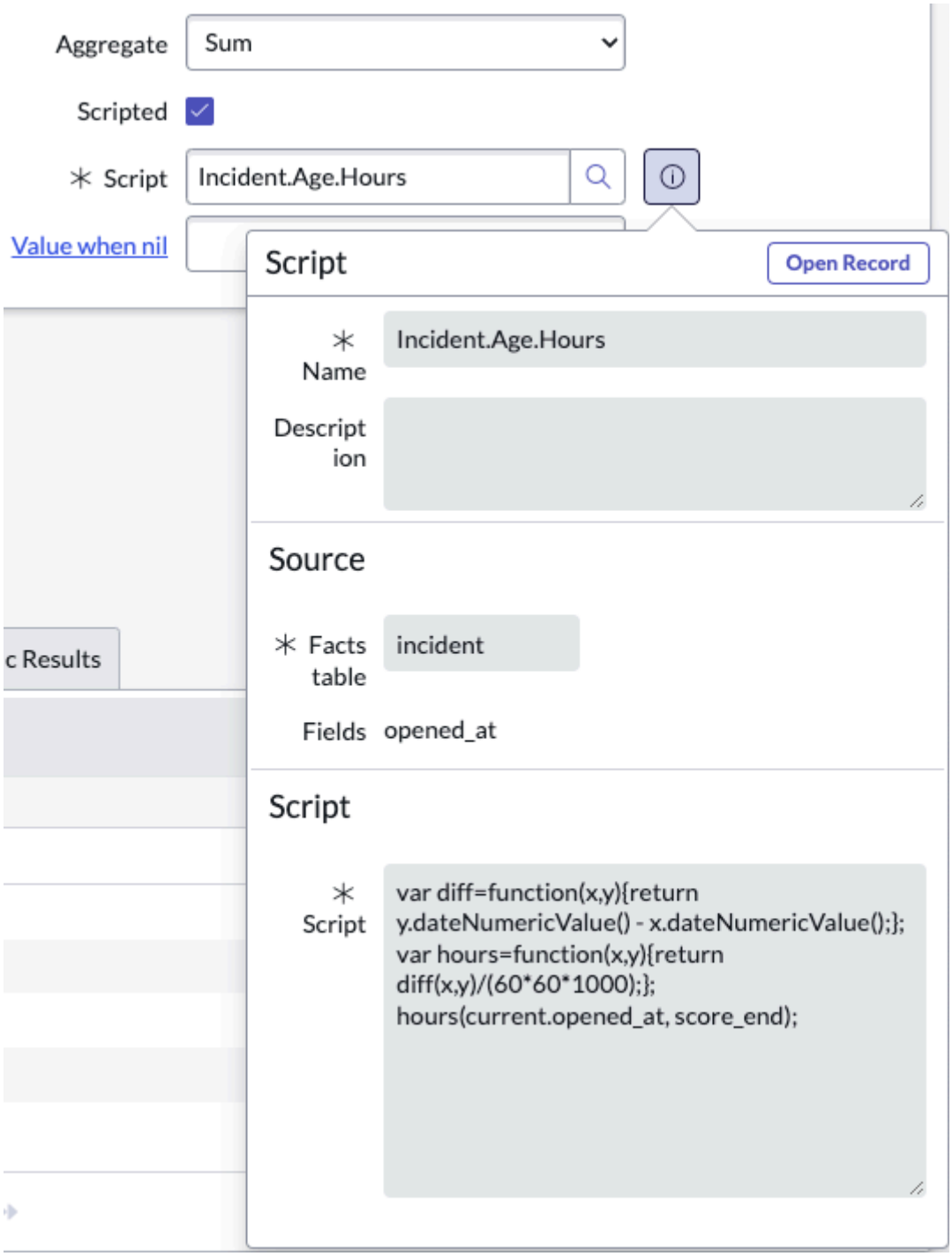
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Field	Description
	For more information, see Scripting in Performance Analytics.
Value when nil	The value that is inserted as the score when no value is collected. This value is inserted whether or not breakdowns are applied. This value isn't used to calculate formulas or aggregates, such as an average.

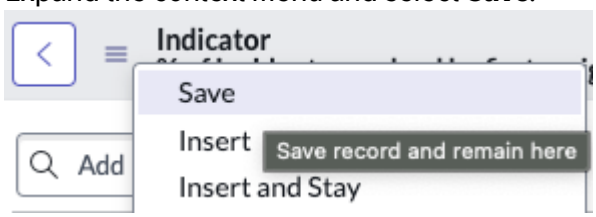
Example

For example, the indicator Summed age of open incidents uses the Sum aggregate. Because it uses this aggregate, it must have either a field or a script specified. In this case, it's scripted and uses the Incident.Age.Hours script.

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9. Expand the context menu and select **Save**.



10. Set the periodicity of the indicator if you're prompted to do so after saving.

    You're prompted to set the periodicity only in the following circumstances:

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- The indicator source for this indicator uses a business or fiscal calendar.
- This indicator is the first one that uses that calendar.

These settings apply to all indicators with the same calendar frequency, unless you override the settings in the **Collection periods** tab. For more information, see the section "Indicators with business calendars."

a. In the Related Links section, select **Configure periodicity**.
A PA Business Calendar Retention Period record opens.

b. In the **Number of entries to establish seasonality** field, enter the number of time periods, as defined in the business calendar or schedule entries, that are necessary to find seasonal patterns.
For more information about business calendar entries, see Creating business calendars.

c. Set the number of time periods, as defined in the business calendar or schedule entries, to retain scores and snapshots.
A default value of one is provided, but you should consider changing it.

11. In the **Jobs** related list, select jobs that support your indicator source.
Usually you have one Historic job and one update job that matches the indicator frequency, such as [PA Incident] Historic Data Collection and [PA Incident] Daily Data Collection. These jobs support the Incidents.* data sources.

12. Perform one of the following procedures:

- If no prompts appear to take further action and the indicator meets your requirements, press **Manage Breakdowns** to add breakdowns to your indicator. For more information, see Assign and map breakdowns
- If you are prompted to take further action or you have designed a more elaborate indicator, complete the advanced indicator settings.

Related topics

Create an indicator group

Collect and manage a matrix of breakdowns

Advanced indicator settings

After you create an automated indicator with the required settings, you can configure optional, advanced settings.

Before you begin

You have created and saved an automated indicator.
Role required: pa_power_user

Procedure

1. Optional: Under Indicator properties, specify any of these properties:

Field	Description
Key	Identifies the indicator as a key indicator. Used only to filter the list of indicators in **Performance Analytics** > **Analytics Hub**. Not used in Platform Analytics experience.

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Field	Description
Unit	The unit of measurement for the score, such as number, days, or percentages. (Optional) To collect scores in the system reference currency on a Price, Currency, or FX Currency field, select **Use reference currency**. For more information, see Indicator scores in reference currency. If you select % or a time period as the unit, consider excluding some types of time series from being applied to the indicator. For more information, see Exclude time series from an indicator. If you select Time as the unit, the time is given as Days, Hours, and Minutes. If the system property `glide.ui.duration.seconds.enabled` exists and is true, seconds are also displayed. In this case, seconds are also displayed for all-time fields on the instance and are included in exports to Microsoft Excel.
Precision	The number of digits behind the decimal separator. For more information, see Rounding and precision in indicators. This field isn't available when the unit is **Use reference currency**. In this case, the precision is inherited from the reference currency.
Number format	The abbreviations used for large numbers, thousands through quintillions. For more information, see Rounding and precision in indicators.

2. In the **Additional Conditions** tab, add conditions to limit the set of records that the indicator evaluates.
   The conditions in the indicator apply in addition to the conditions in the indicator source.

   For real-time scores to be displayed, a condition must be set in the indicator or indicator source.

   For more information, see Conditional filters and operators for indicators and breakdowns.

3. In the **Access control** tab, set whether to save this indicator to the library and whether to limit the visibility of the indicator by user, group, or role.
   Activating **Show in library** means that the indicator will be available in the following places:

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- The Platform Analytics indicator library
- KPI Details
- Analytics Hub, but only on upgraded instances that haven't fully migrated to Platform Analytics

4. **Optional:** In the **Other** tab, set various miscellaneous properties.

'Other' tab fields

Field	Description
Default time series	(Optional) A predefined analytical function, like a 7-days running average, to apply to the indicator instead of showing the raw scores of the indicator. For more information, see Applying time series aggregations. **Note:** You can't set the default time series for an indicator that uses a business or fiscal calendar. These calendars do not support time series aggregations.
Live group profile	(Optional) Live Group Profile [live_group_profile] record for a Live Feed group. Specify a group profile to cause that group to get notifications about this indicator. For more information about this social application on the ServiceNow AI Platform, see Live Feed.
Order	(Optional) Number indicating the order in which indicators are displayed in the Analytics Hub. Indicators with the lowest value are displayed at the top of the list. If no values are provided in the **Order** field, indicators are displayed from a to z using the **Name** field. To use the order field, you must enter order numbers for all indicators. If you put in numbers for only a few indicators, the order in which indicators are displayed reverts to a to z. Not used in Platform Analytics experience.
Default chart type	(Optional) Set a default chart type (line, column, spline, or area) for this indicator. When opening the Analytics Hub or KPI Details for this indicator for the first time, the default chart type is used. If the chart type is

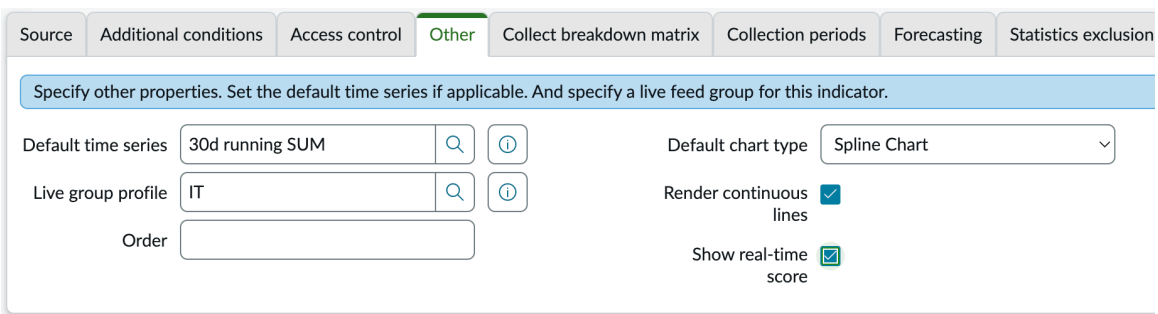
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Field	Description
	changed in the Analytics Hub or KPI Details, that preference is remembered.
Render continuous lines	(Optional) When selected, the Analytics Hub and KPI Details show unbroken data lines for this indicator, even when there's no data for a specific date. This behavior may be useful when displaying datasets with varied starting dates or for data that aren't regularly updated, such as stock information. Continuous lines aren't rendered when a time series is set on the indicator or the Analytics Hub or KPI Details.
Show real-time score	(Optional) When selected, the Analytics Hub and KPI Details can show the score of this indicator in real time, as well as the current state of associated records. Clear this check box when indicator data isn't available in real time, such as in an integration that uses data from a third-party source. For more information, see Real-time scores. Note: A condition must be set on the indicator or the associated indicator source for real-time scores to be displayed.

Example

For example, in the Other tab you can configure an indicator as follows:

- By default, it shows a 30-day running sum of scores in widgets. You can override this default in the Analytics Hub, KPI Details, dashboard widgets, or workspace data visualization.
- The IT Live Group is notified of changes to the indicator.
- The indicator is listed third in the Analytics Hub list of indicators. All other indicators also have their position specified. This setting does not affect the order of indicators on KPI Details.
- The default chart type is Spline on KPI Details.
- Data lines for the indicator are shown unbroken, even when data is missing.
- KPI Details can show the score of this indicator in real time.



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5. **Optional:** In the **Collect breakdown matrix fields** tab, you can enable second-level breakdowns for the indicator, such as Open Incidents by Category by Priority.
   Enabling second-level breakdowns can significantly impact performance. For more information, see Collect and manage a matrix of breakdowns.
6. **Optional:** In the **Collection periods** tab, override the properties that set the maximum number of periods prior to today for which scores and snapshots are collected and kept.
7. **Optional:** In the **Forecasting** tab, set the forecast method, the number of data collection periods to forecast, the amount of historical data to base the forecast on, and the upper and lower limits of forecast values.
   For more information, see Performance Analytics scores forecasts.
8. **Optional:** In the **Statistics exclusion** tab, select any statistics that you do not want to show on KPI Details or the Analytics Hub.

   Example
   For example, you might not want to show the Change % for an indicator with a percentage unit.
9. Press **Manage Breakdowns**.
   If you also see a button to **Enable data snapshots**, your instance supports unlimited breakdowns. For more information, see Data snapshots and multiple breakdowns.

Indicators with business calendars

Business and fiscal calendars do not have standard periods. Performance Analytics has introduced several innovations to accommodate these custom periods. Your workflow for creating indicators differs accordingly.

Important:
The **Create New** indicator creation wizard does not support indicators based on business or fiscal calendars.

Differences in how periods are defined

Unlike the standard calendar, business calendars have custom periods based on business calendar entries. To accommodate this difference, the following properties are defined differently on indicators that use business or fiscal calendars:

- The indicator frequency is derived from the business calendar instead of from a static list of choices. The Frequency column of the indicator record is ignored. Instead, the Calendar frequency column is used.
- For forecasting, you have to specify the number of periods that are needed to find seasonal patterns. This value cannot be determined automatically from the calendar period, like for standard calendars. You set this value for each calendar frequency, in PA Business Calendar Retention Periods [pa_calendars_retention] records.
- You have to set the number of calendar periods to retain scores and snapshots. The system properties that set the default numbers of calendar periods for retaining data are ignored. Instead, set these numbers for each calendar frequency in PA Business Calendar Retention Periods records.

PA Business Calendar Retention Periods records and overriding them

When you first create an indicator that uses a particular calendar frequency, you are prompted to complete a PA Business Calendar Retention Periods record. Any indicators you make in the future with that calendar frequency use the same PA Business Calendar Retention Periods record.

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You can override the settings in a PA Business Calendar Retention Periods record for a specific indicator. Override the defaults in the **Collection periods** tab of the indicator record, the same as for standard calendar indicators. However, when you first select **Override retention periods**, you see the default retention periods for a Daily indicator with a standard calendar. These values are display artifacts only and you can ignore them. Put in the values you want, and they will override the PA Business Calendar Retention Periods record values.

Note:
You cannot override the **Number of entries to establish seasonality** value from the PA Business Calendar Retention Periods record.

Business calendar groups

When you select an entry in the **Calendar** field other than the standard calendar, you actually select a business or fiscal calendar group. Both business and fiscal calendar groups are listed under **Business calendar** > **Business Calendar Groups**. Each business or fiscal calendar group contains a set of business calendars, which you select under **Calendar frequency**. Each business calendar in turn contains a set of either business calendar or schedule entries, for business and fiscal calendars, respectively.

The process for generating a fiscal calendar automatically creates a fiscal calendar group. For business calendars, the creator of the business calendar must also create the business calendar group, manually. If you have any questions, contact the admin responsible for creating business calendars. For more information, see Create a Business Calendar Group.

Automated indicators in formulas

A formula indicator can include automated indicators that use business calendars. The formula indicator must use the same business calendar as at least one of the contributing automated indicators. For more information, see Create a formula indicator.

Assign and map breakdowns

Select which breakdowns to assign to an indicator. Map which field on the indicator source references the breakdown source. If no appropriate field is available, specify a script to associate the indicator and breakdown sources.

Before you begin
The desired breakdowns must be defined with breakdown sources.

Role required: pa_data_collector, pa_power_user, pa_admin, or admin

About this task
You can create multiple mappings for the same breakdown, enabling you to use that breakdown for multiple indicators.

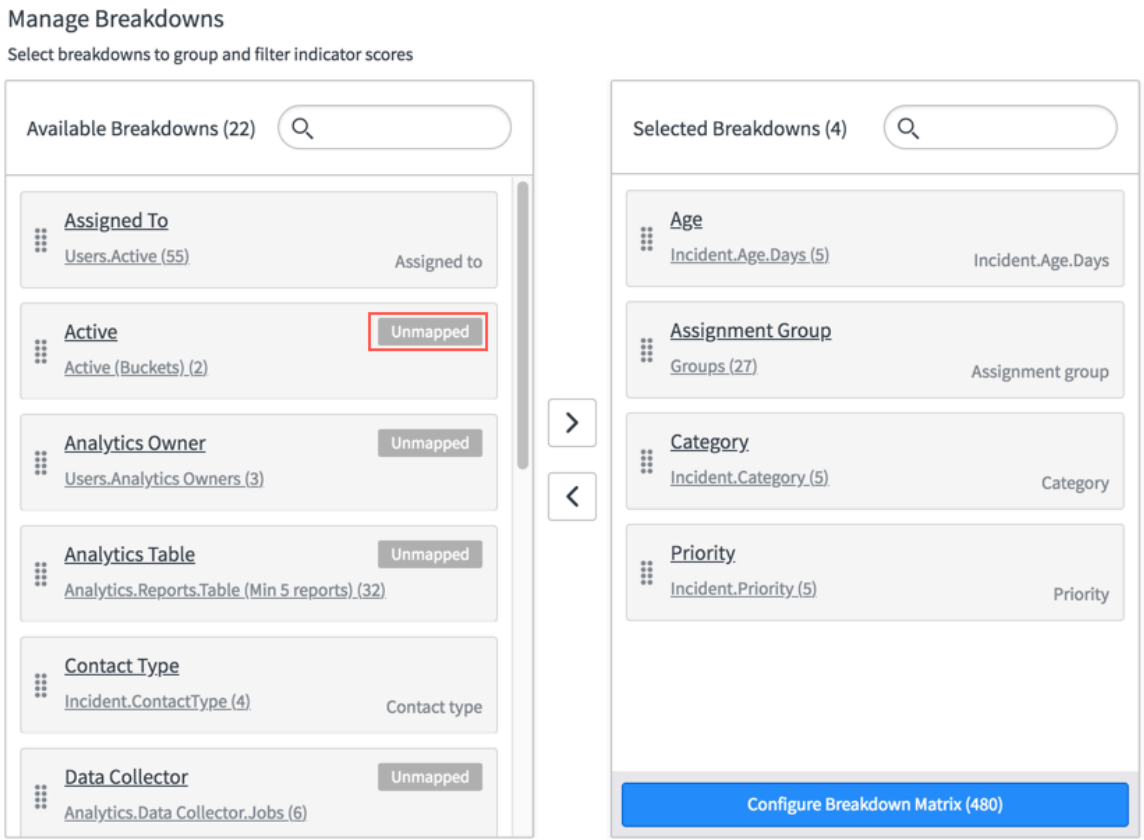
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Note:

- You can only map breakdowns to an automated indicator. If you are assigning breakdowns to a formula indicator, try to select breakdowns that are already mapped to the automated indicators in the formula.
- The maximum number of breakdown elements that can be included in data collection is set in the property *com.snc.pa.dc.max_breakdown_elements_limit*. Warnings appear in the tool when this value is exceeded. For more information, see Performance Analytics properties.
- The procedure on this page uses a graphical tool. You can instead select the breakdowns for the indicator in the **Breakdowns** related list on the indicator form. You also can map the indicator fields or queries for the indicator source on the breakdown form. For more information, see Create a breakdown mapping on a breakdown record.

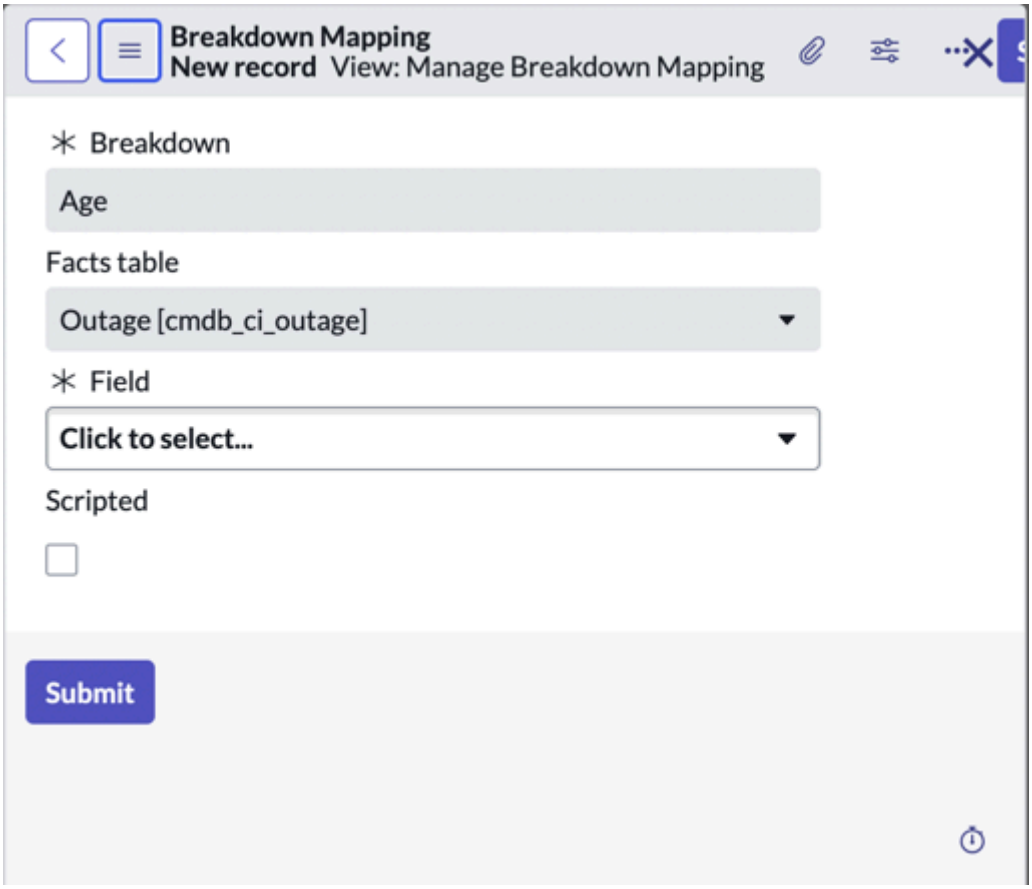
Procedure

1. Navigate to the indicator that you want to assign a breakdown to.
2. Press **Manage Breakdowns**.
   If you also see a button to **Enable data snapshots**, your instance supports unlimited breakdowns. For more information, see Data snapshots and multiple breakdowns.
3. Move the breakdown you want to assign to the indicator from **Available Breakdowns** to **Selected Breakdowns**.



If you add an unmapped breakdown, the **Breakdown mapping** dialog appears.

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Note:
If you are assigning breakdowns to a formula indicator, **Unmapped** icons are not displayed and the **Breakdown mapping** dialog never appears. You cannot map breakdowns to a formula indicator. To apply a breakdown successfully to a formula indicator, check that it is mapped to all automated indicators in the formula. If the formula contains other formula indicators, check the automated indicators in those formulas. Check all the way down, recursively. You do not have to check automated indicators that have been prevented from following breakdowns.

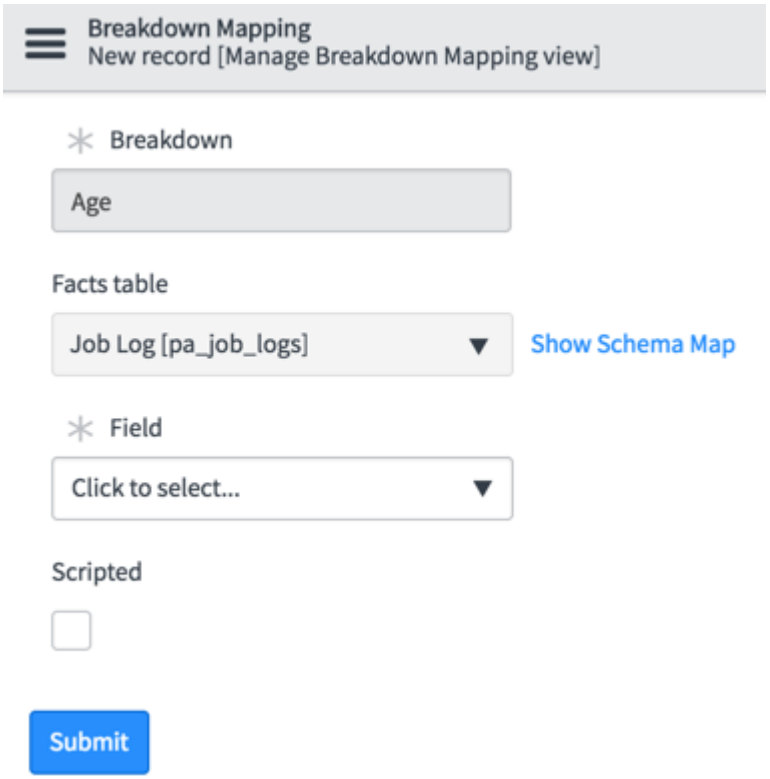
4. Complete the breakdown mapping as follows.

Option	Description
Use a field to map values to elements.	Select the **Field** in the indicator source that maps to records in the breakdown. See the use of the **Category** field in Example: Field mapping.
Use a script to map values to elements.	Select **Scripted**, then select the **Script** that defines the association between indicator records and breakdown elements. Use a script when you do not have the simple use case of a field in the indicator source that maps to a breakdown source table. A script can define a wide range of mapping relation ships. The most common use case is when the breakdown source is a bucket group and the script returns an integer to assign an indi

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Option	Description
	cator score to a bucket. See Example: Script mapping. You cannot show real-time scores for an indi cator that uses a scripted breakdown. **Tip:** Try to implement scripted breakdown mappings so that [mapping of level 1 && mapping of level 2] is equal to the intersection of [mapping of level 1] and [mapping of level 2]. Otherwise, the score and the number of records may not agree for second-level breakdowns. If these values disagree, the score is cor rect. For more details and an example, see KB0748969. Now Support login is required.

Note:
If you click the **Facts table** choice list, it opens, but you cannot select a different facts table.



5. Click **Submit**.
6. Repeat steps 2–5 as needed, to define additional mappings.

What to do next

If you have assigned at least two breakdowns to an automated indicator, you can collect the two-breakdown combinations. If you do so, save system resources by excluding meaningless

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combinations of breakdowns from being collected. See Collect and manage a matrix of breakdowns.

Important:
If you enable data snapshots for an indicator, you are not limited to two-breakdown combinations and the indicator does not have a breakdown matrix. For more information, see Data snapshots and multiple breakdowns.

Apply the breakdowns in one of the following ways. In the classic environment:

- On the Analytics Hub
- When configuring a Performance Analytics widget for a dashboard
- On a breakdown dashboard
- In a breakdown widget on a dashboard

In the Platform Analytics experience:

- In KPI Details
- When configuring a data visualization for an indicator data source

Collect and manage a matrix of breakdowns

Collect a matrix of the two-breakdown combinations for an indicator. Exclude unnecessary or meaningless combinations of breakdowns from being collected.

Before you begin

Breakdowns must be assigned to the indicator. See Assign and map breakdowns.

Important:
If you enable data snapshots for an indicator, you are not limited to two-breakdown combinations and the indicator does not have a breakdown matrix. For more information, see Data snapshots and multiple breakdowns.

Role required: pa_data_collector, pa_power_user, pa_admin, or admin

About this task

Sometimes, not all breakdown combinations give useful information. For example, the combination [Country, Region] gives the same scores as the breakdown Country. You can prevent the instance from collecting data for these invalid combinations with breakdown matrix exclusions. These exclusions are not shown in the Analytics Hub, in KPI Details, or in the scoresheet. You also cannot select excluded breakdown combinations when you create widgets or data visualizations.

To prevent performance issues, the property `com.snc.pa.dc.max_breakdown_elements_level2_limit` limits the number of elements from breakdown connections that are included in data collection. If you exceed this limit, some of the combinations in your matrix are grayed out. By excluding some breakdown combinations, you can help to avoid exceeding this limit. For more information, see Performance Analytics properties.

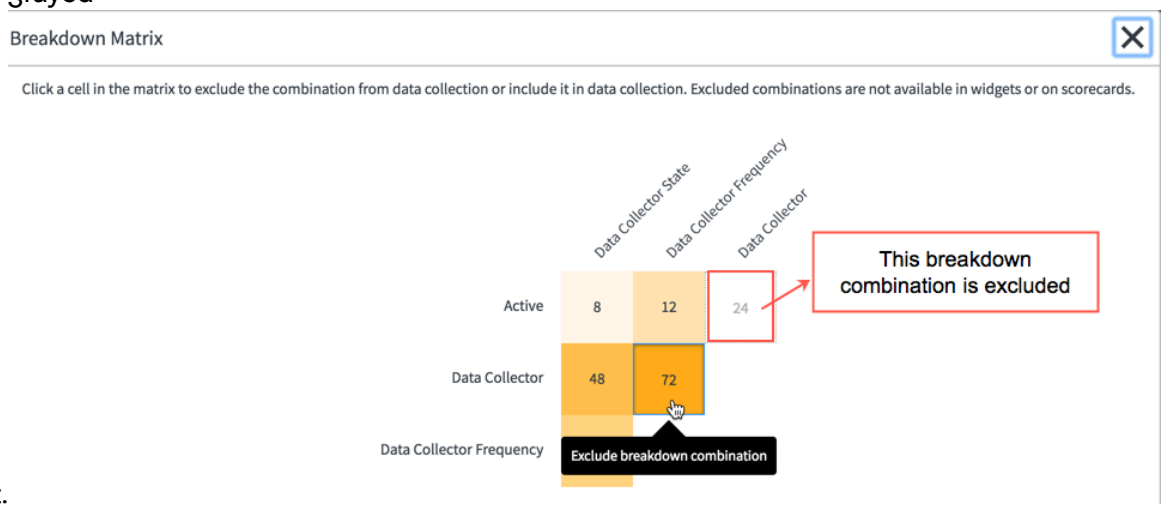
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Note:

- The scores for individual breakdowns are still collected when the combination of those breakdowns has been excluded.
- Scores that were collected in previous jobs for breakdown combinations are not deleted when those combinations are later excluded. New scores for those combinations are not collected.
- These instructions are for using the graphical tool to manage breakdown matrix exclusions. However, you can also manage them in the **Breakdown matrix exclusion** tab of the indicator form.

Procedure

1. Navigate to **Automated Indicators**.
2. Select the automated indicator for which you want to configure the breakdown matrix.
3. Under **Indicator properties**, select the **Collect breakdown matrix** tab.
4. Select the **Collect breakdown matrix** check box.
5. Click **Manage Breakdowns**.
6. Click **Configure Breakdown Matrix**.
   The matrix shows the number of element combinations for each breakdown pair, calculated by multiplying the number of elements for the two breakdowns. Breakdown pairs with a higher number of combinations are shown in a darker color, to help you spot possible performance bottlenecks at a glance. By default, all combinations are included in data collection. You can select combinations to exclude from data collection.
7. **Optional:** In the **Breakdown Matrix** pop-up, select breakdown combinations to exclude from Analytics Hub and dashboard widgets.
   Included combinations are shaded in the breakdown matrix. Excluded combinations are white. If the number of breakdown combinations exceeds the value of *`com.snc.pa.dc.max_breakdown_elements_level2_limit`*, some combinations are grayed



   out.
8. **Optional:** On the indicator form, open the **Breakdown matrix exclusion** tab and see which breakdown combinations have been excluded.
   You can manage which breakdown combinations to exclude in this tab instead of using the graphical tool.

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Add a collection job to an indicator

To collect scores for an automated indicator, add a collection job to that indicator.

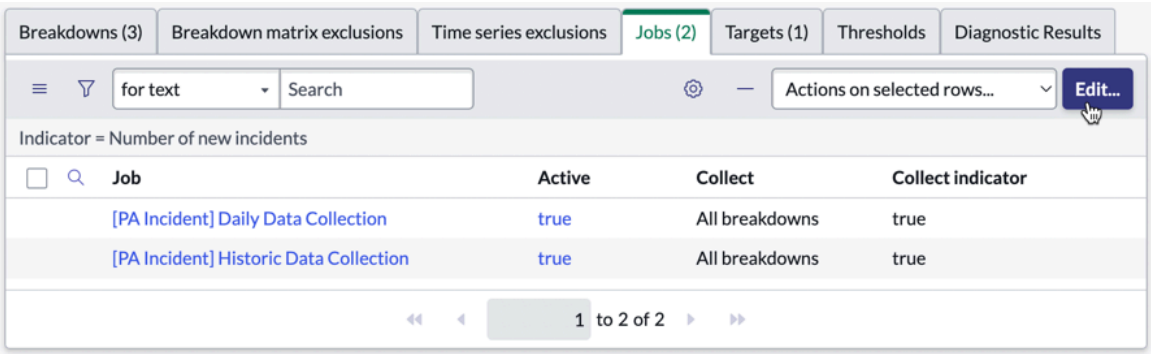
Before you begin

Note:
This procedure shows how to add fully configured data collection jobs to an automated indicator, from the indicator side. For information about configuring data collection jobs and adding them to indicators from the job side, see Configure a job indicator. Only persons with the pa_data_collector role, such as Performance Analytics administrators, can configure job indicators.

Role required: pa_power_user, or admin

Procedure

1. Open an existing automated indicator.
2. In the **Jobs** related list, click **Edit**.



3. **Optional:** Use **Add Filter** and **Run Filter** to limit the selection of jobs.
4. Select one or more jobs in the **Collections** or **Jobs List**.
   Unless you have a clear use case to do otherwise, help keep your jobs manageable by selecting no more than one scheduled job for your indicator. Select as many unscheduled jobs as are relevant. Generally, add one historical job that you run only once on a new indicator.
5. Use the arrow buttons to move the jobs to the other list.
6. Click **Save**.

Performance Analytics snapshots

Snapshots are the lists of records (sys_ids) that are collected at the time that the scores for those records are collected. Snapshots enable users to drill down into the records from a Performance Analytics indicator visualization.

Only automated indicators can have snapshots. Snapshots are made only for those automated indicators that have **Collect records** enabled. The following features require records to be collected:

- Drilling down into individual records from the scores on a Performance Analytics widget.
- Showing records in Analytics Hub.
- Showing records in KPI Details.

Retention period

By default, snapshots are retained for 183 days. You can change this period either globally or for a specific indicator:

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- To change the global snapshot retention period, edit the system property *com.snc.pa.dc.keep_snapshots_for.frequency*. For more information, see Performance Analytics properties.
- To change the snapshot retention period for an indicator, configure **Override collection periods** in the "Collection periods" tab of the indicator form. For more information, see Advanced indicator settings.

Create an automated indicator with a wizard

Quickly create a Performance Analytics automated indicator with breakdowns, widgets, and data collection jobs for that indicator. You still need to be trained in Performance Analytics and to have planned your KPIs to use this wizard.

Before you begin

Familiarize yourself with Performance Analytics concepts and create indicators only as part of an analytics strategy. Plan your KPIs with KPI Composer. Study the Workflow for creating indicators.

Ensure that there is at least one indicator source and a data collection job for the indicator source facts table.

Warning:
The wizard does not support the creation of indicators with business or fiscal calendars.

Role required: pa_contributor, pa_data_collector, pa_power_user, or pa_admin

About this task

These instructions are for using a wizard to create a simple automated indicator quickly. If you need access to the full range of indicator parameters, see Create an automated indicator.

Note:
If you are using domain separation, the indicator is created in the domain that you are currently in.

Procedure

1. Navigate to **Indicators** > **Create New**.
2. Fill in the **General** tab.

General tab fields

Field	Description
Indicator name	A descriptive name, such as `Average number of open incidents`.
Description	An optional text description of the indicator. Can include purpose and internal logic. Descriptions can help you and other users remember the purpose of an indicator.
Direction	Select one of the following:

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Field	Description
	○ **None**: The indicator has no preferred trend up or down. ○ **Minimize**: The indicator score should decrease over time. ○ **Maximize**: The indicator score should increase over time.
Unit	The unit of the score of the indicator. Possible units include: ○ **#**: Simple number (default) ○ **$**: Dollars ○ **%**: Percent
Group	The indicator group to which the indicator belongs, if any.

3. Click **Next** and fill in the **Data Source** tab.

Data Source tab fields

Field	Description
Indicator Source	A selection of the available indicator sources. An indicator source is a data source that refers to a ServiceNow AI Platform table and one or more conditions that filter the records on that table. After you select the source, you can select **Preview records for this indicator source**. If you are using domain separation, you can select only indicator sources to which you have visibility.
Aggregate	The aggregate function to apply when calculating the indicator on the indicator source. **Count** counts the number of records. **Count distinct** counts the number of unique values rather than the total number of records. For example, if the name of a user appears more than once in a list, the user is only counted once. Other choices perform the specified aggregate operation, such as summing the values in a field across records.
Field/Script	For any aggregate other than **Count**, you must specify either a field in the table that the indicator source uses, or a script. The aggregate function applies to either the value in the field or the value that the script returns.
Conditions	An optional list of values and operations to apply to fields in the table that the indicator source uses. These conditions stack with any

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Field	Description
	conditions that are specified in the indicator source. Several limitations exist for conditions on indicators. For more information, see the step for adding additional conditions in Create an automated indicator.

4. In the **Breakdowns** tab, select which of the available breakdowns to apply to this indicator. For two levels of breakdown to apply, also select **Collect breakdown matrix**.
5. In the **Data Collection** tab, select the data collection job that will collect scores for this indicator.
   Scores will be collected depending on the schedule of the job. You can also run the job manually.
6. To collect scores from the past and create a trend, select **Collect data from the past** and specify the time period.
   This job runs only once, when you create the indicator. Not all indicators allow retrospective score collection. As an alternative, manually associate a Historical data collection job with the indicator and run it.
7. In the **Widgets** tab, select any combination of time series, last score, and breakdown widgets to create.
   You can also put the widgets in the tab of an existing dashboard. For more information about creating and displaying widgets from this wizard, see Indicator creation widget options.
8. In the Summary tab, review the changes, then click **Apply**.
   The indicator is created and linked to the selected indicator source, breakdowns, and data collection job. Any widgets associated with the indicator are created and added to the specified dashboard tab.
9. **Optional:** Click **Create another indicator** to restart the process with a new indicator.

What to do next

If the data collection job is configured to collect scores from the past, a temporary data collection job with a **Run** value of **Once** is created. You can delete this job record after the job runs.

Related topics

Create an automated indicator

Indicator sources

Collecting indicator scores

Indicator creation widget options

There are several options for creating widgets to display the indicator data when creating an indicator and related records. You can create any or all of the available widget types.

Time series widget options

Field	Description
Time series widget options	
Time series widget	Select this check box to create a time series widget to display the indicator data.

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Time series widget options (continued)

Field	Description
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Visualization	Select the chart type to use to display the data, such as **Line** or **Column**.

Latest score widget options

Field	Description
Latest score widget	Select the check box to create a score widget with a **Visualization** value of **Latest Score** to display the indicator data.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Periods back	Select the number of periods to compare the score with. For example, if the **Time series** is **By week SUM**, enter a **Periods back** value of **4** to compare the current score with scores from the past 4 weeks.

Breakdown widget options

Field	Description
Breakdown widgets	Select this check box to create a breakdown widget with a scorecard visualization for each breakdown applied to this indicator.

Dashboard display options for widgets

Field	Description
Put the widgets on a new tab on dashboard	Select a dashboard you want to add these widgets to. If you do not select a dashboard, widget records are created but they are not added to any dashboard.
New tab name	Enter a name for the new tab created to display these widgets. This field is required if you select a dashboard.

Related topics

Performance Analytics widgets

Formula indicators

Formula indicators use data from other indicators to calculate new metrics.

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Unlike automated indicators, formula indicators are not based on an indicator source that is populated during data collection. The score of a formula indicator is calculated from a mathematical statement that includes data from one or more other indicators. This data can be the score of an indicator or a `PAFormulaUtils()` calculated value for the indicator. For example, a formula can include the gap, or difference, between the score of an indicator and the indicator target value set in the Analytics Hub or KPI Details.

Important:
Formula indicator scores are calculated when a user views the indicator on a dashboard or in KPI Details or the Analytics Hub.

Create a formula indicator in these cases:

- To calculate a score from multiple indicators, such as the average of two indicators.
- To extract a calculated value of an indicator from the `PAFormulaUtils()` API and perform operations on that value.
- To measure the gap to the overall target of multiple, combined indicators (an index indicator).

Tip:
Training is available for creating and using formula indicators. See the course Formula Indicators Overview in the NOW Learning Center.

Create a formula indicator

Create a formula indicator to produce a new computed score from one or more other indicators. Besides indicator scores, the formula can include calculations such as the gap between an indicator score and the indicator target.

Before you begin
Role required: pa_power_user, pa_admin, or admin

About this task
Formulas are often used to:

- Calculate ratios and percentages.
- Combine data from different applications.
- Build predictive indicators based on historic performance.

The fields of a formula indicator are similar to the fields of an automated indicator. However, instead of Source, Additional Conditions, and Collection properties, a Formula Statement is defined. Formulas can consist of other indicators, constants, variables, and time series, or any combination of these elements.

Note:

- You must have a subscription for Performance Analytics to create indicators.
- If you're using domain separation, the indicator is created in the domain that you're currently in.

Procedure

1. Use one of the following navigation paths:
   - If you are on an upgraded instance that has not migrated to Platform Analytics, navigate to **All** > **Performance Analytics** > **Indicators** > **Formula Indicators** and select **New**.
   - If you are on a new instance or have migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Indicators** > **Formula Indicators** and select **New**.

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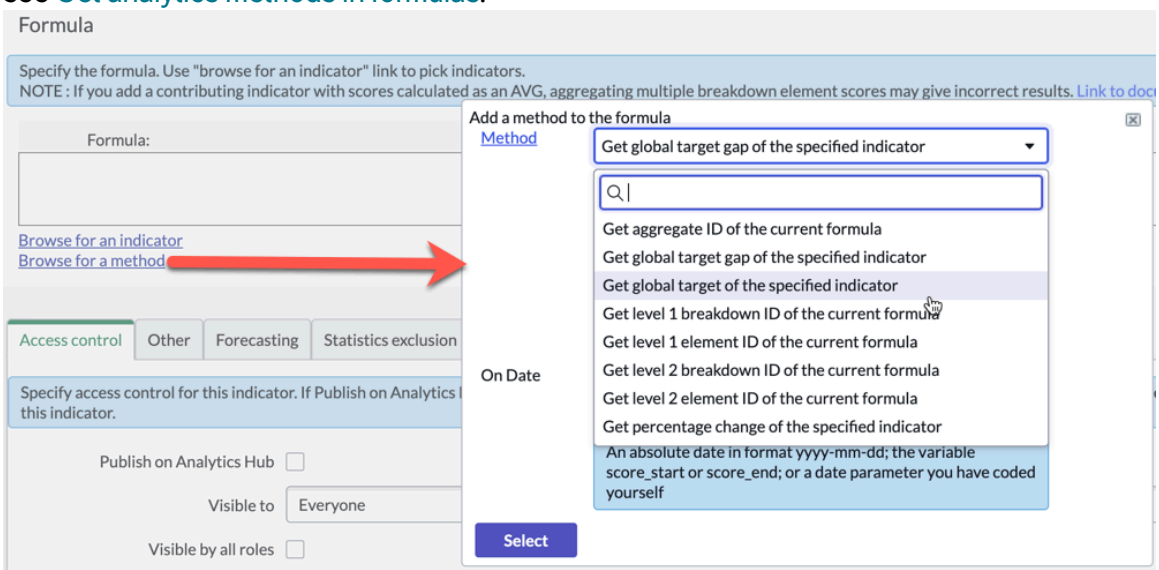
2. In the **Name** field, give the indicator a descriptive name, such as Average duration of open incidents.
3. In the **Calendars** field, select either the standard calendar or a business or fiscal calendar group.
4. If you selected a business or fiscal calendar, select the calendar frequency.
   At least one indicator in the formula must match the specified calendar frequency. The choice of calendar frequencies depends on the setting of the business calendar entries or fiscal calendar schedules.

   Example
   For example, the Gregorian calendar has Quarter, Month, Week, and Year frequencies. If you are using the Gregorian calendar, you must choose one of these frequencies.
5. If you prefer that the score of this indicator increases or decreases over time, select **Maximize** or **Minimize** in the **Direction** field.
   Analytical tools and graphic displays use this **Direction** with this indicator.

   Tip:
   Set a direction whenever you can. All key indicators should be set to Maximize or Minimize.

6. Define the Formula for this indicator.

   a. To use a calculated value in the formula, click **Browse for a method** (Repeatable).
   A dialog opens for you to insert a method from `PAFormulaUtils()` into the formula. This API returns the calculated value for an indicator. For more information about using this API, see Get analytics methods in formulas.



   b. To put the score of an indicator in the formula, click the **Browse for an indicator** link and fill in the dialog (Repeatable).

Indicator selection dialog

Field	Description
Indicator	The indicator you are inserting as a contributing indicator into the formula.

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Field	Description
	If you use a business or fiscal calendar for this indicator, at least one indicator in the formula must use the matching calendar and calendar frequency.
Breakdown, Element, second-level Breakdown, second-level Element	Up to two levels of breakdown and element for filtering the scores on the indicator. If you specify a breakdown, you must specify an element of that breakdown. These breakdowns and elements apply only to this contributing indicator and not to the formula indicator as a whole.
Time series	A predefined analytical function, like a 7-days running average, to apply to the indicator instead of showing the raw scores of the indicator. This time series applies only to this contributing indicator and not to the formula indicator as a whole.
Allow breakdowns	Applies breakdowns that apply to the entire formula indicator, as opposed to individual indicators in the formula, to apply to this contributing indicator. Enabled by default. For more information, see Prevent a contributing indicator in a formula from following breakdowns. Breakdowns are added to the entire formula through the **Manage breakdowns** dialog, available after the indicator is saved. See Step 11.
Use in method	Returns a unique identifier instead of the score for this indicator. Select this box when you are specifying an indicator for a method in the formula. These methods get calculated values for the indicator from the Analytics Hub. For more information about using these methods, see Get analytics methods in formulas.

You could add indicators manually. However, by using the **Browse for an indicator** function, you ensure that you have the proper notation for indicators and breakdown elements.

After you save the formula indicator, the indicators in the formula appear in the **Contributing indicators** related list. If you included any formula indicators, their contributing indicators are also listed.

c. Add mathematical operators and symbols to the **Formula** as needed.

Enter any operators or numbers to include in the formula. Use valid operator symbols, such as +, -, /, %, >, <. You can also add more indicators to the formula. For example, to calculate the average age of open incidents based on summed age of open incidents and number of open incidents, use the following formula: `[[Summed age of open incidents]] / [[Open incidents]] / 24`

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To specify a data collection period in the formula, you can use the variables `score_start` and `score_end` to refer to the start and end of the data collection period, respectively. However, see the caveats in Changes to score_start/end because of different user time zones.

> **Warning:**
> Try not to use *`GlideRecords`* or *`GlideAggregates`* in Performance Analytics scripts or formula indicators. While sometimes you must use these operations to get what you want, they are expensive, potentially running hundreds of thousands of times. Be certain that no alternative exists before you use them.

7. In the **Access control** tab, set whether to save this indicator to the library and whether to limit the visibility of the indicator by user, group, or role.
8. In the **Other** tab, set miscellaneous properties.
   These properties apply to the entire formula indicator.

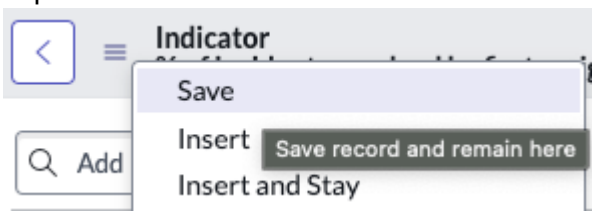
'Other' tab fields

Field	Description
Default time series	A predefined analytical function, such as a 7-day running average. Depending on whether **Apply time series to result** is set, this time series can apply either to each component indicator before the result is calculated, or to the result.
Live group profile	Live Group Profile [live_group_profile] record for a Live Feed group. Specify a group profile to cause that group to get notifications about this indicator. For more information about this social application on the ServiceNow AI Platform, see Live Feed.
Order	Number indicating the order in which indicators are displayed in the Analytics Hub. Indicators with the lowest value are displayed at the top of the list. If no values are provided in the **Order** field, indicators are displayed from a to z using the **Name** field. To use the order field, you must enter order numbers for all indicators. If you put in numbers for only a few indicators, the order in which indicators are displayed reverts to a to z. Not used in Platform Analytics experience.
Render continuous lines	When selected, the Analytics Hub and KPI Details show unbroken data lines for this indicator, even when there's no data for a specific date. This behavior may be useful when displaying datasets with varied

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Field	Description
	starting dates or for data that aren't regularly updated, such as stock information. Continuous lines aren't rendered when a time series is set on the indicator or the Analytics Hub or KPI Details.
Apply time series to result	Applies a time series aggregation to the result of the calculation of the formula instead of to each component indicator before the result is calculated. This option applies to a time series selected for the indicator on a widget or on the Analytics Hub. If a default time series is specified for the indicator, this option also applies to that time series. For more information, see Applying time series to result or to contributing indicators.
Allow formula component to be NULL	Has the formula calculated even when it contains a null score. Useful for troubleshooting. For more information, see Detect indicators with no scores in a formula.
Allow aggregation of multiple breakdown element scores	Enables widgets to show the summed score of multiple breakdown elements on this indicator. If this field is selected, you can select either aggregated or separated values on the form for a breakdown dashboard that uses this indicator. Formulas based on addition, subtraction, or multiplication are generally good candidates for allowing aggregation. Percentages are also supported, provided the percentages total to 100%. On the other hand, the results of aggregating elements on averages, or of percentages that are not related, are usually not meaningful. **Warning:** These aggregations are not checked for mathematical validity.

9. **Optional:** In the **Forecasting** tab, set the forecast method, the number of data collection periods to forecast, the amount of historical data to base the forecast on, and the upper and lower limits of forecast values.
   For more information, see Performance Analytics scores forecasts.
10. Expand the context menu and select **Save**.



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11. To apply a breakdown to the entire formula indicator, click **Manage breakdowns** at the top of the page.
    By default, you can apply only breakdowns that are configured for every contributing indicator in the formula.

    Note:
    The system property *com.snc.pa.formula_indicator_valid_breakdown* controls this behavior. By default, it is true. Changing it to false allows you to apply a breakdown to a formula indicator when at least one contributing indicator uses that breakdown. Attempts to view scores for unsupported breakdowns in a widget, the Analytics Hub, or KPI Details result in a warning message instead of a value.

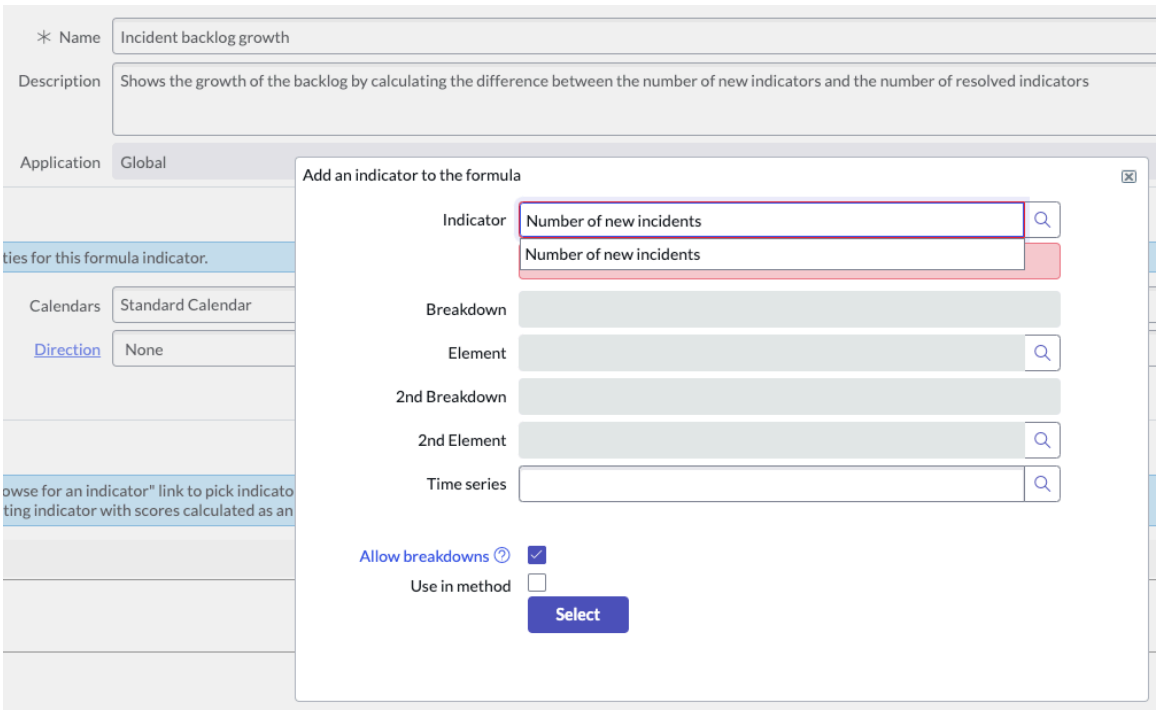
    You cannot select a breakdown element in the formula indicator record. The breakdown can only be used interactively, meaning on the Analytics Hub, KPI Details, appropriately configured data visualizations, and dashboards. For information about using the **Manage breakdowns** tool, see Assign and map breakdowns.

Example: Incident Backlog Growth

As an Incident Manager, you want to improve the efficiency of incident resolution. You already track new and resolved incidents as the Number of new incidents and Number of resolved incidents indicators. However, these indicators do not tell you if you are achieving your goal of improving incident resolution.

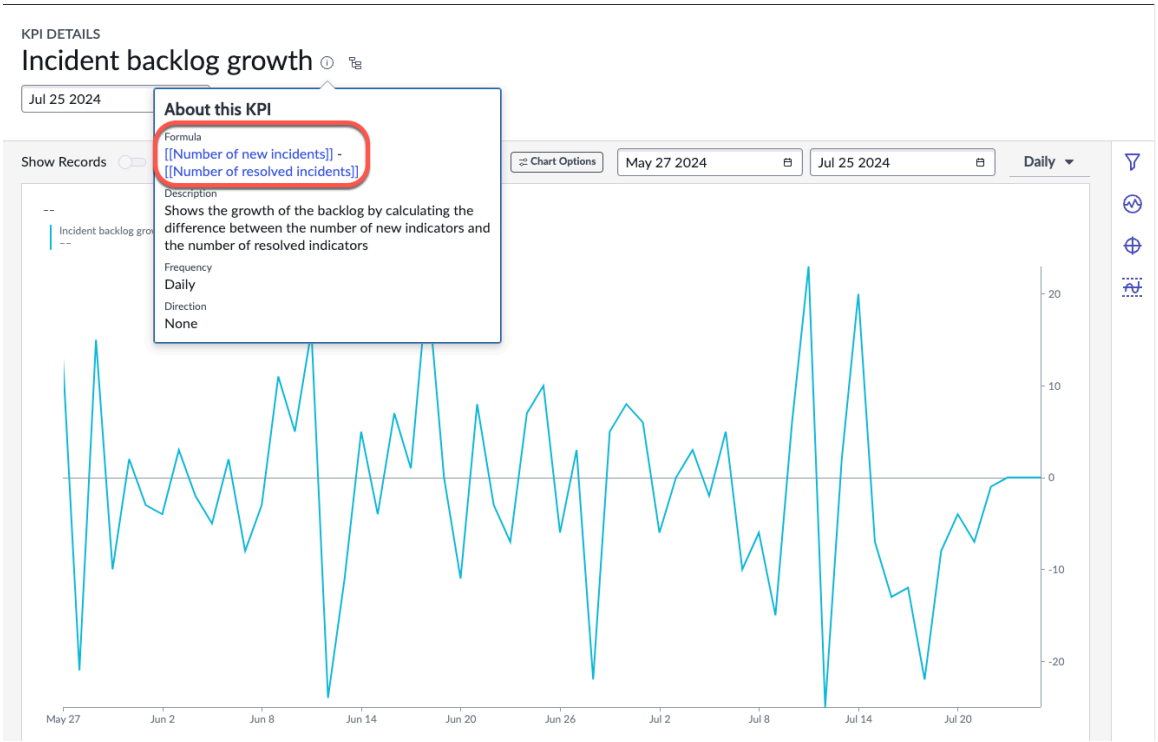
You need a new Backlog Growth KPI to measure the volume of outstanding incidents. To implement this KPI, you create a formula indicator named Incident Backlog Growth, with the following formula:

```
[[Number of new incident]] - [[Number of resolved incidents]]
```



By turning on **Show in library**, you make the indicator visible in KPI Details. In the information panel on KPI Details, you can see the formula used in the indicator.

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Get analytics methods in formulas

To insert a calculated value from the Analytics Hub into a formula, use a method in the formula.

Before you begin

Role required: pa_power_user, admin

About this task

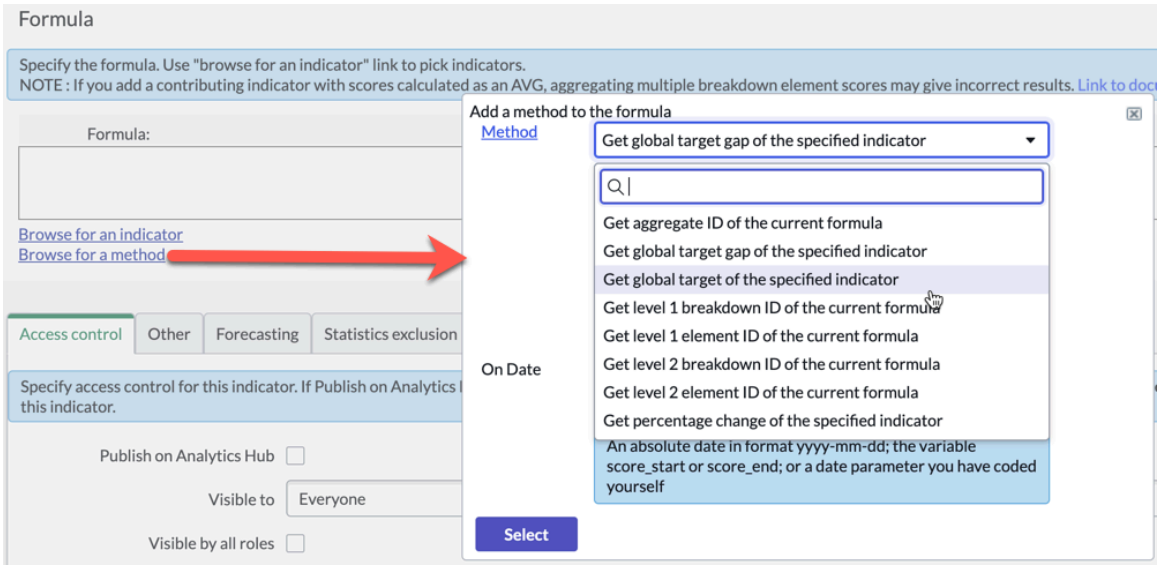
You can use a value that was calculated in the Analytics Hub as input for a formula. That value can be from any indicator, including from the current formula indicator itself.

To get a value from the Analytics Hub, insert a method from *`PAFormulaUtils()`* into the formula. To call one of these methods, use the Performance Analytics variable `pa`. For example, to use the *`PAFormulaUtils.getScore`* method, call `pa.getScore`. For more information, see PAFormulaUtils API.

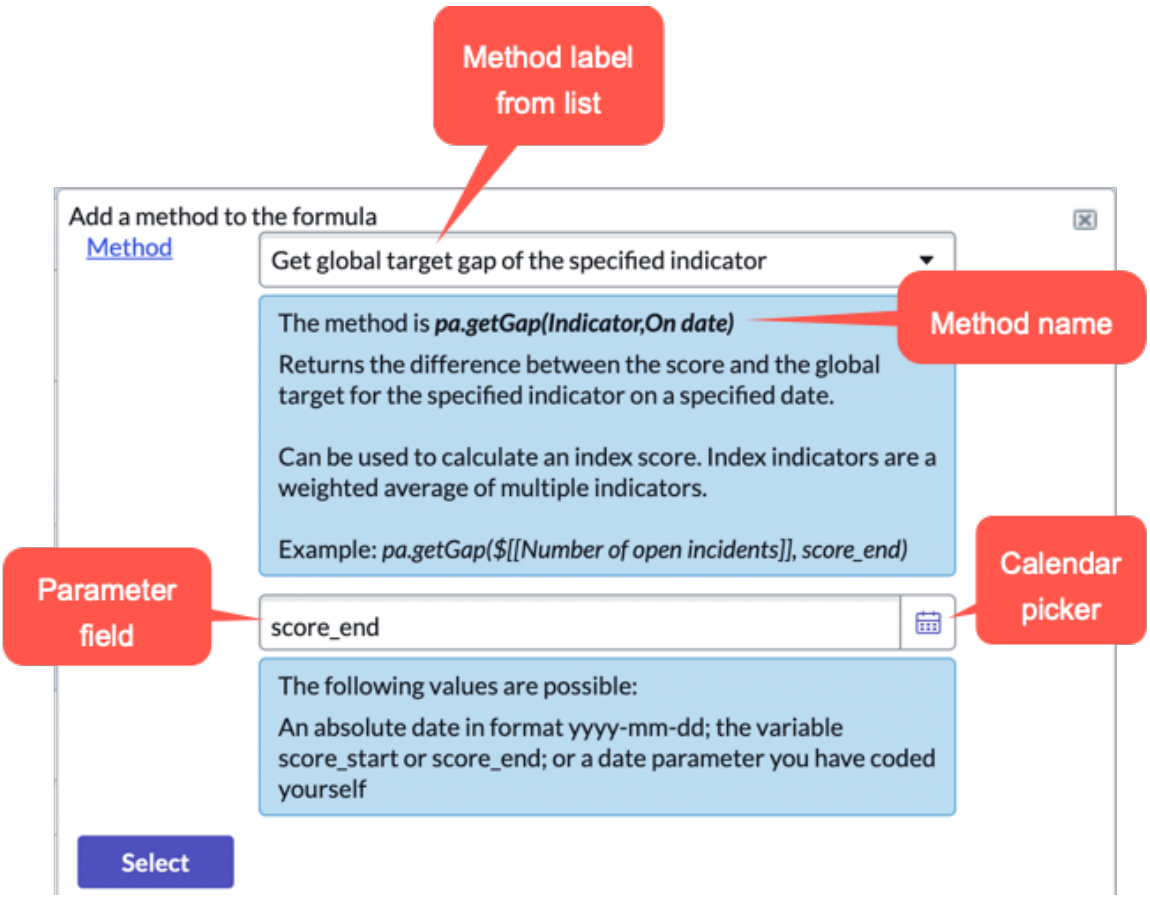
Procedure

1. Open the formula indicator record.
2. Beneath the Formula box, click **Browse for a method**.
   A dialog box opens where you can select a method.
3. Browse for the method that matches your needs.
   Methods refer either to the current formula that you are editing or to a different indicator that you must specify. The list shows a descriptive label for each method instead of the method name.

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4. Select a method.
   When you select a method, a description opens, including the name of the method and any parameter fields.



Date fields can take the following values:

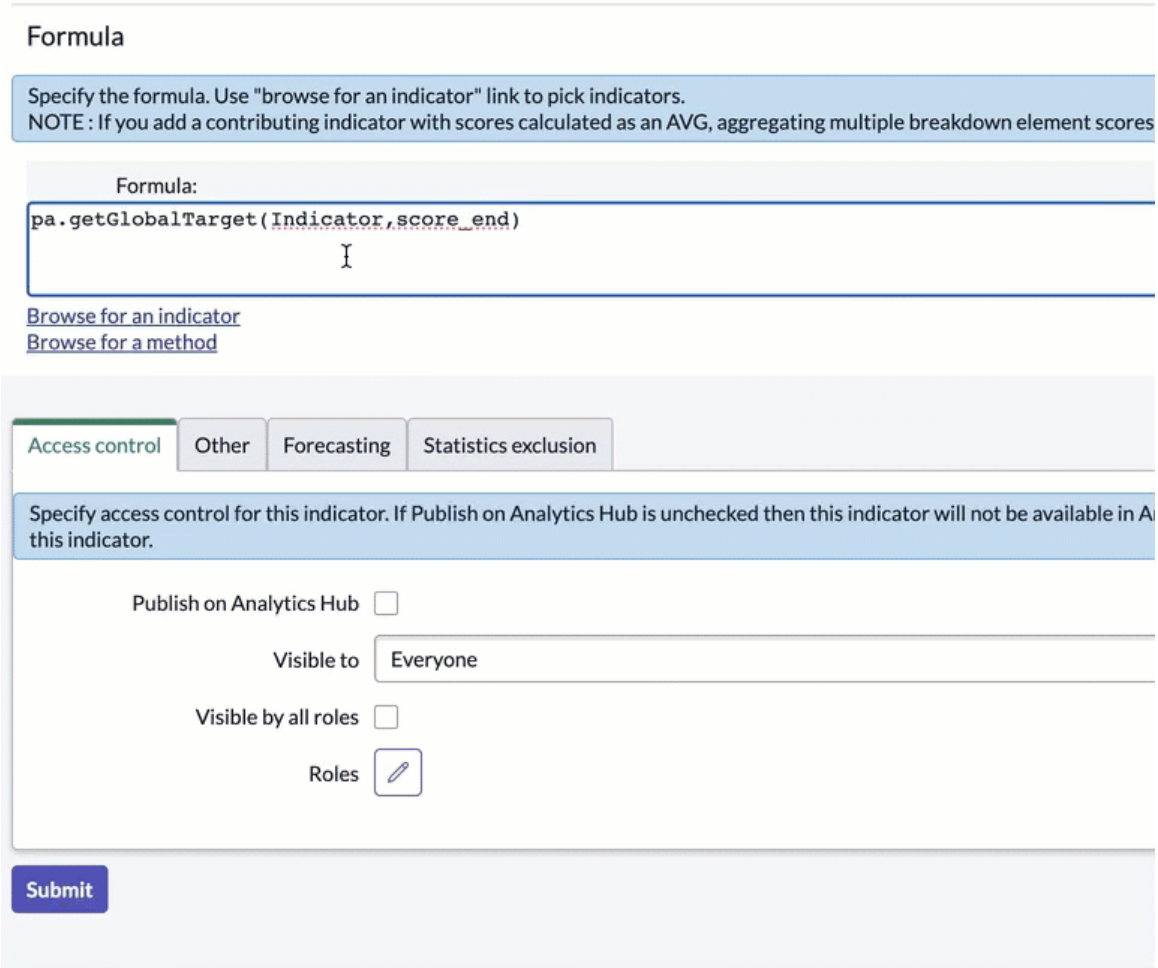
- An absolute date in YYYY-MM-DD format, such as 2018-12-21.
- The variable `score_start` or `score_end`. These variables represent the first and last second of the collection period being calculated for the referenced indicator. The times are calculated from the difference between the time zone of the user and the database server

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time zone, which is GMT. For more information, see Changes to score_start/end because of different user time zones.

- A date parameter that you have coded yourself using the `GlideDate` or the `GlideDateTime` API.

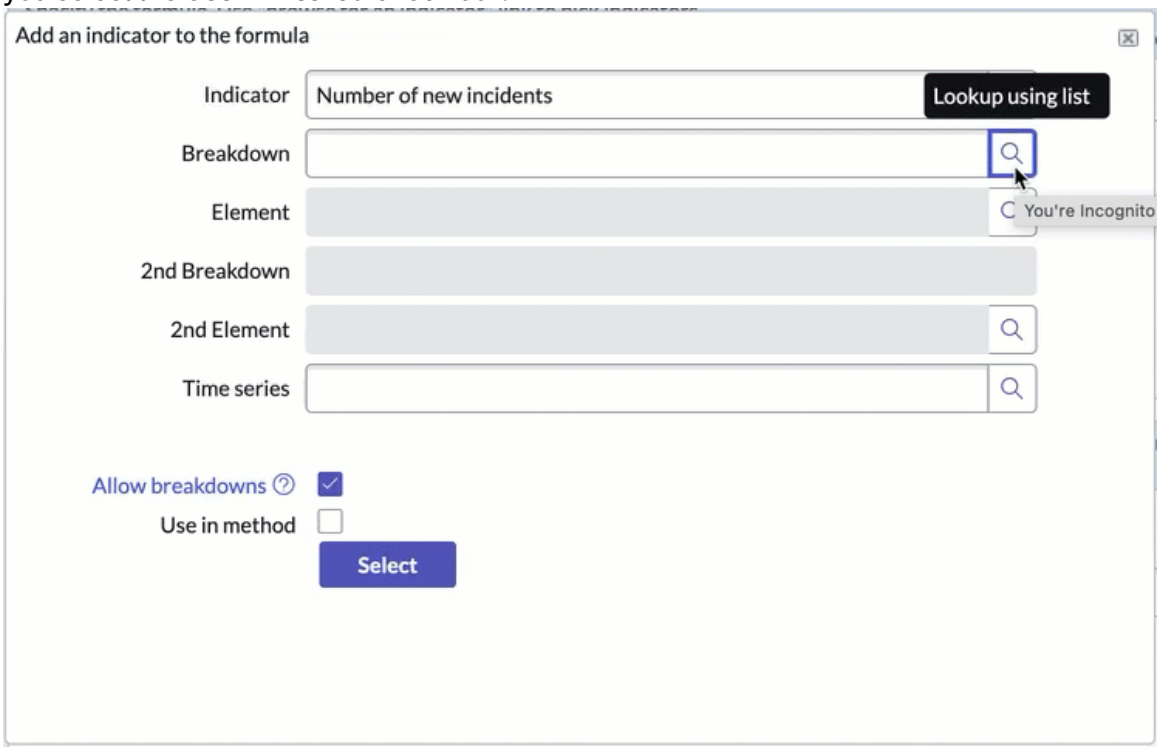
5. Fill in any parameters and click **Select**.
   The dialog closes and the method appears in the formula field of the indicator form.
6. If the method requires you to specify an indicator, select the `indicator` parameter with the cursor and click **Browse for an indicator**.
   The indicator selection dialog opens.



7. Select the indicator.
8. **Optional:** Select any breakdowns or elements and a time series aggregation.
9. Select **Use in method** and click **Submit**.
   The method is complete, with an indicator selected. Note that a dollar sign, $, precedes the indicator. This dollar sign means that the Analytics Hub values for the indicator instead of the

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indicator score are returned. The Analytics Hub values are selected instead of the score when you select the **Use in method** check box.



Example: Index indicator

Index indicators are a use case of formula indicators for generating a single score that represents multiple indicators. In the following example, you want a single index that aggregates the gap between score and global target for the following indicators:

- The percentage of incidents that are overdue.
- The average age of the last update of open incidents.
- The total number of open incidents.

To get this single index, you create a formula indicator with **Direction** set to **Maximize**. All index indicators must maximize. Then you use the **Browse for a method** and **Browse for an indicator** functions to create the following formula:

```
var a = pa.getGap($[[% of open overdue incidents]],
 score_start) / pa.getGlobalTarget($[[% of open overdue
 incidents]],score_start);
var b = pa.getGap($[[Average age of last update of open
 incidents]], score_start) / pa.getGlobalTarget($[[Average age
 of last update of open incidents]], score_start);
var c = pa.getGap($[[Number of open incidents]], score_start) /
 pa.getGlobalTarget($[[Number of open incidents]], score_start);
var res = 100 - (100 * (a + b + c) / 3);
res;
```

Example: Set targets on a change itself

You want to set a target for your teams of a 10% reduction month-on-month in the incident backlog. You create a formula indicator with the following formula, and set a target of -10% for this indicator on the Analytics Hub.

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```
var lastPeriod = new GlideDateTime(score_start.getYearUTC() +
 '-' + score_start.getMonthUTC() + '-01');
lastPeriod.addDaysUTC(-1);
pa.getChangePercentage($[[Number of open incidents]],
 lastPeriod.addDaysUTC(-1), score_start);
```

Example: Filter out scores based on breakdown and element

You want to filter out the scores of incidents where Priority = 1 - Critical.

1. Obtain the unique record identifiers for the Priority breakdown and the 1 - Critical element. Breakdown records are in the Breakdown table. The location of element records varies, but is identified in the Breakdown Source of the breakdown. In this case, the element is a Choice [sys_choice] record. For directions on how to obtain the unique record identifiers, see The unique record identifier (sys_id).

   The unique record identifiers are baec0752bf130100b96dac808c0739ed for the Priority breakdown and 8a4dde73c6112278017a6a4baf547aa7 for the 1 - Critical element.

2. Create an indicator with the following formula:

```
var res = [[Number of open incidents]];
if(pa.getCurrentBreakdownID() ==
 'baec0752bf130100b96dac808c0739ed' && pa.getCurrentElementID()
 == '8a4dde73c6112278017a6a4baf547aa7')
{
res = 0;
}
res;
```

PAFormulaUtils API

The PAFormulaUtils API enables you to obtain a value that was calculated in the Analytics Hub and use that value as input for a formula.

To use the *PAFormulaUtils* API, you must satisfy these requirements:

- Performance Analytics must be enabled.
- The user who creates the formula indicator that uses this API must have the pa_power_user, pa_admin, or admin roles.

A dollar sign, $, precedes indicator names in *PAFormulaUtils* parameters, like the Number of open incidents indicator in this example: `pa.getGap($[[Number of open incidents]], score_end);`. This dollar sign means that the Analytics Hub calculated values for the indicator are returned instead of the indicator score.

Date parameters in *PAFormulaUtils* methods take one of the following forms:

- An absolute date in YYYY-MM-DD format, such as 2018-12-21.
- The variable `score_start` or `score_end`. These variables represent the first and last second of the collection period being calculated for the referenced indicator. The times are calculated from the difference between the time zone of the user and the database server time zone, which is GMT. For more information, see Changes to score_start/end because of different user time zones.
- A date parameter that you have coded yourself using the *GlideDate* or the *GlideDateTime* API.

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Warning:
The *PAFormulaUtils* API can be used only in formula indicators, not in scripts.

The *PAFormulaUtils* API contains the following methods:

getChange(String indicator, Object fromDate, Object toDate)

Returns the change in the score of an indicator between two specified dates.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator for which to calculate the change.
fromDate	Object	Initial date of the comparison.
toDate	Object	End date of the comparison.

Returns

Type	Description
Number	Difference in the specified indicator score between the two dates.

Example: Change from the beginning of the month to the last collection period

In this example, we have the indicator Number of open incidents, whose scores are collected daily. The fromDate parameter is the first second of the current month, constructed by taking the timestamp of the last collection period (`score_start`), extracting the year and the month from the timestamp, and appending the numeral 01 for the day. The toDate parameter is the timestamp of the beginning of the last collection period, which would be the first second of the previous day, depending on timezone differences.

```
pa.getChange($[[Number of open incidents]], new
 GlideDateTime(score_start.getYear() + '-' +
 score_start.getMonth() + '-01'), score_start);
```

Related topics

PAFormulaUtils API

getChangePercentage(String indicator, Object fromDate, Object toDate)

Returns the percentage of change in the score of an indicator between two specified dates.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator for which to calculate the percentage of change.
fromDate	Object	Initial date of the comparison.
toDate	Object	End date of the comparison

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Returns

Type	Description
Number	Percent change of the specified indicator between the two specified dates.

Example:

```
var lastPeriod = new GlideDateTime(score_start.getYear() + '-' +
 score_start.getMonth() + '-01');
lastPeriod.addDaysUTC(-1);
pa.getChangePercentage($[[Number of open incidents]],
 lastPeriod, score_start);
```

Related topics

PAFormulaUtils API

getCurrentAggregateID()

Returns the time series aggregate identifier (sys_id) from the indicator of the current formula. The sys_id is returned dynamically, as the selection in the Analytics Hub changes.

Parameters

Name	Type	Description
None		

Returns

Type	Description
String	Dynamic time series aggregate ID from the indicator of the current formula as it changes with your selection in the Analytics Hub . If there is no time series aggregate ID, the method does not return a value.

Example:

```
var res = [[Number of open incidents]];
if(pa.getCurrentAggregateID() ==
 '89ea4c11d7001100ba986f14ce6103dc')
  {
    res = 0;
  }
res;
```

Related topics

PAFormulaUtils API

getCurrentBreakdownID()

Returns the level 1 breakdown identifier (sys_id) from the indicator of the current formula. The sys_id is returned dynamically, as the selection in the Analytics Hub changes.

Use this method to obtain the sys_id of the level 1 breakdown when altering the formula for a specific breakdown.

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Parameters

Name	Type	Description
None		

Returns

Type	Description
String	Dynamic level 1 breakdown ID from the indicator of the current formula as it changes with your selection in the Analytics Hub. If there is no level 1 breakdown ID, the method does not return a value.

Example:

```
var res = [[Number of open incidents]];
if(pa.getCurrentBreakdownSysID() ==
 'baec0752bf130100b96dac808c0739ed' &&
 pa.getCurrentElementSysID() ==
 '8a4dde73c6112278017a6a4baf547aa7')
  {
  res = 0;
  }
res;
```

Related topics

PAFormulaUtils API

getCurrentBreakdownLevel2ID()

Returns the level 2 breakdown identifier (sys_id) from the indicator of the current formula. The sys_id is returned dynamically, as the selection in the Analytics Hub changes.

Use this method to obtain the sys_id of the level 2 breakdown when altering the formula for a specific breakdown.

Parameters

Name	Type	Description
None		

Returns

Type	Description
String	Dynamic level 2 breakdown ID from the indicator of the current formula as it changes with your selection in the Analytics Hub. If there is no level 2 breakdown ID, the method does not return a value.

Example:

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```
var res = [[Number of open incidents]];
if(pa.getCurrentBreakdownLevel2ID() ==
 'baec0752bf130100b96dac808c0739ed' &&
 pa.getCurrentElementLevel2ID() ==
 '8a4dde73c6112278017a6a4baf547aa7')
  {
  res = 0;
  }
res;
```

Related topics

PAFormulaUtils API

getCurrentElementID()

Returns the level 1 breakdown element identifier (sys_id) from the indicator of the current formula. The sys_id is returned dynamically, as the selection in the Analytics Hub changes.

Use this method when altering a formula for a specific element. For example, use the method when running a query to count different attributes, such as excluding scores for changes from groups that do not change.

Parameters

Name	Type	Description
None		

Returns

Type	Description
String	Dynamic level 1 breakdown element ID from the indicator of the current formula as it changes with your selection in the Analytics Hub. If there is no level 1 breakdown element ID, the method does not return a value.

Example:

```
var res = [[Number of open incidents]];
if(pa.getCurrentBreakdownID() ==
 'baec0752bf130100b96dac808c0739ed' && pa.getCurrentElementID()
 == '8a4dde73c6112278017a6a4baf547aa7')
  {
  res = 0;
  }
res;
```

Related topics

PAFormulaUtils API

getCurrentElementLevel2ID()

Returns the level 2 breakdown element identifier (sys_id) from the indicator of the current formula. The sys_id is returned dynamically, as the selection in the Analytics Hub changes.

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Use this method when altering a formula for a specific element. For example, use the method when running a query to count different attributes, such as excluding scores for changes from groups that do not change.

Parameters

Name	Type	Description
None		

Returns

Type	Description
String	Dynamic level 2 breakdown element ID from the indicator of the current formula as it changes with your selection in the Analytics Hub. If there is no level 2 breakdown element ID, the method does not return a value.

Example:

```
var res = [[Number of open incidents]];
if(pa.getCurrentBreakdownLevel2ID() ==
 'baec0752bf130100b96dac808c0739ed' &&
 pa.getCurrentElementLevel2ID() ==
 '8a4dde73c6112278017a6a4baf547aa7')
  {
  res = 0;
  }
res;
```

Related topics

PAFormulaUtils API

getGap(String indicator, Object onDate)

Returns the global target gap for the specified indicator on the specified date.

The gap is the difference between the score on the specified date and the target. For an indicator with the MAXIMIZE direction, the gap is calculated as the score minus the target. For an indicator with the MINIMIZE direction or no direction, the gap is calculated as the target minus the score.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator for which to provide the gap information.
onDate	Object	Date of the score to use to compare against the target score.

Returns

Type	Description
Number	Difference between the score on the specified date and the global target score.

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Example:

```
var a = pa.getGap($[[% of open overdue incidents]],
 score_start) / pa.getGlobalTarget($[[% of open overdue
 incidents]],score_start);
var b = pa.getGap($[[Average age of last update of open
 incidents]], score_start) / pa.getGlobalTarget($[[Average age
 of last update of open incidents]], score_start);
var c = pa.getGap($[[Number of open incidents]], score_start) /
 pa.getGlobalTarget($[[Number of open incidents]], score_start);
var res = 100 - (100 * (a + b + c) / 3);
res;
```

Related topics

PAFormulaUtils API

getGlobalTarget(String indicator, Object onDate)

Returns the global target associated with the specified indicator for the specified date.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator.
onDate	Object	Date for which to return the global target.

Returns

Type	Description
Number	Global target for the specified date and indicator.

Example:

```
pa.getGlobalTarget($[[% of open overdue
 incidents]],score_start);
```

Related topics

PAFormulaUtils API

getPersonalTarget(String indicator, Object onDate)

Returns the personal target associated with the specified indicator for the specified date.

Use this method to obtain a personal index score. "Personal" refers to the active user who is looking at the Analytics Hub.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator.
onDate	Object	Date for which to return the personal target.

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Returns

Type	Description
Number	Personal target for the specified date and indicator.

Example:

```
var a = pa.getGap($[[% of open overdue incidents]],
 score_start) / pa.getPersonalTarget($[[% of open overdue
 incidents]],score_start);
var b = pa.getGap($[[Average age of last update of open
 incidents]], score_start) / pa.getPersonalTarget($[[Average age
 of last update of open incidents]], score_start);
var c = pa.getGap($[[Number of open incidents]], score_start) /
 pa.getPersonalTarget($[[Number of open incidents]],
 score_start);
var res = 100 - (100 * (a + b + c) / 3);
res;
```

Related topics

PAFormulaUtils API

getScore(String indicator, Object onDate)

Returns the score of the specified indicator for the specified date.

Parameters

Name	Type	Description
indicator	String	Unique identifier of the indicator whose score is to be retrieved.
onDate	Object	Date for which to return the score.

Returns

Type	Description
Number	Score for the specified date and indicator.

Example:

```
pa.getScore($[[Number of open incidents]], score_end);
```

Related topics

PAFormulaUtils API

Prevent a contributing indicator in a formula from following breakdowns

You can select contributing indicators in a formula to not be broken down. When a user applies a breakdown to the formula indicator, the breakdown does not apply to these indicators.

When you apply a breakdown to a formula indicator, such as on a breakdown dashboard, the breakdown applies to all contributing indicators. You prevent a contributing indicator from being broken down using the syntax {{Indicator}}. You can also prevent a contributing indicator from following breakdowns by clearing the **Allow breakdowns** check box in the **Browse for an indicator** dialog. This dialog opens when you create

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For example, consider the formula `[[Incidents]] / [[Customers]]`. If you apply a region breakdown to this indicator, and specify EU as the breakdown element, the formula indicator returns scores using the formula `[[Incidents > region = eu]] / [[Customers > region = eu]]`. However, to view the EU incidents divided by the total number of incidents across all regions, you can write the formula as `[[Incidents]] / {{Customers}}`. Using the {{Indicator}} format causes the Customers indicator to ignore breakdowns. This way, when you apply the region breakdown with the EU breakdown element, this formula indicator is equivalent to the formula `[[Incidents > region = eu]] / [[Customers]]`.

You can still specify a breakdown and element for a contributing indicator that does not follow breakdowns for the whole formula indicator. Consider the formula `[[Incidents]] / {{Customers > importance = high}}`. In this example, the formula denominator is always broken down to include only the high-importance customers. Any breakdown applied to the formula indicator, such as the region breakdown, does not apply to the Customers indicator.

Breakdown matrices in formula indicators

Formula indicators inherit breakdown matrices from indicators in the formula.

If all the indicators in the formula collect breakdown matrices, second-level breakdowns are available for the formula indicator. If none of the indicators in the formula collects breakdown matrices, second-level breakdowns are not available for the formula indicator. If only some of the indicators in the formula collect breakdown matrices, only those indicators can be broken down at a second level.

Example: Formula with two contributing indicators where breakdown matrices are calculated for one or both indicators

Consider the case when breakdown matrices are collected for the indicators 'Summed age of open incidents' and 'Number of open incidents.' You now create an indicator with the following formula:

```
[[Summed age of open incidents]]/[[Number of open incidents]]/24
```

On a particular day, the score for this formula indicator is 170, calculated as follows:

```
Summed age of open incidents with Category = Software and
 Priority = 2: 8,152 hours
Number of open incidents with Category = Software and Priority =
 2: 2
Formula: 8152/2/24=170
```

What if the breakdown matrix is calculated only for 'Summed age of open incidents'? In this case, the 'Number of open incidents' is broken down only by Category and not by Priority. The score for the same formula indicator on the same day is 11, calculated as follows:

```
Summed age of open incidents with Category = Software and
 Priority = 2: 8,152 hours
Number of open incidents with Category = Software: 31
Formula: 8152/31/24=11
```

Applying time series to result or to contributing indicators

For a formula indicator, a time series aggregation can apply either to each indicator in the formula individually or to the formula result.

Decide how time series aggregation apply with the **Apply time series to result** option. You can select or disable this option in the **Other** properties tab of a formula indicator record. This option applies to any time series aggregation you apply to the indicator in Core UI Performance

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Analytics widgets and Analytics Hub, or in Data visualizations in Platform Analytics. This option also applies to the default time series if one is set on the indicator.

Note:

- The default time series applies only on the Analytics Hub and KPI Details. If you do not select a time series aggregation on a widget or data visualization, the default time series does not apply.
- For the setting to take effect on the Analytics Hub or KPI Details, you must choose a real aggregate, if the indicator does not have a default time series set. If the time series is just the indicator frequency (daily, weekly, and so on), the**Apply time series to result** setting does not apply.

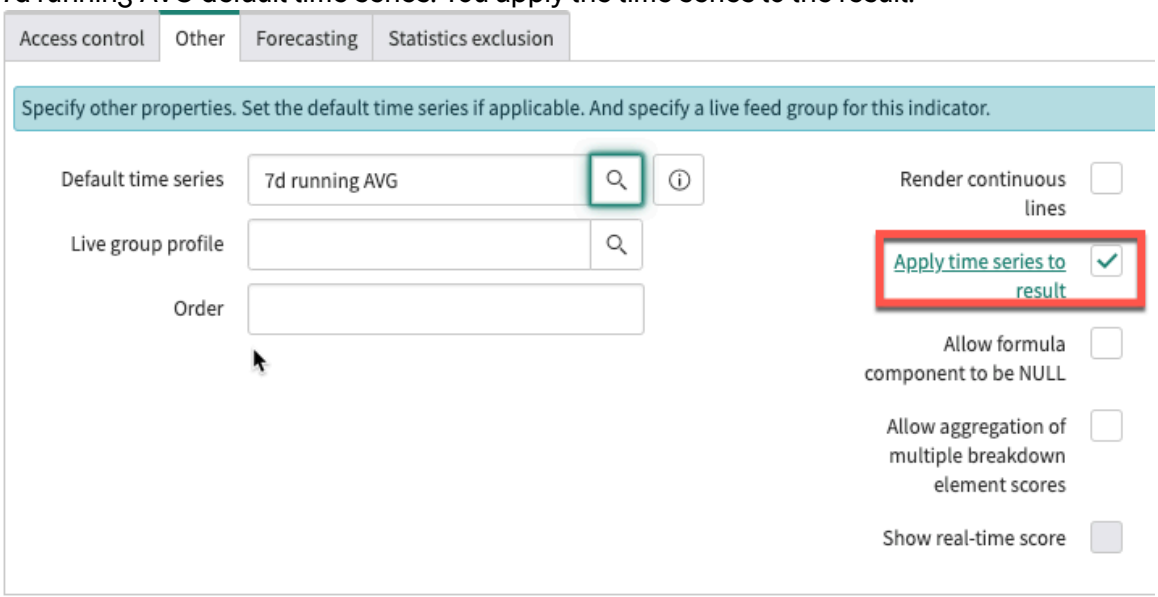
When **Apply time series to result** is checked, first the formula is evaluated and then the selected time series is applied to the final result. When **Apply time series to result** is not checked, each contributing indicator is evaluated and the default time series is applied to it. Then the formula is evaluated. The results between the two settings can differ significantly. Neither setting is wrong, but you have to think carefully about what you are measuring before making your choice.

Example: Applying a time series to result compared to applying it to contributing indicators

Consider the formula indicator "% of new P1 incidents". Every day this indicator calculates the percentage of new incidents that are Priority 1 - Critical:

([[Number of new incidents > Priority = 1 - Critical]] / [[Number of new incidents]]) * 100

You decide that you want the result to display a 7-day running average by default on the Analytics Hub. In the **Other** tab of the indicator record, you select the 7d running AVG default time series. You apply the time series to the result.



In the resulting calculation, the formula is resolved for each day. Then the average of the result is taken for that day and the previous six days:

((New P1/All new$_{Day\ 1}$ * 100) + (New P1/All new$_{Day\ 2}$ * 100)+ … (New P1/All new$_{Day\ 7}$ *100)) / 7

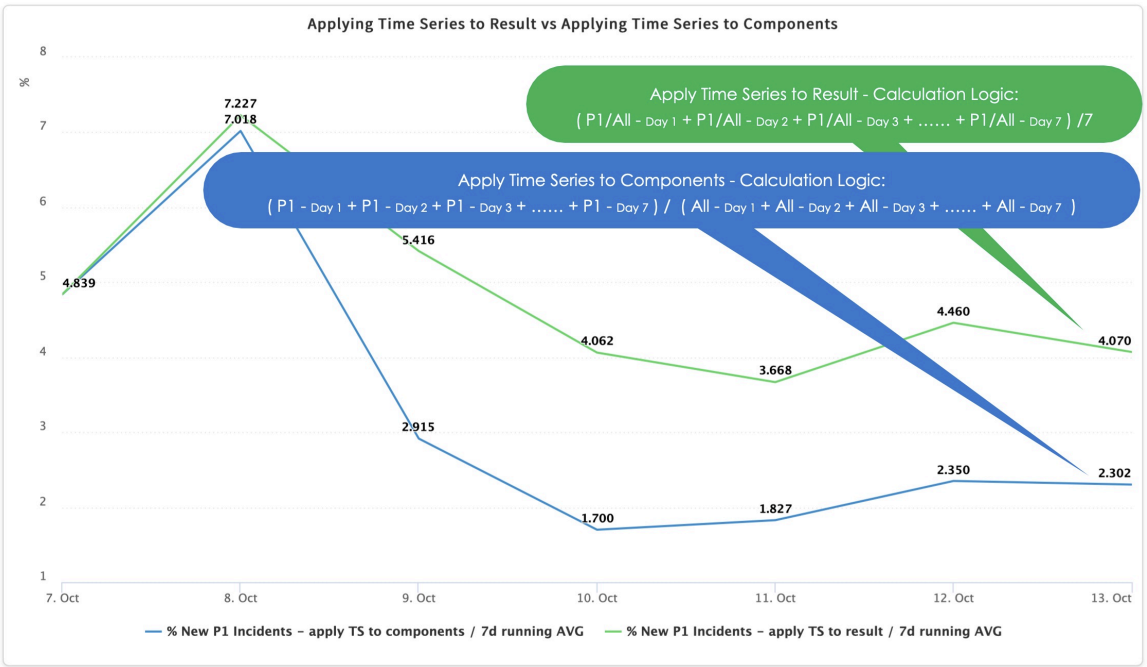
You aren't sure if you want the 7-day average of the final result or the average 7-day average of each indicator. So, you copy the previous formula indicator, with the same time series, but with **Apply time series to result** unchecked. Now, the time series is applied to the `Number of`

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`new incidents > Priority = 1 - Critical` and `Number of new incidents` contributing indicators separately before the formula is resolved:

$(\text{New P1}_{\text{Day 1}} + \text{New P1}_{\text{Day 2}} + \ldots \text{New P1}_{\text{Day 7}}) / (\text{All new}_{\text{Day 1}} + \text{All new}_{\text{Day 2}} + \ldots \text{All new}_{\text{Day 7}}) * 100$

You plot both formula indicators in a time series widget to see the difference in outcome between the two settings. Because the default time series only applies on the Analytics Hub, you also add the 7d running AVG time series to the widget:



Related topics

Applying time series aggregations

Detect indicators with no scores in a formula

As the formula creator, you can handle contributing indicators that have null scores. First set the formula indicator to calculate the formula even when it contains a null score.

Before you begin

Role required: pa_power_user, admin

About this task

The formulas in formula indicators typically contain one or more other indicators. If one of those indicators has no score, by default the formula is not calculated and the formula indicator returns no score. However, several use cases exist for identifying the indicator that has no score instead of having the formula indicator return null. First enable the formula to be calculated when an indicator in the formula has no score. Then you can assign a value to an indicator with no score.

Procedure

1. Open the formula indicator of interest.
2. Select **Allow formula component to be null**.
3. In the **Formula**, add an `if{} else {}` statement that ascribes a value to an indicator when it has no score.

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Example: Field indicator with Allow formula component to be null

Consider the following formula indicators for a collection period when there are no closed incidents, so the indicator Number of closed incidents has no score.

Formula 1:

```
[[Number of open incidents]] / [[Number of closed incidents]]
```

Formula 2:

```
[[Formula 1]] + 23
```

Formula 3:

```
if ([[Formula 1]] == null) { 23 } else { 11 }
```

Formula 4:

```
[[Formula 2]] || 64
```

Formula 5:

```
(([[Formula 1]] == null && [[Formula 2]] == null) ? 11 : 18)
```

If **Allow formula component to be null** is not selected for any of the formula indicators, none of them have scores.

If **Allow formula component to be null** is selected for all of the formula indicators, they have the following scores:

- Formula 1 = null
- Formula 2 = 23
- Formula 3 = 23
- Formula 4 = 64
- Formula 5 = 11

Formula 2, Formula 3, Formula 4, and Formula 5 represent four different ways to handle the null score.

Indexing multiple indicators in a formula

You can write a formula to measure what the gap is to the overall target of multiple, combined indicators. Such a formula indicator is called an 'index indicator'.

The performance of processes, services, groups, and other business entities are often tracked and monitored using more than one indicator. When viewing and analyzing performance of these processes, business services, or workgroups, the overall picture can be confusing and ambiguous. For example:

- Although the scores for three indicators improved somewhat, the scores for 2 of them are still below target and 1 is above target.
- The score for one indicator remained more or less the same and is still below target.
- The score for one indicator did significantly deteriorate, but is fortunately just above target.

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Looking at this information, the answers to the following questions are not clear:

- Is the overall performance of the process/service/group still at or above the desired level?
- Did the overall performance improve?

An index indicator can answer these questions. With an index indicator, the scores of multiple indicators are aggregated into one score. It is a weighted average of several indicators. If the weighted sum of these indicators is improving, the calculated score of the index formula goes up. As with any other indicator, the index indicator shows if the score is good or not and if the score has improved or not.

The principle behind an index indicator is to calculate a score value indexed to 100 for each indicator. When you have these indexed scores, you are mathematically allowed to calculate an overall average of them.

To be included in an index indicator, an indicator must have a direction and a target. The basic formula to calculate the indexed score for an indicator that has a **Maximize** direction is:

```
100 + (((actual score - target) / target) * 100)
```

For indicators that have a **Minimize** direction, the formula is:

```
100 - (((actual score - target) / target) * 100)
```

If you are weighting the indicators evenly, you can index the final aggregation to 100 instead of indexing the individual indicators to 100.

You can use methods of the *PAFormulaUtils()* API to get the gap between score and target for the indicator from the Analytics Hub. For more information, see Get analytics methods in formulas:

```
pa.getGap(indicator, On date) / pa.getGlobalTarget(indicator, On
 date)
```

Because of the different operator for the different direction, if the score of an underlying indicator is improving (up or down), the index indicator score is increasing. Therefore, always set the direction of the index indicator to **Maximize**.

If no target value is set for an indicator, use a norm value instead. Indicators that have a target or norm value equal to 0 cannot be used in the index indicator, because it would require dividing by 0.

Set a target of 100 for each index indicator. This target is the calculated, overall, indexed score if all underlying indicators have an actual score equal to their target or norm value.

An index indicator is measuring what the gap is to the overall target of multiple, combined indicators. It is measuring the 'Percentage of Target Achievement'.

Example: Index indicator using PAFormulaUtils() methods

In the following example, you want a single index that aggregates the gap between score and global target for the following indicators:

- The percentage of incidents that are overdue.
- The average age of the last update of open incidents.
- The total number of open incidents.

To get this single index, you follow these steps to produce an index indicator:

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1. You navigate to **Performance Analytics** > **Formula Indicators** and click **New**. Index indicators are a use case of formula indicators.
2. You give the indicator a meaningful name, such as **Aggregate incident gap**.
3. Because you are creating an index indicator, you set the **Direction** to **Maximize**.
4. In the **Formula** field, you use the **Browse for a method** and **Browse for an indicator** functions to create the following formula:

```
var a = pa.getGap($[[% of open overdue incidents]],
 score_start) / pa.getGlobalTarget($[[% of open overdue
 incidents]],score_start);
var b = pa.getGap($[[Average age of last update of open
 incidents]], score_start) / pa.getGlobalTarget($[[Average age
 of last update of open incidents]], score_start);
var c = pa.getGap($[[Number of open incidents]], score_start) /
 pa.getGlobalTarget($[[Number of open incidents]],
 score_start);
var res = 100 - (100 * (a + b + c) / 3);
res;
```

   The three indicators are weighted equally, so the aggregation is indexed to 100 instead of the individual indicators.

Changes to score_start/end because of different user time zones

For formula indicators, the values of the variables `score_start` and `score_end` are calculated based on the time zone of the user who is executing the formula. If users in different time zones execute the same formula, the values of `score_start` and `score_end` change.

> **⚠ Warning:**
> The date value of the `score_start` and `score_end` variables can shift when users from different time zones view the same formula.

Formulas can include `score_start` or `score_end` variables as parameters for indicators that the formula references. These variables represent the first and last second of the specific collection period being calculated for the referenced indicator. The values of the `score_start` and `score_end` variables are calculated from the difference between the time zone of the user executing the formula and the time zone of the database server, which is GMT. A user executes a formula whenever they view the formula indicator in a dashboard widget or on the Analytics Hub. As a result, the date value of the start or end of the collection period can shift when different users view the same formula.

Example: Different values of score_end for different user time zones

Consider a formula indicator with a daily frequency and the following formula:

```
pa.getScore($[[Number of open incidents]], score_end);
```

Three different users view a dashboard widget with this formula indicator on 18 October. The database server considers `score_end` for 18 October to be 23:59:59 GMT on 18 October.

- One user is in the Europe/Berlin time zone. Their `score_end` value is "2019-10-18 21:59:59", and the score for the date 18 October is returned.
- One user is in the US/Pacific time zone. Their `score_end` value is "2019-10-19 06:59:59", and the score for the date 19 October is returned.
- One user is in the GMT time zone. Their `score_end` value matches the database server, "2019-10-18 23:59:59", and the score for the date 18 October is returned.

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Related topics

Performance Analytics variables

Manual indicators

Manual indicators do not use scores collected from a database. Manual indicators are typically used for data that cannot be retrieved from the ServiceNow instance because it comes from an outside system, such as customer data from a third-party sales system.

Before you begin

Role required: pa_admin, pa_power_user, or admin

About this task

Manual indicators are not associated with an indicator source. Scores for manual indicators are not generated automatically by a data collection job. Instead, populate these indicators by adding scores to the scoresheet manually.

Note:

- You must have a subscription for Performance Analytics to create indicators.
- If you're using domain separation, the indicator is created in the domain that you're currently in.

Procedure

1. Use one of the following navigation paths:
   - If you are on an upgraded instance that has not migrated to Platform Analytics, navigate to **All** > **Performance Analytics** > **Indicators** > **Manual Indicators** and select **New**.
   - If you are on a new instance or have migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Indicators** > **Manual Indicators** and select **New**.
2. In the **Name** field, give the indicator a descriptive name, such as Number of Critical Incidents.
3. In the **Frequency** field, select the frequency at which scores are set.
   The default value is **Daily**.

   Note:
   The frequency for a manual indicator specifies how to visualize its data. For example, if you set the data points per day or per month in the charts, the setting also affects the scoresheet, so it determines whether you can enter daily or monthly values.

4. If you prefer that the score of this indicator increases or decreases over time, select **Maximize** or **Minimize** in the **Direction** field.
   Analytical tools and graphic displays use this **Direction** with this indicator.

   Tip:
   Set a direction whenever you can. All key indicators should be set to Maximize or Minimize.

5. **Optional:** Under Indicator properties, specify any of these properties:

Field	Description
Key	Identifies the indicator as a key indicator. Used only to filter the list of indicators in

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Field	Description
	Performance Analytics > **Analytics Hub**. Not used in Platform Analytics experience.
Unit	The unit of measurement for the score, such as number, days, or percentages. (Optional) To collect scores in the system reference currency on a Price, Currency, or FX Currency field, select **Use reference currency**. For more information, see Indicator scores in reference currency. If you select % or a time period as the unit, consider excluding some types of time series from being applied to the indicator. For more information, see Exclude time series from an indicator. If you select Time as the unit, the time is given as Days, Hours, and Minutes. If the system property *glide.ui.duration.seconds.enabled* exists and is true, seconds are also displayed. In this case, seconds are also displayed for all-time fields on the instance and are included in exports to Microsoft Excel.
Precision	The number of digits behind the decimal separator. For more information, see Rounding and precision in indicators. This field isn't available when the unit is **Use reference currency**. In this case, the precision is inherited from the reference currency.
Number format	The abbreviations used for large numbers, thousands through quintillions. For more information, see Rounding and precision in indicators.

6. In the **Access control** tab, set whether to save this indicator to the library and whether to limit the visibility of the indicator by user, group, or role.
   Activating **Show in library** means that the indicator will be available in the following places:
   - The Platform Analytics indicator library
   - KPI Details
   - Analytics Hub, but only on upgraded instances that haven't fully migrated to Platform Analytics
7. In the **Access Control** tab, set which user is the **Contributor** authorized to populate the indicator scores.
   You can select only a user with the pa_admin, pa_power_user or pa_contributor role.
8. In the **Other** tab, set various miscellaneous properties.

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Field	Description
Default time series	A predefined analytical function, like a 7-days running average, to apply to the indicator instead of showing the raw scores of the indicator. For more information, see Applying time series aggregations. **Note:** You can't set the default time series for an indicator that uses a business or fiscal calendar. These calendars do not support time series aggregations.
Live group profile	Live Group Profile [live_group_profile] record for a Live Feed group. Specify a group profile to cause that group to get notifications about this indicator. For more information about this social application on the ServiceNow AI Platform, see Live Feed.
Value when nil	The value that is inserted as the score when no value is collected. This value applies only to the indicator score. It does not impact scores for breakdown elements.
Order	Number indicating the order in which indicators are displayed in the Analytics Hub. Indicators with the lowest value are displayed at the top of the list. If no values are provided in the **Order** field, indicators are displayed from a to z using the **Name** field. To use the order field, you must enter order numbers for all indicators. If you put in numbers for only a few indicators, the order in which indicators are displayed reverts to a to z. Not used in Platform Analytics experience.
Render continuous lines	When selected, the Analytics Hub and KPI Details show unbroken data lines for this indicator, even when there's no data for a specific date. This behavior may be useful when displaying datasets with varied starting dates or for data that aren't regularly updated, such as stock information.

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Field	Description
	Continuous lines aren't rendered when a time series is set on the indicator or the Analytics Hub or KPI Details.

9. **Optional:** In the **Forecasting** tab, set the forecast method, the number of data collection periods to forecast, the amount of historical data to base the forecast on, and the upper and lower limits of forecast values.
   For more information, see Performance Analytics scores forecasts.

What to do next
Create manual breakdowns and assign them to this indicator. Then, manually add scores.

Related topics
Manual breakdowns

Add or edit indicator scores manually

Delete an indicator

Delete unwanted or unused indicators from your instance. Deleting indicators is risky, so there are several restrictions.

Before you begin
Besides roles, check that you meet the following requirements before trying to delete an indicator:

- Your instance has an active entitlement to the subscription version of Performance Analytics. For more information, see Activating your Performance Analytics subscription.
- If your instance is domain-separated, you have visibility into the same domain as the indicator.
- The indicator that you want to delete is not being used in a formula indicator. If it is so used, see whether you can delete those formula indicators first.
- The indicator is not a benchmark indicator.

Role required: pa_data_collector (requires that the indicator record is visible to this role; cannot delete external indicators), pa_power_user, pa_admin, or admin

About this task

Warning:
Deleting an indicator deletes all scores for that indicator. Consider the risk of creating a data gap before you delete an indicator.

Procedure

1. Use one of the following navigation paths:
   - If you're on an instance that has not fully migrated to Platform Analytics, navigate to **All** > > **Performance Analytics** > **Indicators** > **[type of indicator]**, and locate the indicator you want to delete.
   - If you're on an instance that has fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Indicators** > **[type of indicator]**, and locate the indicator you want to delete.
2. Open the indicator record.

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3. Make sure you are in the same application scope as the indicator.
4. Select **Delete**.
   If you don't see a **Delete** button, check that you meet the requirements for deleting the indicator.
5. Confirm.

Performance Analytics scores forecasts

Performance Analytics enables you to forecast future scores based on past behavior. You can forecast scores on time series widgets, time series data visualizations, KPI Details, and the Analytics Hub. Forecast scores appear as a dotted line.

Forecasting is set up in the **Forecasting** tab of the indicator record. The number of data points included in the forecast depends on the indicator frequency and the number of **Periods to forecast** configured on the indicator. A period is a set number of scores based on the indicator frequency. Regardless of the settings and the forecast method, no more than 2688 forecast data points are generated.

Note:
In time series data visualizations on a configurable workspace, you can override the forecast configuration that is set on the indicator. This override applies only to that data visualization.

Also in time series data visualizations, you are not limited to forecasts on Performance Analytics indicators. If you have a subscription version of Performance Analytics, you can generate forecasts for any data source except tables. For more information, see Create time series visualizations.

Related topics

Create an automated indicator

Configure forecasts on an indicator

In the record of an automated indicator, configure forecasts as they will appear on the Analytics Hub, Performance Analytics widgets, and time series data visualizations.

Before you begin

Role required: pa_power_user, pa_admin, admin

Procedure

1. Navigate to **Performance Analytics** > **Indicators** > **Automated indicators**.
2. Open the automated indicator that you want to configure forecasts for.
3. Navigate to the **Forecasting** tab.
4. Set the following values:

Field	Description
Forecast method used	The statistical method the system uses to forecast values for this indicator. The default value is Auto, meaning that the system chooses a method that best fits the data. For more information, see Selecting the forecast method.

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Field	Description
Periods to forecast	Number of data periods in the future to forecast scores for. **Note:** The length of the periods is based on the indicator frequency. For more information, see Indicator forecast periods.
Forecast lower limit	The lowest meaningful value of a forecast score. If a score lower than this value is forecast, this value is displayed instead.
Forecast upper limit	The highest meaningful value of a forecast score. If a score higher than this value is forecast, this value is displayed instead.

5. Select which scores to base the forecast on.

Option	Description
All scores	All the scores that have been collected for this indicator
Previous periods	The number of data periods before the present to base forecasts on. These data periods are the same length as the ones in **Periods to forecast**. If you select Previous periods, also specify the number of periods in the **Periods** field.
Fixed start	All scores collected after a start date. If you select Fixed start, also specify the **Start date**.

Selecting the forecast method

If you are a statistics expert, you can select a forecast method manually. By default, the instance chooses the best method for you automatically, based on the fit of the method.

To determine the best fitting forecast method, the instance generates forecasts using each forecast method with your historical data. The instance then compares those forecasts with the latest data based on how far ahead you want to forecast. The instance performs this evaluation each time it displays the forecast. Therefore, collecting additional scores or changing the forecast period can alter which forecast method is used.

For example, if you configure an indicator with a daily frequency to forecast ahead two periods, the instance applies each forecasting method to your historical data that is older than two weeks. Then the instance compares those forecasts against the latest two weeks of data. The forecast that most closely fits the latest two weeks of data is then recalculated using the entire data set. The instance shows the results of this final calculation in the Analytics Hub or in KPI Details.

Forecast methods

Performance Analytics can use the following standard forecast methods.

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Method	Description
Linear	Generates a linear regression forecast based on the historical scores, using constant and trend as explanatory variables.
Seasonal	Generates a linear regression forecast based on the historical scores, using seasonal dummies as explanatory variables. A 'season' for this analysis is one period.
Seasonal Trend	As Seasonal, but includes a trend as an explanatory variable.
Seasonal Trend Loess (STL)	Generates a seasonal forecast based on a best-fit function. This method fits a trend, a season, and a random noise process to the data using an exponentially weighted moving average approach. The forecast is based on the full data set, with more weight given to more recent observations A 'season' for this analysis is one period.
Random Forest (RF)	Creates a combination of decision trees where the predictions produced by these trees are averaged to get a single prediction. The randomness comes from each tree being built from a random subset of the available data and inputs. For more information about the random forest method, see this Medium article.
Autoregressive (AR)	The autoregressive (AR) model forecasts future values of an indicator by using a linear combination of a trend, seasonal dummies, and past values. Like the Random Forest (RF) model, the AR model checks for the best number of lags. However, the AR model relates current to past values linearly, whereas the RF model is non-linear.

Indicator forecast periods

Depending on the frequency of the score, a different period length is selected. Consult the table to find out the length of the period that is used for your series.

Score frequency	Number of data points per period	Total period length
Daily	7	1 Week
Weekly	13	1 Quarter
Bi-weekly	6	1 Quarter
Four Weekly	13	1 Year
Monthly	12	1 Year
Bi-monthly	6	1 Year
Quarterly	4	1 Year
Fiscal Quarterly	4	1 Year
Half Yearly	2	1 Year
Yearly	4	4 Years
Fiscal Yearly	4	4 Years

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Forecasting and targets

When forecasting is enabled for an indicator and there is a global target defined, the forecast shows when the target will be reached.

Additionally, the instance sends a notification 14 days before it expects the target to be reached. You can change how many days ahead the notification is sent by setting the *pa.job.forecast.target.days_to_check* property.

This functionality is available only for global targets. Thresholds and personal targets do not interact with forecasts.

Related topics

Performance Analytics targets and thresholds

Forecasting with time series aggregations

If you apply a time series aggregation to an indicator, the forecast period length changes. The change depends on the type of the time series.

Time series aggregation effects on forecast periods

Time aggregate	Effect on forecast period	Example
Running	The number of points in the period is equal to the "range" field value.	For a 7-day running sum, the forecast period has 7 data points. For a 28-day running sum, it has 28 data points.
By period	The selected period is treated as if it were the indicator frequency.	A "By week" time aggregate applied to a daily indicator has 13 data points per forecast period, which is a quarter long. This forecast period is the same as for a weekly indicator with no time aggregate.
To date	The period length matches the time span of the aggregation. The number of data points per period is a product of this time span and the indicator frequency.	See the rest of this section.

For an indicator with the Daily frequency, you have the following number of data points per period for to-date aggregations:

Data points per period for a daily indicator with a to-date time aggregation

Week to date	Month to date	Quarter to date	Year to date
7	30	91	365

With one exception, indicators with non-daily frequencies support only year-to-date among to-date time aggregations. Monthly indicators are the exception. They also support quarter-to-date time aggregations. A monthly indicator with a quarter-to-date aggregation has three data points per period. The number of data points per forecast period for different indicator frequencies with year-to-date aggregations follows:

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Number of data points per forecast period for year-to-date time series aggregations

Indicator frequency	Data points per period, year to date
Daily	365
Weekly	52
Four-weekly	13
Biweekly	26
Quarterly (fiscal)	4

Related topics

- Applying time series aggregations

Displaying indicator score forecasts

In the classic environment, show the forecasts on a time series widget or the Analytics Hub. On a configurable workspace, show the forecasts on a time series data visualization or KPI Details.

To show the forecast on a time series widget, select **Show forecast** in the **Display Settings** section of the Widget form. You can also show the 95% confidence interval of the forecast, by selecting **Show forecast range**. For more information, see Time series widgets.

To show the forecast on the Analytics Hub, click the chart settings icon ( ) and enable the **Forecast** option. Similarly, in KPI Details, open **Chart options** and enable **Forecast**.

To show the forecast in a time series data visualization, expand the Additional settings and turn on **Show forecast**. You have the option then to show the forecast range. You can override the forecast configuration for the indicator on this specific data visualization by opening **Configure forecast**.

To show the forecast for an indicator on KPI Details, turn forecasting on in the Chart options in KPI Details.

Related topics

- Additional settings for time series widgets
- Analytics Hub for a specific indicator
- Indicator data options for time series visualizations
- Examining indicators with KPI Details

Create an indicator group

For convenience, you can organize related indicators into an indicator group. When you configure some visualizations that show multiple indicators, you can specify an indicator group instead of individual indicators.

Before you begin

Role required: pa_admin, pa_power_user, or admin

About this task

By creating indicator groups, you can organize indicators along whatever themes are most useful to you. The indicators do not have to be of the same type or share an indicator source or data collector job. Indicator groups save you the trouble of specifying multiple individual indicators when you configure the following objects:

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- List widgets
- Time series widgets with the relative compare visualization
- Email notifications about indicators
- Security Incident Analytics treemaps

After you create an indicator group, you can add indicators to the group or remove them from the group. This change propagates to all objects that use the indicator group, so you do not need to edit the configurations of the objects.

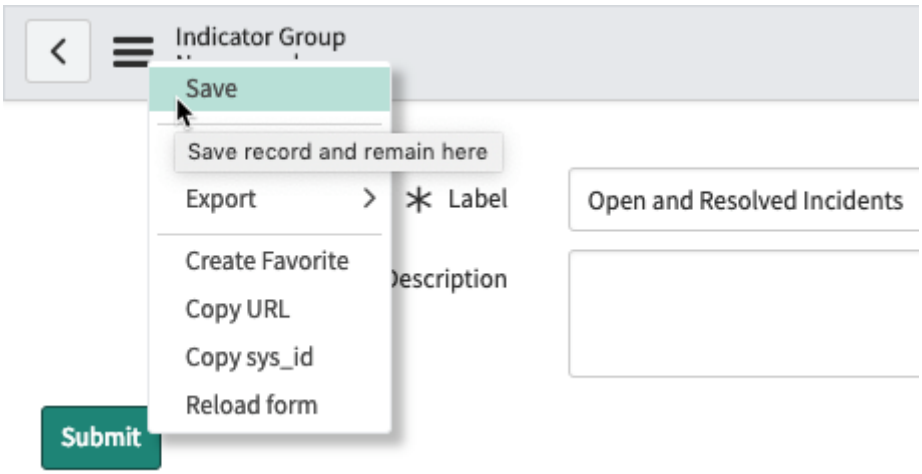
Procedure

1. Use one of the following navigation paths:
   - If you are on an upgraded instance that has not migrated to Platform Analytics, navigate to **All** > **Performance Analytics** > **Indicators** > **Indicator Groups** and select **New**.
   - If you are on a new instance or have migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Indicators** > **Indicator Groups** and select **New**.
2. Click **New**.
3. Enter a **Label** for the indicator group.
4. Open the Additional actions menu ( ) and click **Save**.
   The Indicators related list appears.
5. Click **Edit** on the Indicators related list and add indicators to the group.
6. Click **Save** to finish adding indicators, then **Update** to exit the Indicator Group record.

Example: Creating and using the 'Open and Resolved Incidents' indicator group

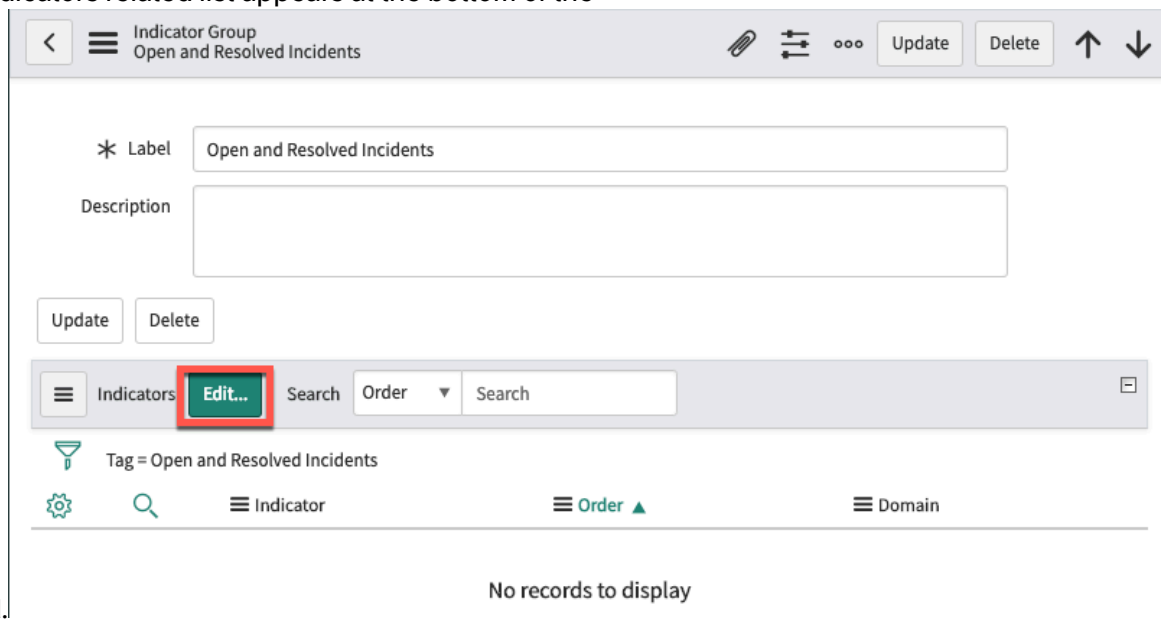
In this example, create an indicator group with all the indicators that refer to either open or resolved incidents. The incidents are all included with the demo data for Performance Analytics. After creating the indicator group, create a list widget that uses the indicator group and add the widget to a dashboard.

1. First, go to **Performance Analytics** > **Indicator Groups** and click **New**. An empty Indicator Group form opens.
2. Give the indicator group the label `Open and Resolved Incidents`, and save the form from the Additional actions menu.

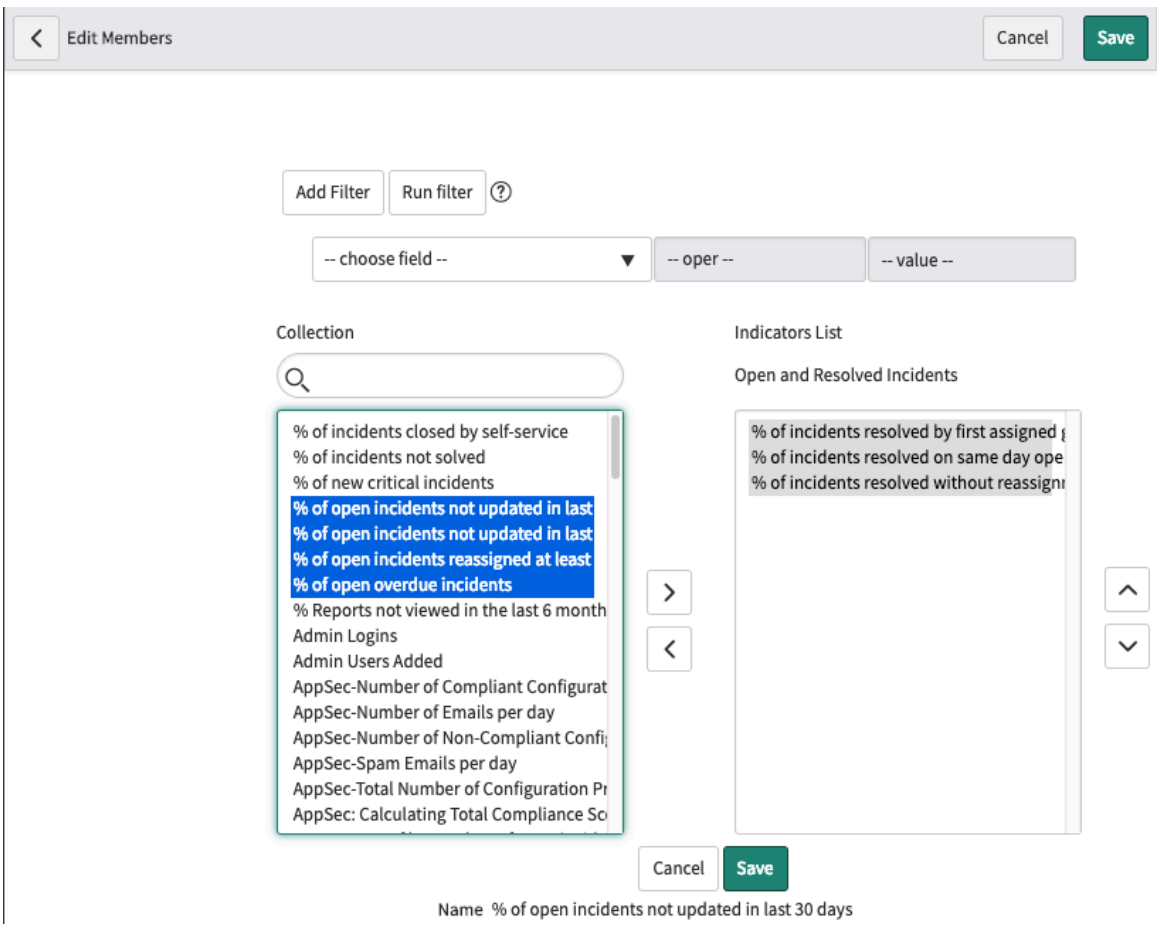


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The Indicators related list appears at the bottom of the record.



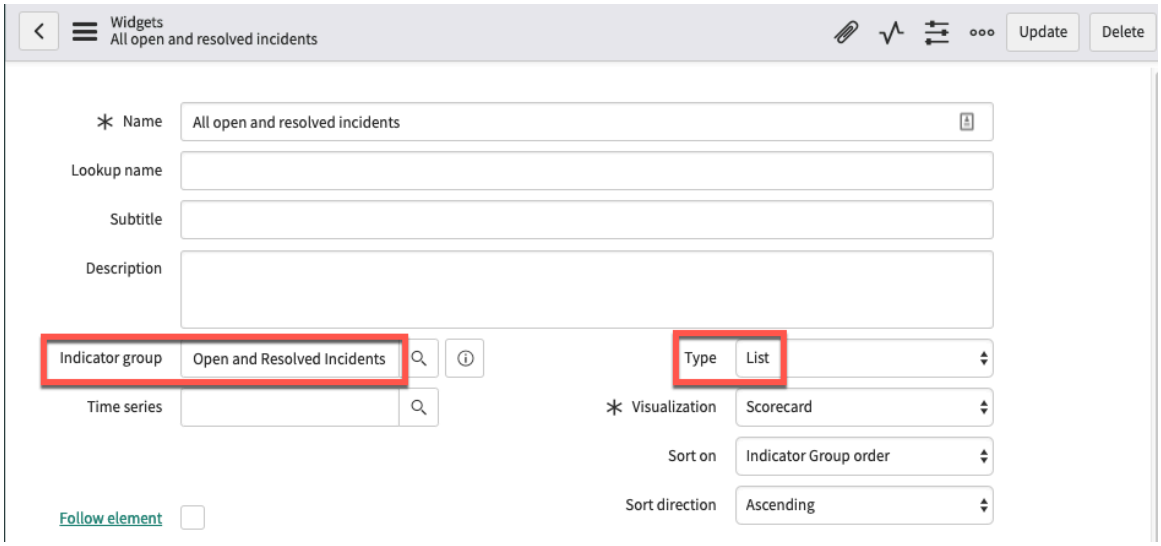
3. Click **Edit**, which opens the Edit Members dialog. To group all the indicators that involve resolved or open incidents, add all the indicators with 'resolved' or 'open' in their name. Also add the Incident backlog growth indicator.



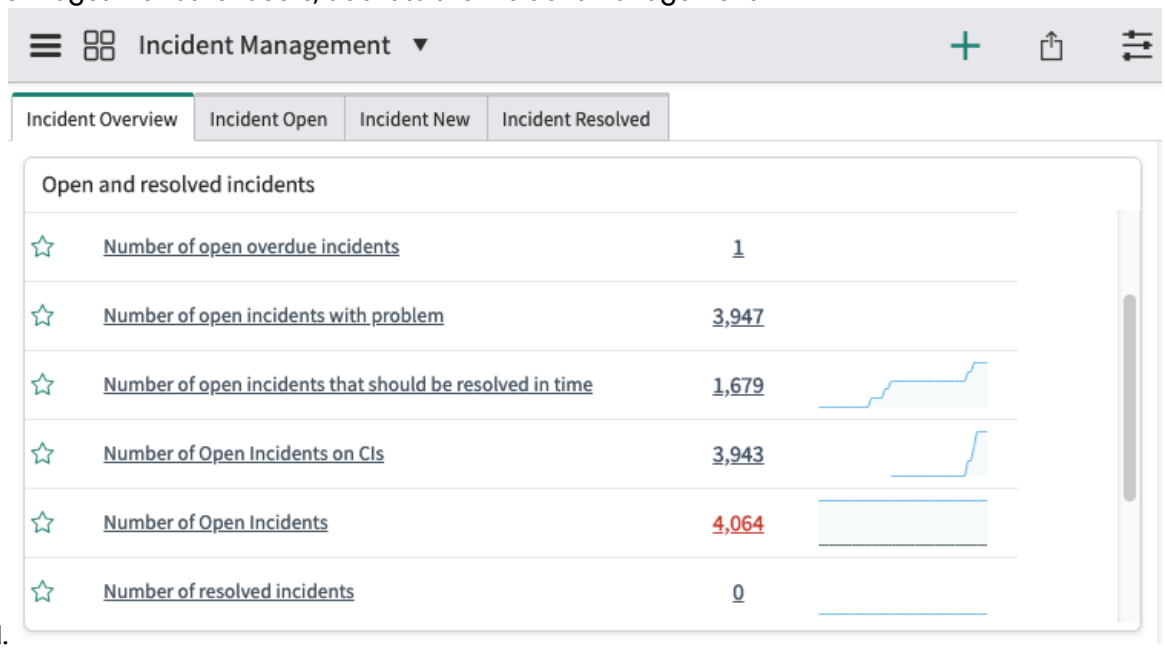
4. The indicator group is complete. Click **Save** in the Edit Members dialog and then **Update** on the indicator group record.

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5. Now create a Performance Analytics List widget and specify the Open and Resolved Incidents indicator group.



6. To share the widget with other users, add it to the Incident Management dashboard.



Related topics

- List widgets
- Create a relative compare visualization for a time series widget
- Create an email notification for indicators
- Create or update a treemap category (Security Incident Analytics)

Rounding and precision in indicators

Indicators round fractional results using "Banker's rounding" or mathematical rounding depending on the indicator **Precision**.

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Scores below 10,000

When an indicator has a **Precision** of 0, the indicator rounds the result to the nearest even, whole number. For example, if an indicator with **Precision** 0 calculates the values 7 + (5 / 2), the indicator rounds the result up to 10. However, if the formula calculates 2 + (5 / 2), the indicator rounds the result down to 4.

When an indicator has a **Precision** greater than 0, the indicator rounds to the nearest decimal point for the given precision. For example, an indicator with **Precision** 1 rounds a result of 4.45 as 4.5.

Scores above 10,000

For indicator scores above 10,000, the score is rounded off and displayed with unit abbreviations as follows:

Display of large numbers

Number	Abbreviation	Example, precision=0	Example, precision=1
10,000-999,999	Nearest thousand, k	13,291 displayed as 13 k	13,291 displayed as 13.3 k
1,000,000-999,999,999	Nearest million, M	17,824,391 displayed as 18 M	17,824,391 displayed as 17.8 M
1,000,000,000	Nearest billion, G	2,378,425,321 displayed as 2 G	2,378,425,321 displayed as 2.4 G
1,000,000,000,000	Nearest trillion, T	3,456,398,231,094 displayed as 3 T	3,456,398,231,094 displayed as 3.5 T
1,000,000,000,000,000	Nearest quadrillion, P (for Peta)	18,103,456,398,231,094 displayed as 18 P	18,103,456,398,231,094 displayed as 18.1 P
1,000,000,000,000,000,000	Nearest quintillion, E (for Exa)	7,618,103,456,398,231,094 displayed as 8 E	7,618,103,456,398,231,094 displayed as 7.6 E

Note:

- Unlike numbers under 10,000, large numbers are not rounded off to the nearest even number when precision=0.
- Unit abbreviations are not configurable.

Exceptions

Y-axis values plotted on a line or column chart are not rounded. The score and tooltip displayed when you point to a value on the chart are rounded based on the indicator **Precision**.

Note:
In formula indicators, rounding applies only to the formula result. Values within the formula are not rounded.

Indicator scores in reference currency

You can track the trends for monetary fields of the types Price, Currency, or FX Currency. The scores for an indicator based on any of these fields are collected in the Reference Currency values.

To collect these scores, select the unit on the indicator as **Use reference currency**

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Warning:
If the reference currency for a field changes after you have set up the indicator, scores are no longer collected properly.

Sometimes you need to provide your users with monetary KPIs converted to a standard currency. Consider a global project manager or CFO who deals with project costs in many different original currencies. They need to see all these costs converted to the global company currency so they can make decisions based on global trends. To provide such users with the KPIs they need, you can configure Performance Analytics indicators to collect scores denominated in a reference currency.

To collect indicator scores in a reference currency, create an indicator with the following characteristics:

- The indicator is an automated indicator, not a formula or a manual indicator.
- The aggregate is not **Count** or **Count Distinct** and the indicator is not **Scripted**.
- The selected **Field** to aggregate has the type Price, Currency, or FX Currency.
- The selected **Unit** for the scores is **Use reference currency**.

For the full procedure of creating such an indicator, see Create an automated indicator.

Note:

- A currency administrator must configure FX Currency fields before you use them in indicators.
- The **Precision** field is not available on the indicator form when **Use reference currency** is selected. Instead, the precision is inherited from the FX Currency configuration.

After the scores have been collected, you can explore them more deeply in the Analytics Hub or share them through a widget. The reference currency precision and symbol are used in all visual elements: the score value, change value, target, threshold, and tooltips.

System Reference Currency reference

As a Performance Analytics expert, you do not set up the reference currency. Someone with a currency administrator role performs this task. However, you may still want to know how reference currencies work on the ServiceNow AI Platform. A brief summary with links follows.

For a Price or Currency field, the system reference currency is the value of *`glide.system.locale`* as set in the localization properties. If this property is not set, the system default based on physical location is used. For more information about setting the reference currency for these fields, see Setting up and operating standard currency fields.

Note:
Performance Analytics indicators do not use session currency values.

For an FX Currency field, the indicator scores are based on this hierarchy of configuration settings:

1. If field-level FX Currency configurations are set, these take precedence. If they are not set...
2. The Global FX Currency configuration is used. If the global configuration is not set...
3. The setting in *`glide.system.locale`* is used. If no value is set in this property...
4. The system default is used.

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For more information about configuring FX Currency fields, see Setting up and operating FX Currency fields.

Create a unit

You can define units in which Performance Analytics indicator scores are shown. Units can be numbers, percentages, currencies, quantities of time, or any other entity you define. The most commonly used units are provided by default.

Before you begin

Roles required: pa_power_user (without navigation), pa_data_collector, pa_admin, or admin

Important:
Do not delete any of the units that are provided by default. For example, if you remove the **Use reference currency** unit, it is not possible to show indicator scores in a reference currency.

Procedure

1. Navigate to **All** and search for `pa_units_list.do` in the **Filter** field.
   This approach works for all permitted roles regardless of Platform Analytics migration status.
2. Select **New**.
3. Enter the **Name** of the unit.

   Example
   For example, `Gallon`.
4. Specify the way the unit must be formatted.

   Example
   For example, {0}Gal gives you the number of gallons with the abbreviation Gal. For currencies, you can place the symbol for the unit in front of the number, such as ${0}.
5. Click **Submit**.
   Units can be used for automated, manual, and formula indicators.

Exclude time series from an indicator

Some time series aggregations are inappropriate to apply to some indicators. You can exclude time series on automated, formula, and manual indicators. Excluded time series are not selectable from the Analytics Hub, KPI Details, or widgets. Other time series remain selectable.

To exclude a time series from an indicator, select the time series in the **Time series exclusions** related list on the indicator form.

One use case for excluding time series is the logical relationship between the indicator aggregation and the time series aggregation. For example, you may not want to allow a time series aggregation that takes a SUM or an AVG of an indicator that itself is an average.

Possible time series exclusions based on indicator aggregation

Indicator aggregate	Consider excluding time series:
Average	All SUM, AVG. All partial periods (+).
Sum	All SUM
Minimum	All SUM
Maximum	All SUM

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You may also want to exclude time series based on the indicator unit type. For example, if you have an indicator whose score is a percentage value, you may not want to display any SUMs of these percentages. Similarly, time series aggregations for indicators which themselves are measured in days, weeks, months, quarters, or years may not make much sense.

As a final point, consider the subject matter of the indicator. Some time series aggregations may not be appropriate for an indicator for qualitative reasons.

Control access to an indicator

You can control which user roles grant access to specific indicators. Access to an indicator is regulated in the indicator record.

Before you begin

Role required: pa_admin or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Automated Indicators** or to **Manual Indicators** or **Formula Indicators** if applicable.
2. Select an indicator record.
3. In the **Access control** section, clear the **Visible by all roles** check box.
4. Select the **Roles** that grant access to the indicator.
5. Click **Update**.

Related topics

Control ability to view breakdown elements

Share a responsive dashboard

Create an email notification for indicators

Performance Analytics can automatically generate an email with the score, change %, target, and score-target gap % of one or more indicators.

Before you begin

Enable and configure email notifications before you can use email summaries.

Role required: pa_admin or admin

Procedure

1. Expand **All** and enter `sysauto_indicator_notifications_list.do` into the navigator Search field, then press **Enter**.
2. Click **New**.
3. Enter a **Name** and a **Description** for the email summary.
4. Select the **Active** check box to run a scheduled job that creates the email summary.
5. Select when the job should run.
   - Daily
   - Weekly
   - Monthly
   - Periodically

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- Once
- On Demand

6. Set the time to run the job by changing the hours, minutes, and seconds (using 24-hour notation).
   By default, the job runs at midnight.
7. Select the indicators to include in the summary, either dynamically or manually.

   Dynamically

   Select the **By Condition** check box. Use the condition builder to define the conditions that determine which indicators the email summary includes. For example, you can select all key indicators by setting the condition to [Key] [is] [true].

   Manually

   Clear the **By Condition** check box. After you save the Scheduled Email Summary form, select individual indicators to include in the summary in the **Indicators** related list.

8. Right-click the form header and select **Save**.
   The related lists become available.
9. Select any number of users in the **Users** related list.
10. If you are selecting indicators manually, select them in the **Indicators** related list.

Result

The email summary job runs based on the schedule you configured. You can also run the job manually by clicking **Execute Now**.

Related topics

Email and SMS notifications

Schedule the export and distribution of an indicator

Schedule an indicator to automate its distribution.

Before you begin

This feature requires the licensed version of Performance Analytics.

Role required: pa_power_user, pa_admin, or admin

Procedure

Navigate to **All** > **Performance Analytics** > **Scheduled Indicators** and create a new record.

Scheduled Indicator fields

Field	Description
Indicator	Select the indicator that you want to export.
Breakdown	Select a breakdown to filter the indicator scores.
Element	If you selected a breakdown, select a breakdown element to show only scores associated with that element.

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Field	Description
Chart	Select this checkbox to include the scores visualization in the PDF. The visualization is the same as displayed on the indicator Analytics Hub.
Breakdowns	Select this checkbox to include the scores for each breakdown and breakdown element in a table at the bottom of the PDF. If you have selected a **Breakdown** and **Element**, the breakdowns displayed at the bottom of the PDF are 2nd-level breakdowns.
Users	Users who should receive the indicator. To receive indicators, users must have an Email address defined and have **Notifications** set to **Enable** in their user records.
Groups	Groups that should receive the indicator.
Email addresses	Email addresses of users who should receive the indicator but who are not in the system.
Active	Check box that enables (selected) or disables (cleared) scheduling for the indicator.
Run	Frequency for exporting the indicator.
Time	Time of day to export the indicator.
Conditional	Check box that displays (selected) or hides (cleared) the **Condition** field, which allows you to specify conditions under which the indicator is exported.
Condition	User-created script that checks for certain conditions to be true before exporting the indicator. This field is visible only when **Conditional** is selected.
Subject	Text that appears in the subject line of the distribution email.
Introductory message	Additional message that is delivered with the indicator.
Include with	Additional scheduled indicators to send.
Orientation	Select the page orientation, Landscape or Portrait.
Zip output	Select this check box to send the indicator as a zip file.

Link an automated indicator to a benchmark

To enable the comparison of indicators to ITSM and ITOM benchmarks, link an automated indicator to the corresponding benchmark KPI. A benchmark KPI can be linked to only one indicator. You can compare the linked indicators in the Analytics Hub.

Before you begin

You must opt-in to the ServiceNow® Benchmarks application.

Role required: pa_data_collector, pa_power_user, admin

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Note:
If you have the sn_bm_client.benchmark_admin role, you can link Performance Analytics indicators to benchmark indicators through the Benchmarks Setup interface. For instructions about linking indicators through that interface, see Link or customize a benchmark KPI.

About this task

Used together, benchmarking and Performance Analytics enables you to measure your enterprise ITSM and ITOM against industry standards while driving improvements across all important metrics. For more information, see Benchmarks.

Procedure

1. In the list of automated indicators or the list of formula indicators, identify which benchmark indicator you want to link to which other indicator.
   Benchmark indicator names begin with the word **Benchmark**.
2. Verify that the benchmark indicator and the linked indicator are configured compatibly. Specifically, verify that the following properties match in both indicators:
   - Indicator source
   - Unit
   - Formula (for formula indicators)

   Warning:
   The indicators in Platform Analytics Solutions are not configured the same as the matching benchmark indicators.
3. Open the benchmark indicator record.
4. In the **Linked indicator** field under **Indicator properties**, select the automated indicator to link to the benchmark.

   Note:
   - The fully licensed version of Performance Analytics must be activated to see the complete list of Performance Analytics automated and formula indicators.
   - To edit the **Linked indicator** field, you may need to change the scoped application that you are working in, at the top of the record.
   - The names of the benchmark indicator and the indicator to link might not match.

Result

After you update the benchmark KPI record, you can compare the benchmark KPI and the automated indicator on the **Compare** tab of the Analytics Hub for the automated indicator. For more information and an example, see Compare scores.

Indicator breakdowns

Breakdowns enable you to group or filter indicator scores by a qualitative attribute such as Priority, Category, or Assignment Group. You can apply a breakdown on the Analytics Hub, in KPI Details, and on dashboards.

The values for each breakdown are called breakdown elements. For example, the Priority breakdown may have the elements Critical, High, and Low. Breakdowns are categorized as automated, manual, or external, depending on where these elements come from. Automated breakdown elements are specified in breakdown sources. Manual breakdowns have their

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elements entered manually to define an organization. Lastly, an external breakdown specifies the JDBC data source and SQL statement for retrieving breakdown elements.

For example, you can look at the Number of Open Changes by Assignment Group. Or you can see the Number of New Changes by Priority.

Create a breakdown from a wizard

Create a breakdown, breakdown source, and breakdown mappings, and associate the breakdown with indicators.

Before you begin

Role required: pa_power_user, pa_data_collector, or admin

Note:
Users with only the pa_power_user role cannot create breakdown sources.

About this task

Create a simple breakdown based on an existing indicator. To create more advanced breakdowns or breakdown sources, such as to limit data sets with complex filters, create or update breakdown and breakdown source records directly.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Breakdowns** > **Create New**.
2. Select the **Indicator** that you want to create the breakdown for.
   The **Table** field is automatically populated based on the indicator source table. You can apply the new breakdown to other indicators with the same source table on the **Link to indicators** tab.
3. Select the **Field** to base the breakdown on.
   The breakdown uses values from this field as breakdown elements and breaks down collected data based on the value of this field in each record.
4. Click **Next**.
   The **Define the breakdown** tab displays different data depending on if a breakdown, breakdown source, or breakdown mapping exist for the specified indicator, table, and field.
5. Perform one of the following actions.

Option	Description
Create a breakdown, breakdown source, and mapping	If no breakdown or breakdown source exists for the specified table, enter a name for the new breakdown. A breakdown source and mapping for the selected table and field are created automatically. Click **Show filter to make adjustments** to filter the data included in the breakdown source.
Create a mapping using an existing break down source	If at least one breakdown source exists for the specified table and there are one or more breakdowns using the source, select the breakdown to create a mapping for. If a mapping exists between a breakdown with the selected source and a field on a par ent of the indicator table, you can only select an existing breakdown to create the mapping for. If no such mapping exists for a parent ta

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Option	Description
	ble, you can select an existing breakdown or create a new breakdown.
Review existing records	If a breakdown and breakdown source exist for the specified table, and a breakdown map ping exists for the specified breakdown and field, review the settings. You do not need to make any changes.

6. Click **Next**.
7. On the **Link to indicators** tab, select any additional indicators that you want to apply the breakdown to.
   You can apply the breakdown to other indicators with the same source table as the indicator you selected first. If the breakdown already applies to an indicator, that indicator is not displayed.
8. Click **Next**.
9. On the **Data Collection** tab, select how many days of historical, broken-down scores and snapshots to collect, or clear the **Collect data from the past** to skip historical data collection.
10. Click **Next**.
11. Review the settings and confirm that the correct records will be created, then click **Apply**.
    A check mark appears next to each record after it is created. When all records are created the **Create another breakdown** button appears.

Breakdown sources

Breakdown sources specify which unique values, called breakdown elements, a breakdown contains.

A breakdown source is defined as a set of records from a table or database view or as a bucket group. Multiple breakdowns can use the same breakdown source. For example, instead of seeing ALL assignment groups for the Number of Open Changes indicator, you can limit the element list to just those groups that are part of the change process by configuring the Breakdown Source.

Define a breakdown source

Specify a facts table to serve as a data source for breakdowns. Apply conditions to specify the elements for this breakdown source.

Before you begin

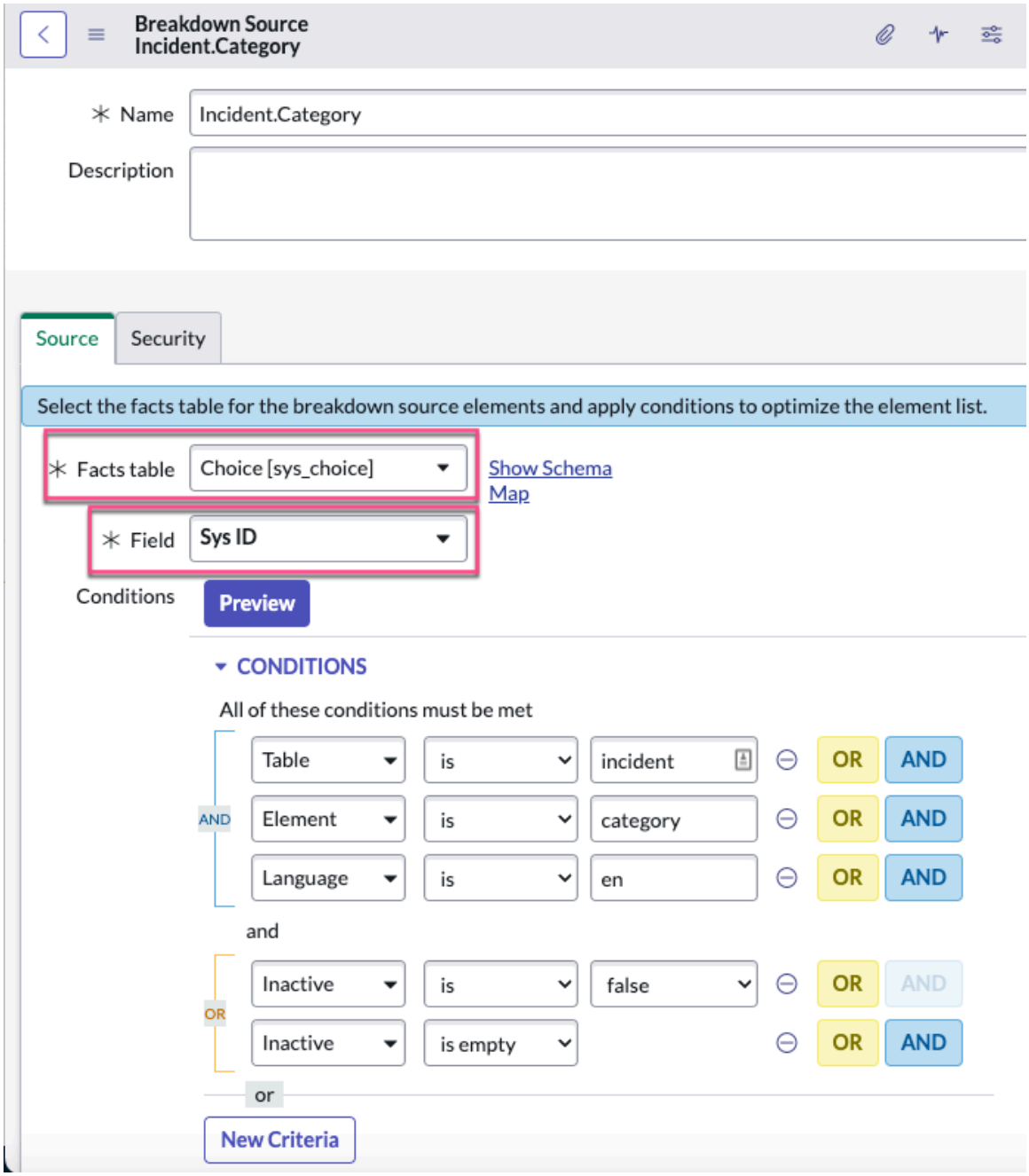
Roles required: pa_data_collector, pa_admin, or admin. The breakdown source creator needs access to the table and reference column that the indicator source uses.

About this task

Always use a facts table with a field that has a unique value for every record, usually **Sys ID**. For example, the Incident.Category breakdown source takes its elements from the **Choice** table. The elements are identified by the **Sys ID** field. The breakdown source filters the choices to those that are on the **Incident** table, in English, and not inactive.

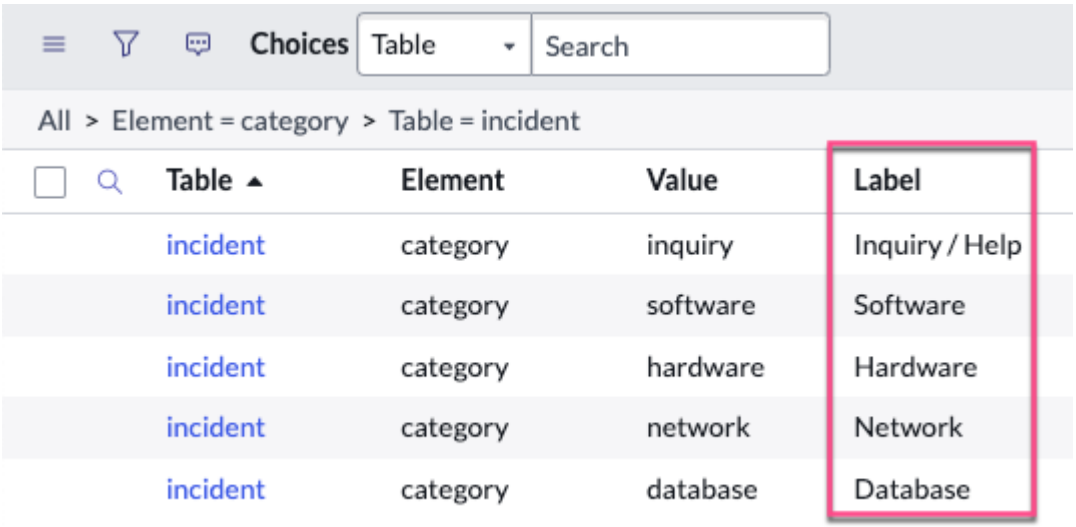
Tip:
As in this example, if you use Choice [sys_choice] for the facts table, put conditions on the Table, Element, and Language fields. Also filter out Inactive records.

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The breakdown source uses the following records from the Choice table:

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Note:
The Choice table includes every possible choice from every table, which is why it has Table and Element columns. Most other facts tables you would use for a breakdown source are simpler.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Breakdown Sources** and click **New**.
2. Give the breakdown source a meaningful **Name**.
3. Add a detailed **Description** to help others understand the use and purpose of this breakdown source and to help them avoid creating duplicates.
4. For the **Facts Table**, select the table that the breakdown source gets elements from.
   For example, for the breakdown source to specify user groups as elements, select **Group [sys_user_group]**.

   Warning:
   - You cannot use Workflow Data Fabric tables for a breakdown source.
   - Do not change the facts table for a source after you have started collecting data. If you change the facts table, you lose all historical scores for the associated indicators at the next score collection.

5. In the **Field** table, select a field that contains a unique value for every record.
   This field is usually **Sys ID**.
6. Set the **Conditions** to filter out unneeded elements.
   If you set Choice [sys_choice] as the facts table, always filter on table, element, and language, and filter out inactive records. For example:

   [Table] [is] [Incident] and

   [Element] [is] [Category] and

   [Language] [is] [en] and

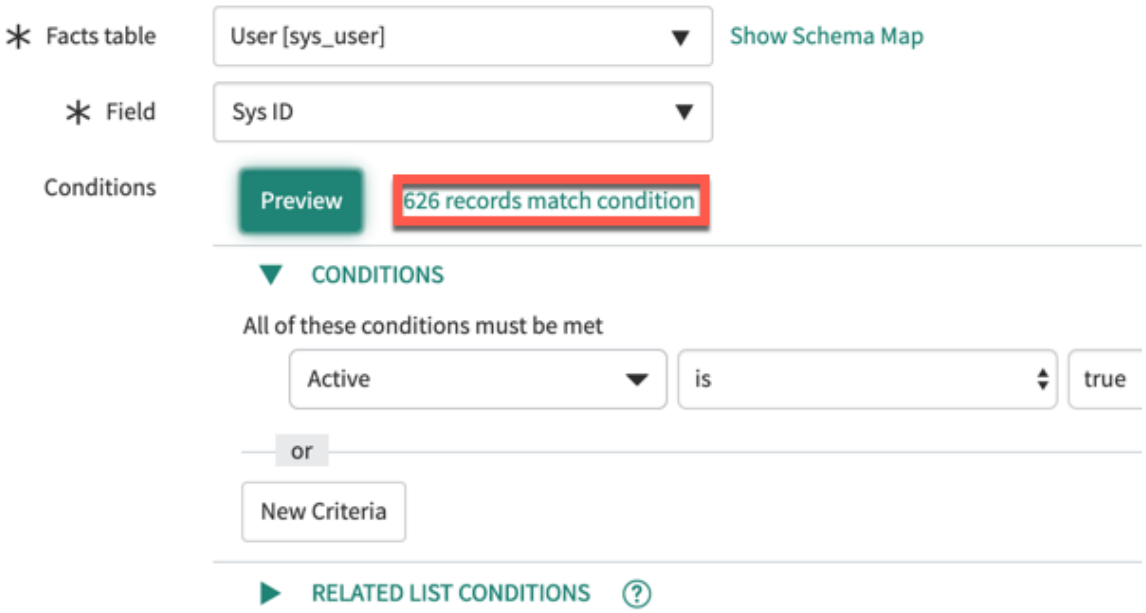
   [Inactive] [is] [false] or

   [Inactive] [is] [empty]

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7. To see how many records match the selected conditions, click **Preview**.
8. **Optional:** Define **RELATED LIST CONDITIONS** to include a relationship with another table in the filter.
   For more information, see Add related list conditions.

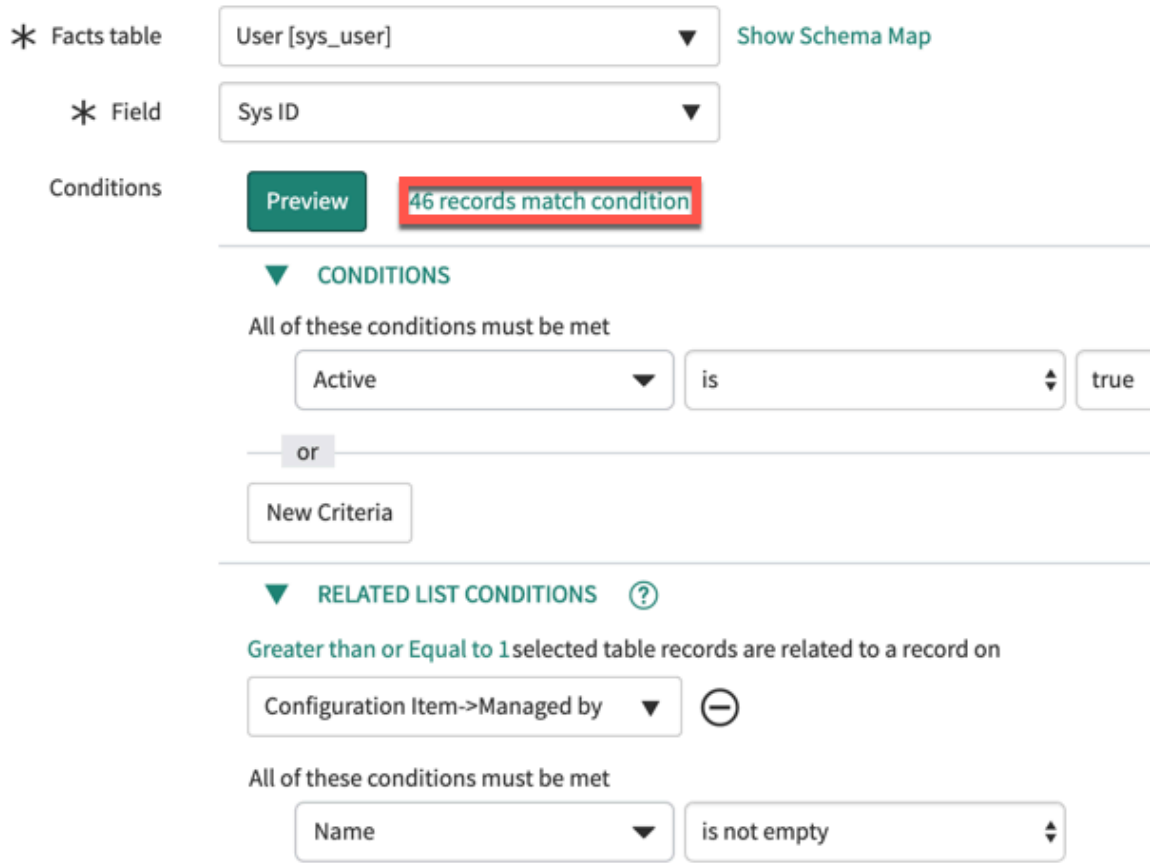
   Example
   For example, consider a breakdown source for Configuration Item (CI) Managers. The facts table is User [sys_user], but the only condition you can apply from this table is to filter for active users. No field on the table lets you select only users who are CI Managers. You get hundreds of results.



   (Optional)

   If you add a condition that the Name on the User record must match at least one entry in the Managed by column of the Configuration Item [cmdb_ci] table, the breakdown source only returns the users who are CI Managers.

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9. **Optional:** In **Label for unmatched**, write a custom label to use when the value in a mapped field on an indicator source record does not match any elements on the breakdown source. The default label is **Unmatched**.

   Example
   The Incident.Category breakdown source references records on the Choices [sys_choices] table where the value of the Table field is incident and the value of the Element field is category. The Category breakdown includes a mapping from the Incident.Category breakdown source to the Category field on the Incidents [incident] table. If an Incident record has a null value in the Category field, the value when you apply the Category breakdown to this record is **Unmatched**, by default.

10. In the **Security** tab, set whether to exclude or include breakdown source elements by role based on element security lists.
    For more information, see Define an elements security list.

What to do next

Create breakdowns that use this breakdown source. You can open the **Breakdowns** tab and click **New**. The **Breakdown** form opens, as described in Create an automated breakdown. After you create breakdowns that use this source, these breakdowns are listed in the **Breakdowns** tab.

Bucket groups for breakdown sources

Bucket groups are used to recategorize data so it can be used as a breakdown, for example by grouping a range of values into discrete buckets.

In the data architecture, bucket groups are defined in Bucket Group [pa_bucket_groups] records and buckets in Bucket [pa_buckets] records. Each Bucket [pa_buckets] record contains a Bucket Group field that is a reference to a Bucket Group [pa_bucket_groups] record.

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To work with a bucket group, create a breakdown source that uses Bucket [pa_buckets] as the facts table and specifies the bucket group in a condition. If a breakdown built on this source uses a breakdown mapping with a script, the breakdown groups the values that the script returns into buckets. If the breakdown mapping specifies a field instead of using a script, the breakdown groups the values of the mapped field into buckets.

Related topics

Create a breakdown mapping on a breakdown record

Grouping field values into buckets

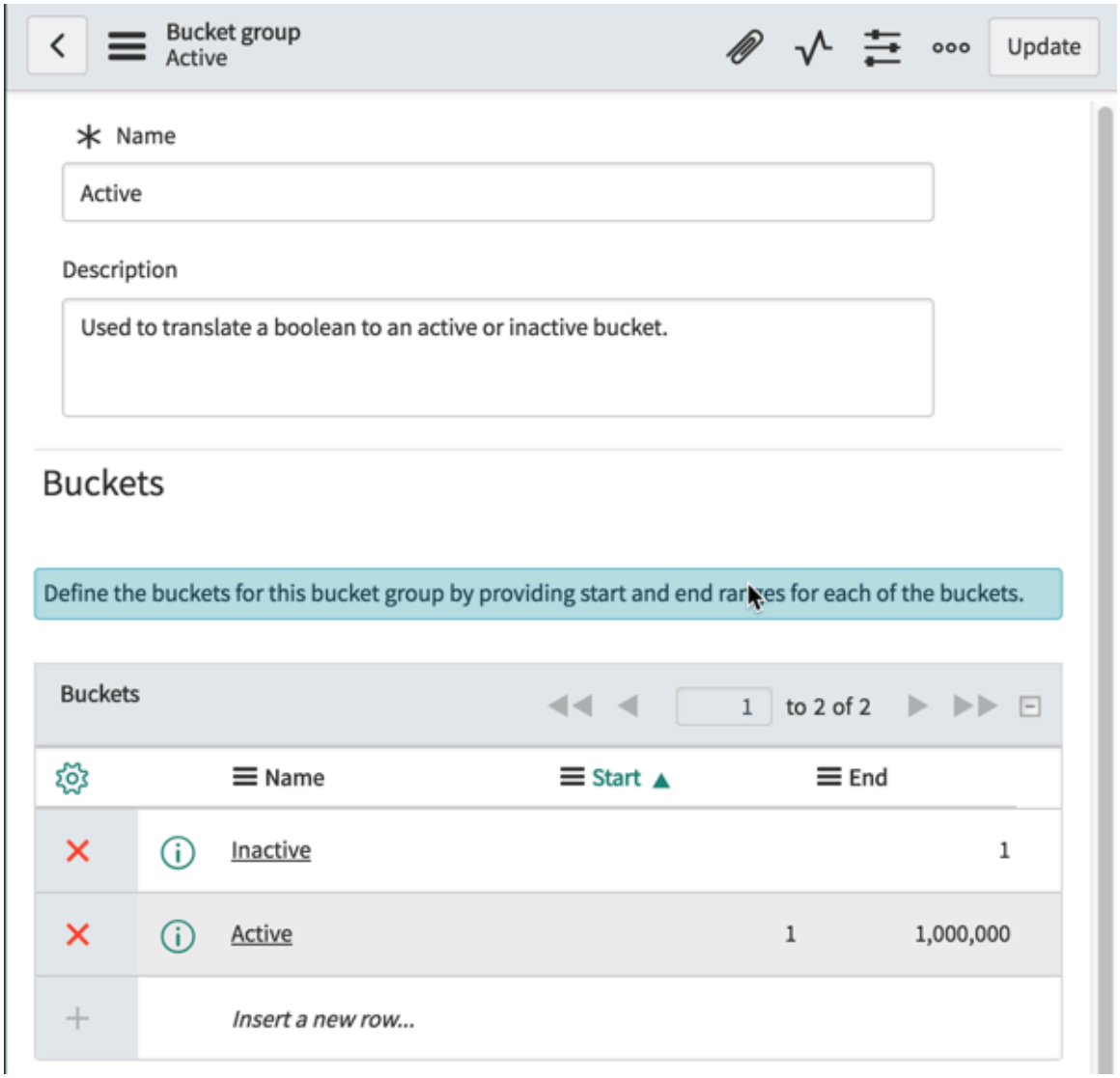
You can use a bucket group with a breakdown mapping that does not use a script, to group the values of any mapped field to buckets.

The use case can be as simple as translating the `true` and `false` values of a boolean into two buckets with meaningful labels.

Example: Sorting boolean values into buckets

A base Performance Analytics installation includes the Active breakdown as part of the Analytics Usage Overview. This breakdown uses a mapping to the job.active boolean field from the Job Log [pa_jobs_logs] table. The breakdown source uses a bucket group where `true` values for job.active are sorted into the Active bucket, while `false` values are sorted into the Inactive bucket. Note that `false` values are numerically considered to be a value less than one, while `true` values are numerically one and above.

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Grouping script results into buckets

When you have a breakdown mapping script that collects a range of values, you can define a bucket group to divide those values into discrete buckets.

After you create the bucket group, you create a breakdown source based on the bucket group. Then you create a breakdown that uses that breakdown source. When you create the breakdown mapping for the breakdown, define or select a script for the mapping. The breakdown groups the results that the script returns into the buckets of the bucket group. For an example, see Example: Script mapping.

You can write a bucket group for an existing script, or you can first write the bucket group and then write the script. Both must exist before you can create the breakdown.

Note:
The same script can be used with any number of bucket groups. Also, in principle any scripts that returned the same kind of data could be used with the same bucket group.

Create a bucket group

Specify a group of buckets into which you want to recategorize data.

Before you begin
Role required: pa_data_collector or admin

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Procedure

1. Navigate to **All** > **Breakdowns** > **Bucket Groups**.
2. Click **New**.
3. Enter a **Name** that clearly identifies the bucket group, like `Age Ranges in Days`.
4. Double-click **Insert a new row** to add a new bucket.
5. Enter a **Name** for the first bucket, then press Enter or click the green check icon.
6. Double-click in the **Start** and **End** columns to enter the starting and ending values for the range.
   Records that match the end value are excluded from the bucket. Therefore, set the end value of one bucket and the start value of the next bucket to be the same. Records that exactly match that value are sorted into the bucket that has that value as the start value.

   Warning:
   If the end value of one bucket does not match the start value of the next bucket, you have a 'hole' where records are not sorted into any bucket. For example, if you have a bucket that ends at 20 and the next bucket starts at 21, records for which the script returns a value between 20.0000~ and 20.9999~ do not get sorted into any buckets.

7. Click **Submit** after all the bucket ranges have been defined.

Example: Incident Age Ranges bucket group

Consider the case where you want to group incidents by age, as follows:

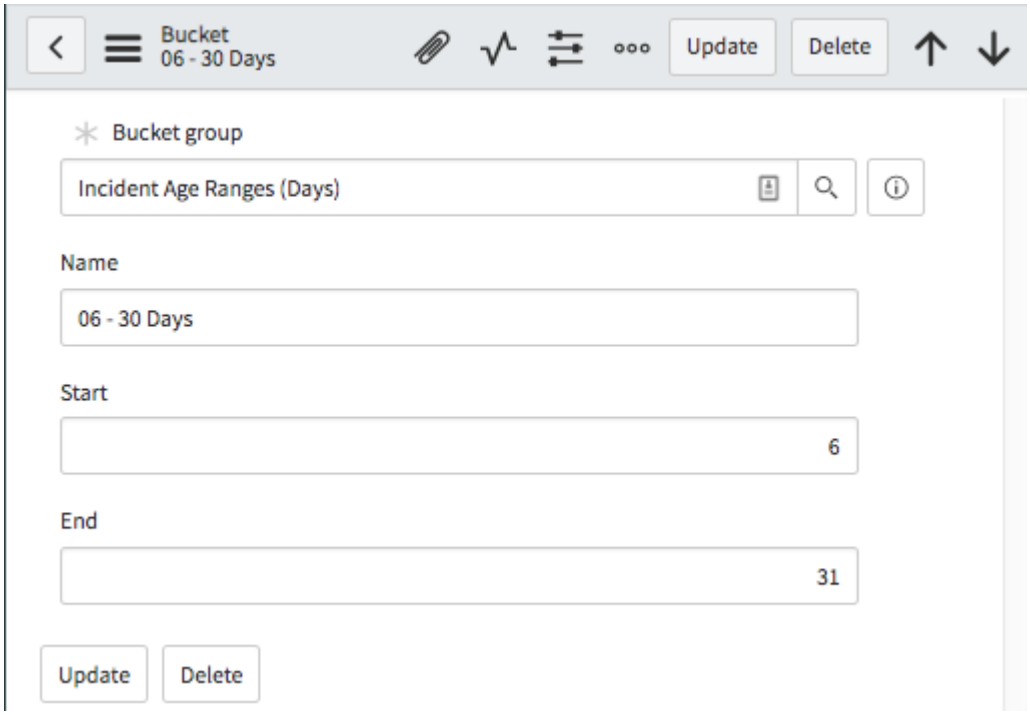
- Less than a day
- 1–5 days
- 6–30 days
- 31–90 days
- More than 90 days

In **Performance Analytics** > **Scripts**, you already have a script named Incident.Age.Days. This script derives the age in days of an incident from its opening date and the latest date on which a score was collected:

```
var diff=function(x,y){return y.dateNumericValue() -
 x.dateNumericValue();};
var days=function(x,y){return diff(x,y)/(24*60*60*1000);};
days(current.opened_at, score_end);
```

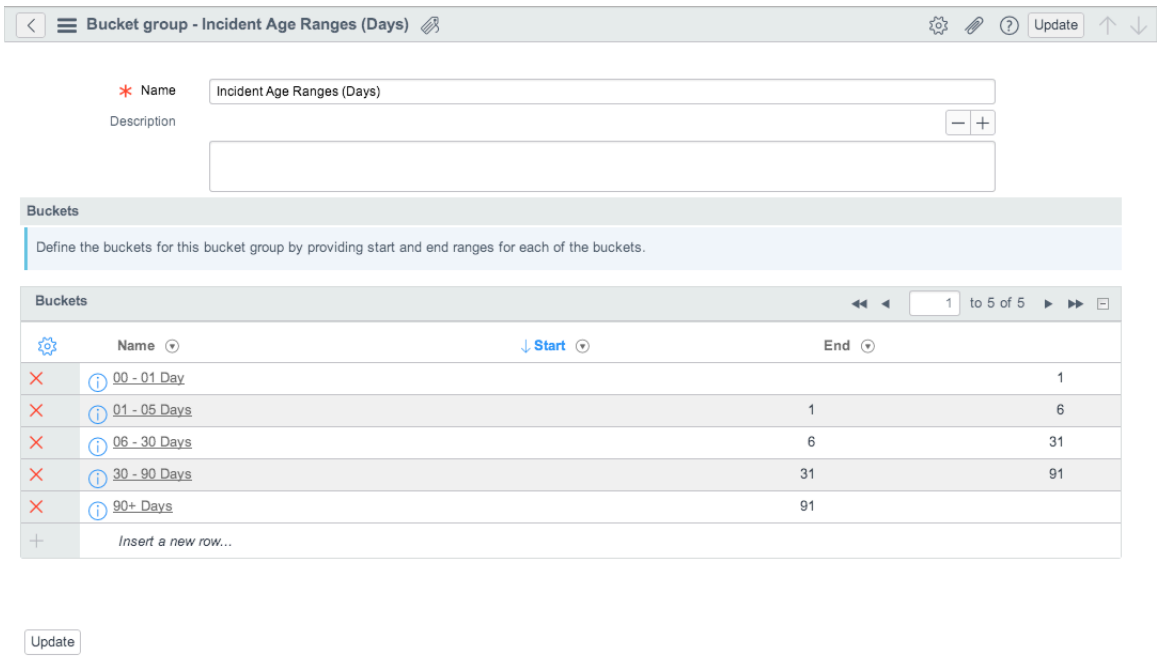
You create a new bucket group named Incident Age Ranges (Days). In this bucket group, you define a set of buckets that start at the desired date and end at the beginning of the next bucket. For example, the 06–30 Days bucket starts at 6 and ends at 31:

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This bucket will contain incidents from the age of precisely 6 days to the age of 30 days, 23 hours, 59 minutes, and 59 seconds.

At the end, you have a bucket group with five buckets corresponding to the age ranges in which you want to divide incidents.



The Script Mapping example shows a breakdown that uses this bucket group and script.

What to do next

Create a breakdown source that uses the Bucket [pa_buckets] facts table, the Sys ID field, and the condition [Bucket group][Is][<the name of the bucket group you created>]. Then create a breakdown that uses this breakdown source and uses the relevant script for the breakdown mapping.

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Related topics

Example: Script mapping

Scripting in Performance Analytics

Automated breakdowns

An automated breakdown uses a breakdown source to determine selectable elements.

Automated breakdowns are based on a breakdown source, which is a set of records from a table. The breakdown maps these records, known as breakdown elements, with fields on tables that indicators collect scores from. Scores collected from mapped tables can then be grouped and filtered based on the values in the mapped fields and the breakdown elements.

For example, the Groups breakdown source that includes records from the Groups [sys_user_groups] table is available by default. This breakdown source specifies the filter **[Active][is][true]** to include only active groups as elements. You can map this breakdown source to fields on other tables that reference the Groups table, such as the Incident **Assignment group** field. Scores collected from the mapped table are grouped based on the value of that field. You can then filter the scores on the Analytics Hub and dashboards by selecting the breakdown and an element, such as to show scores only for incidents assigned to the Hardware group.

Create an automated breakdown

To create an automated breakdown, select a breakdown source for it to use and apply access restrictions. Then map which field on the indicator source references the breakdown source. Finally, assign indicators to the breakdown.

Before you begin

Familiarize yourself with the definitions and uses of breakdowns in general and automated breakdowns in particular.

Role required: pa_data_collector, pa_power_user, pa_admin, or admin

About this task

An automated breakdown uses a breakdown source to determine selectable elements. You can use an existing breakdown source or you can define a new one.

Note:
This process allows you to create a fully customized breakdown. To create a simple automated breakdown, see Create a breakdown from a wizard.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Automated Breakdowns** and click **New**.
2. Specify a meaningful **Name**.
   The name of a breakdown is frequently based on the label of the field that is used in the breakdown mappings.
3. In the **Automated** tab, select the **Breakdown source**.
4. **Optional:** Select a **Default elements filter**.
   Use element filters to restrict the elements that are visible to a user. For more information, see Element filters.
5. **Optional:** In the **Access control** tab, set who can see the breakdown.
   These restrictions apply in all cases: seeing the breakdown in the list of breakdowns, seeing the breakdown in an Analytics Hub or dashboard, or using the breakdown when creating a widget.

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What to do next
Create breakdown mappings and associate indicators with the breakdown. You can do this from the indicator, using a graphical tool (see Assign and map breakdowns.

Create a breakdown mapping on a breakdown record

Specify which field on the indicator source references the breakdown source. If no appropriate field is available, specify a script to query the indicator source.

Before you begin
Assign a breakdown source to the breakdown before creating the mapping.

Role required: The same as for creating a breakdown.

About this task
You can create multiple mappings for the same breakdown, enabling you to use that breakdown for multiple indicators.

Note:
The procedure on this page uses a related list on the breakdown form. You can instead use a graphical tool that you access from the indicator form. See Assign and map breakdowns.

Procedure
1. If you are adding a mapping to an existing breakdown, find that breakdown in the relevant list of breakdowns and open it.
2. In the **Breakdown Mapping** related list, click **New**.
3. Select the **Facts table**.
   This table is the indicator source that you want to break down.
4. Do one of these actions.

Option	Description
Use a field to map values to elements.	Select the **Field** in the indicator source that maps to records in the breakdown. See the use of the **Category** field in Example: Field mapping.
Use a script to map values to elements.	Select **Scripted**, then select the **Script** that defines the association between indicator records and breakdown elements. Use a script when you do not have the simple use case of a field in the indicator source that maps to a breakdown source table. A script can define a wide range of mapping relation ships. The most common use case is when the breakdown source is a bucket group and the script returns an integer to assign an indi cator score to a bucket. See Example: Script mapping. You cannot show real-time scores for an indi cator that uses a scripted breakdown.

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Option	Description
	Tip: Try to implement scripted breakdown mappings so that [mapping of level 1 && mapping of level 2] is equal to the intersection of [mapping of level 1] and [mapping of level 2]. Otherwise, the score and the number of records may not agree for second-level breakdowns. If these values disagree, the score is cor rect. For more details and an example, see KB0748969. Now Support login is required.

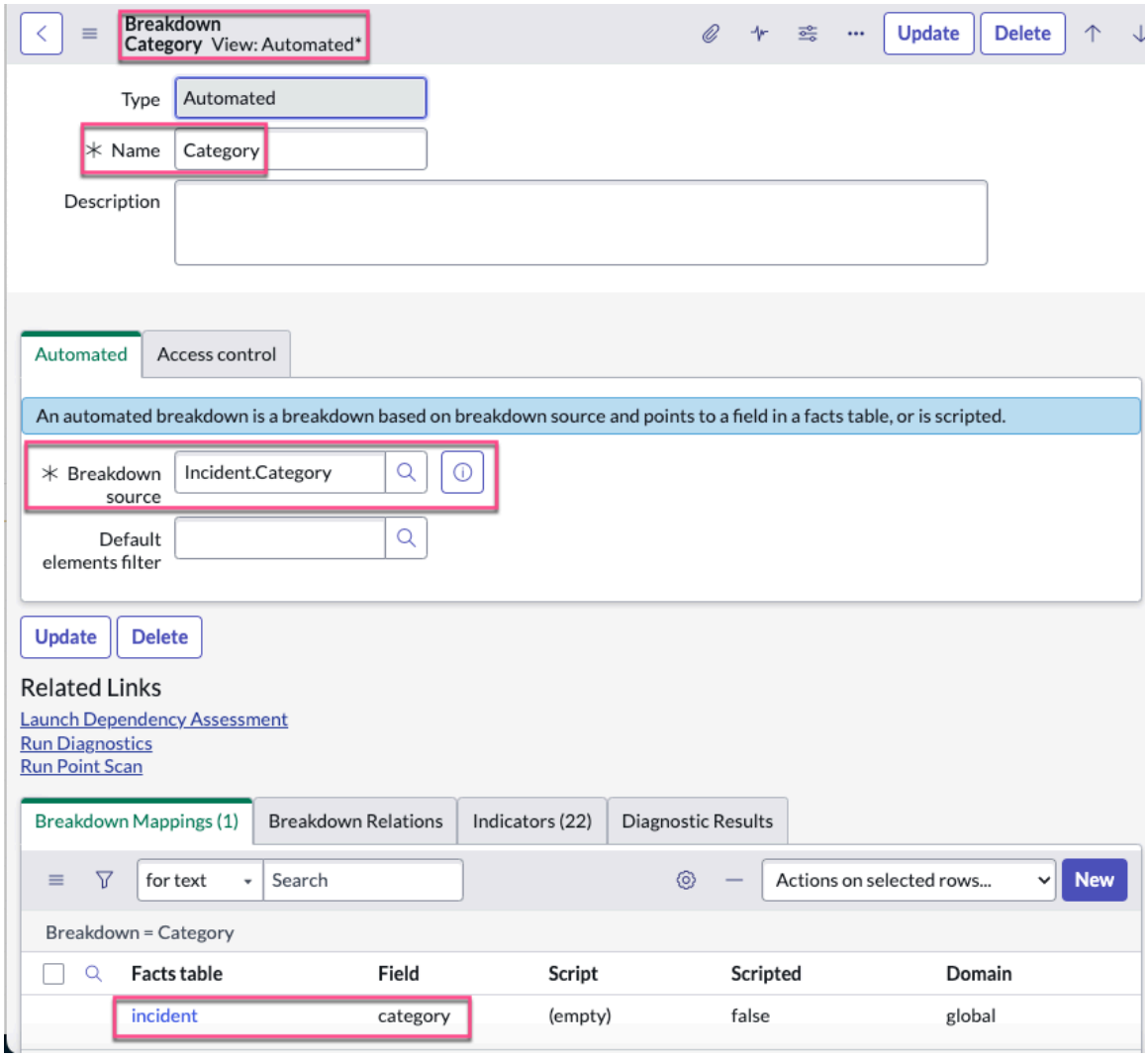
5. Click **Submit**.
6. Repeat steps 2–5 as needed, to define additional mappings.

Example: Field mapping

The Category breakdown maps the **Category** field on the incident table to the Incident.Category breakdown source, which references the Choices[sys_choice_list] table.

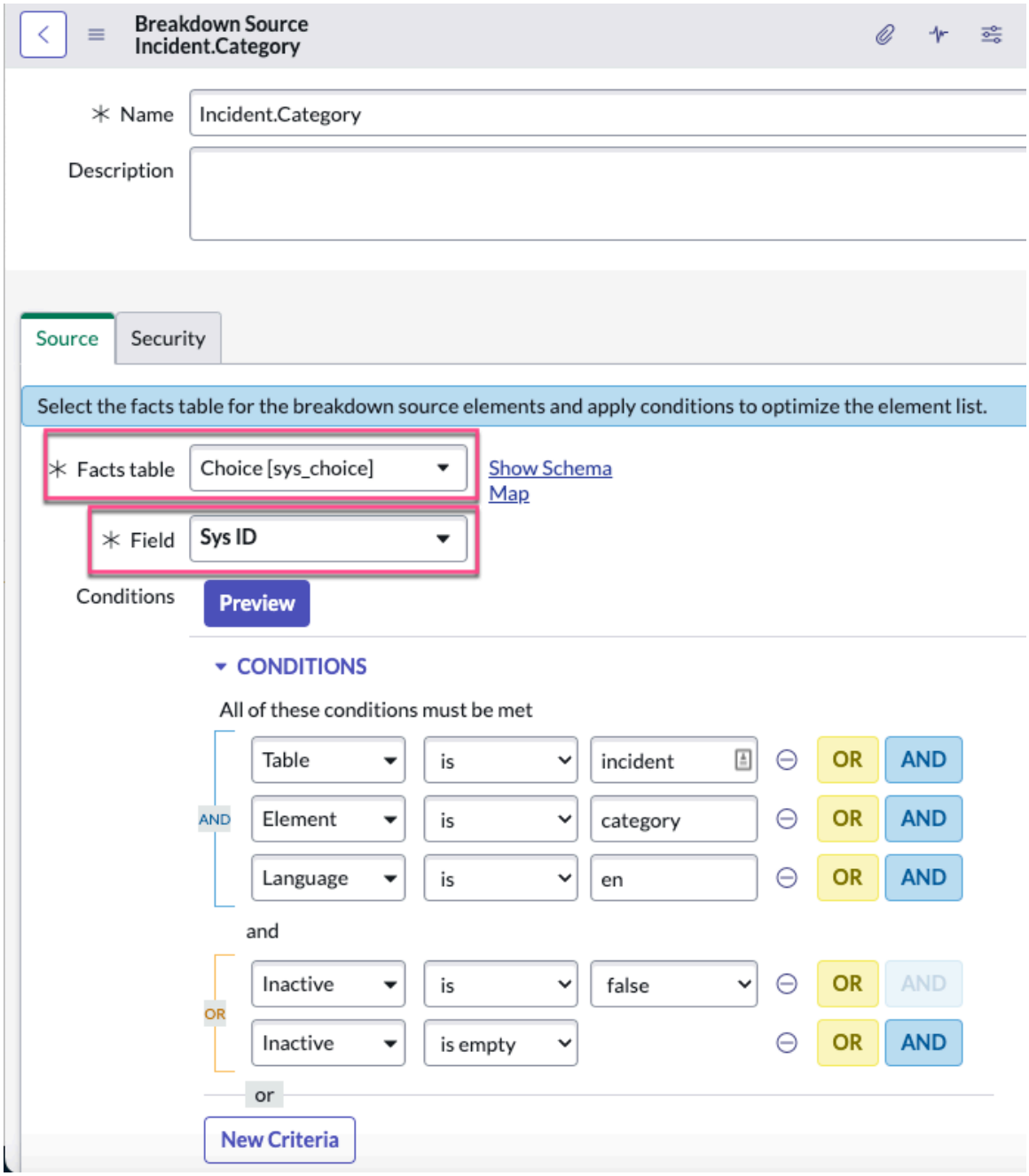
In the first image, you see the Category breakdown with the Incident.Category breakdown source. This breakdown has a breakdown mapping to the **Category** field on the incident table.

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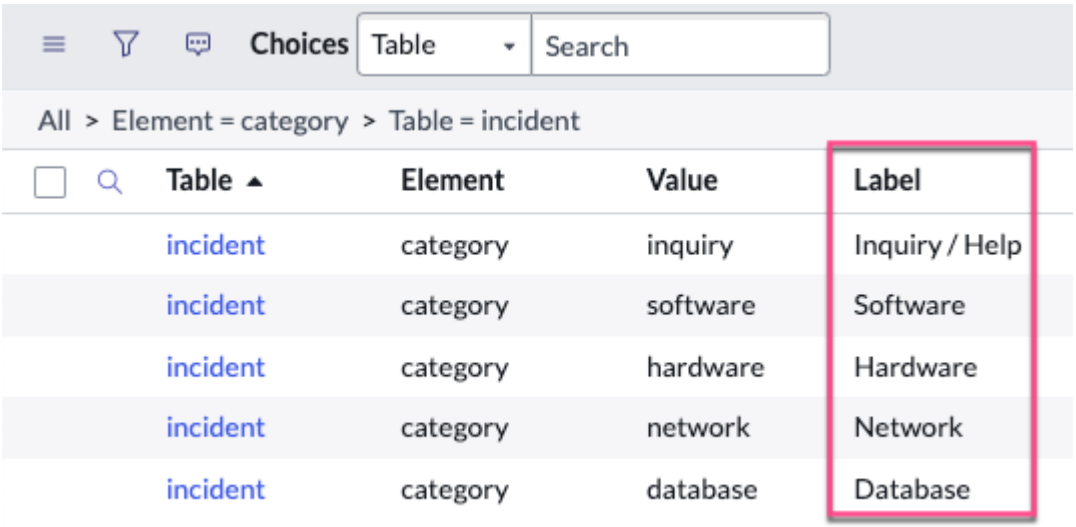
The Incident.Category breakdown source uses records in the Choices[sys_choice_list] table.

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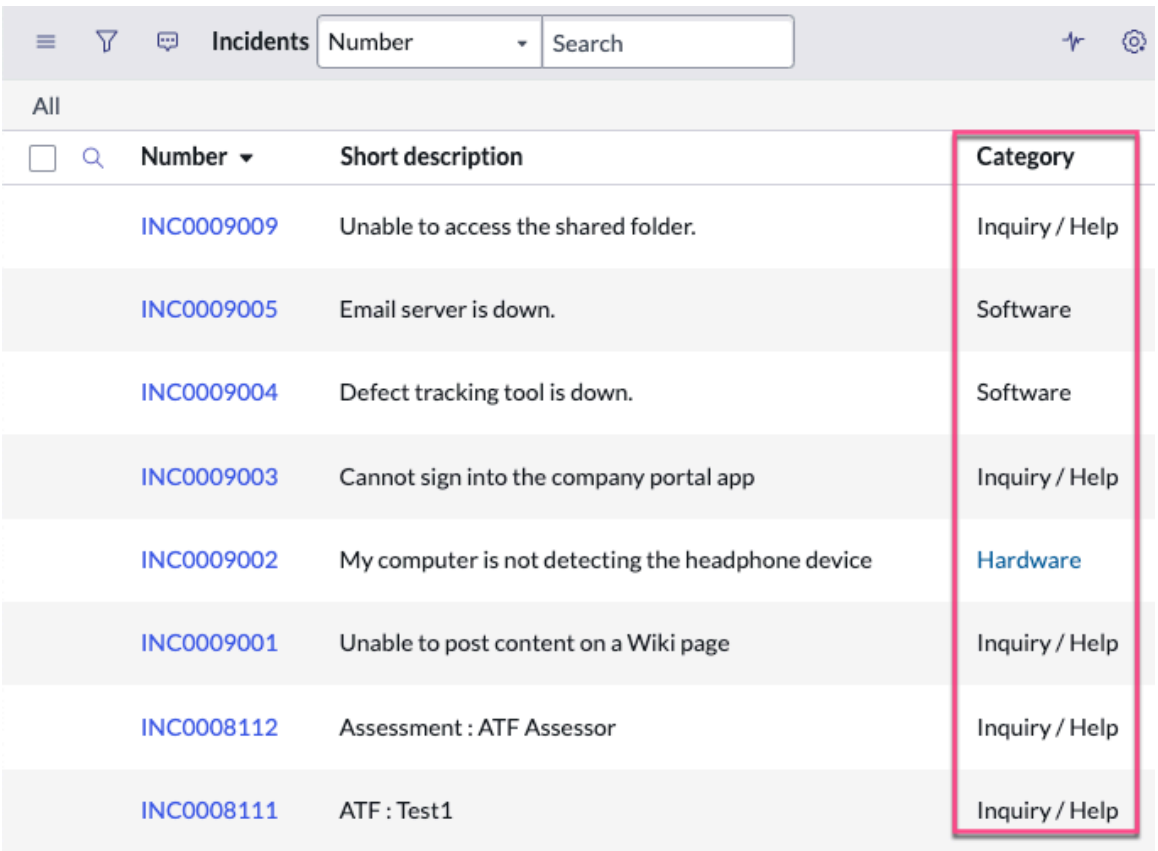


The next image shows the Choice [sys_choice] table records that meet the conditions that are specified in the Incident.Category breakdown source. Note the Label field values.

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Finally, you see the Category field of some records on the Incidents table. This field is mapped to the Category breakdown. The field values match the Label fields of the records of the Choices[sys_choice_list] table that the Incident.Category breakdown source filters for.

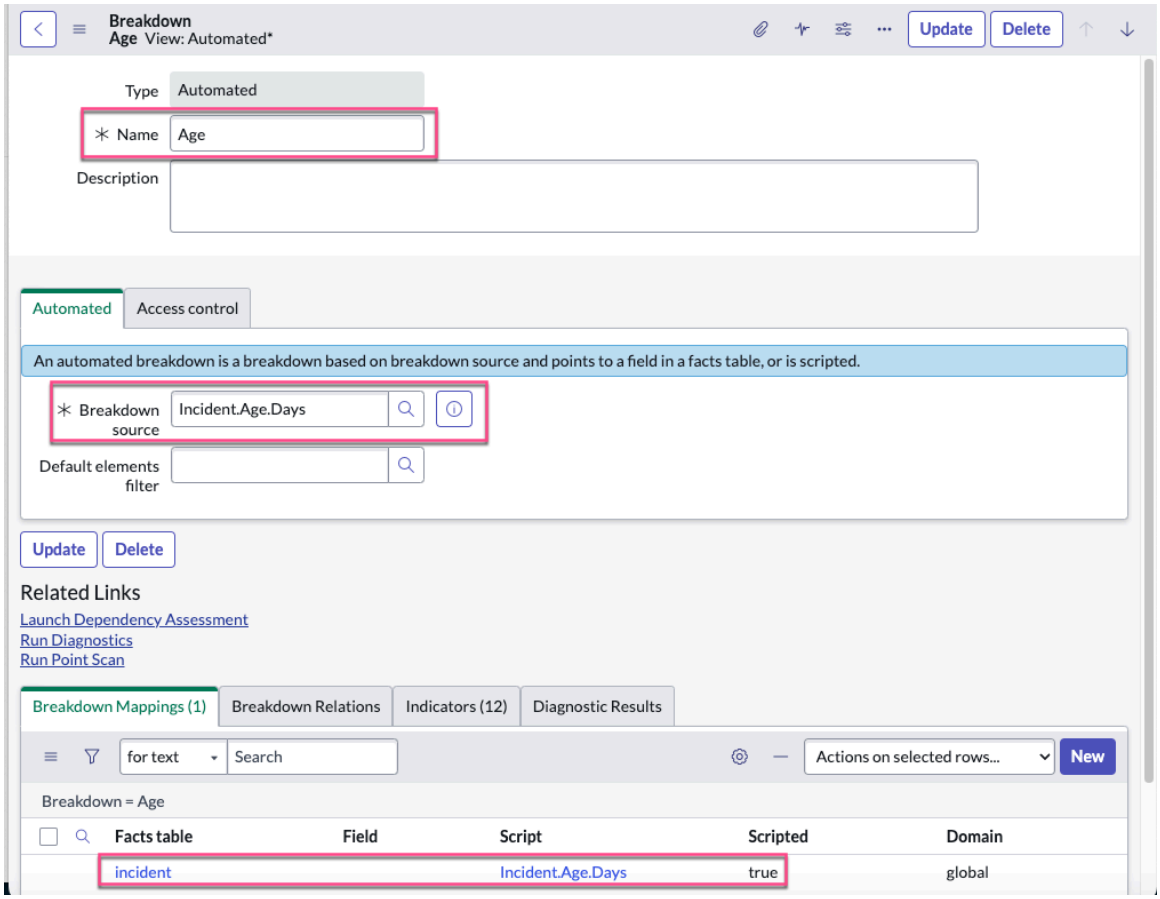


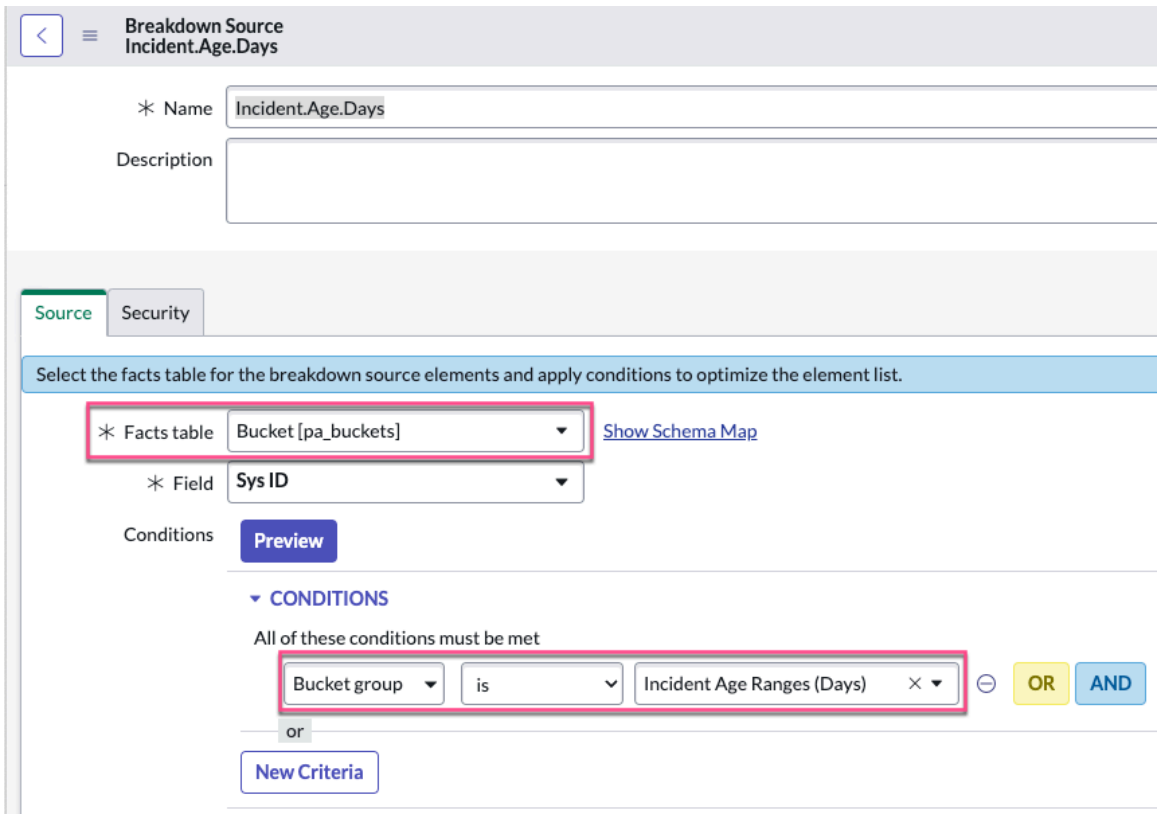
Example: Script mapping

The Age breakdown uses the Incident.Age.Days script to calculate the age of incidents in days and map the values to the Incident Age Ranges bucket group.

In the first two images, you see the Age breakdown, which uses the Incident.Age.Days breakdown source and the Incident.Age.Days script for breakdown mapping. You also see that the breakdown source refers to the Incident Age Range (Days) bucket group.

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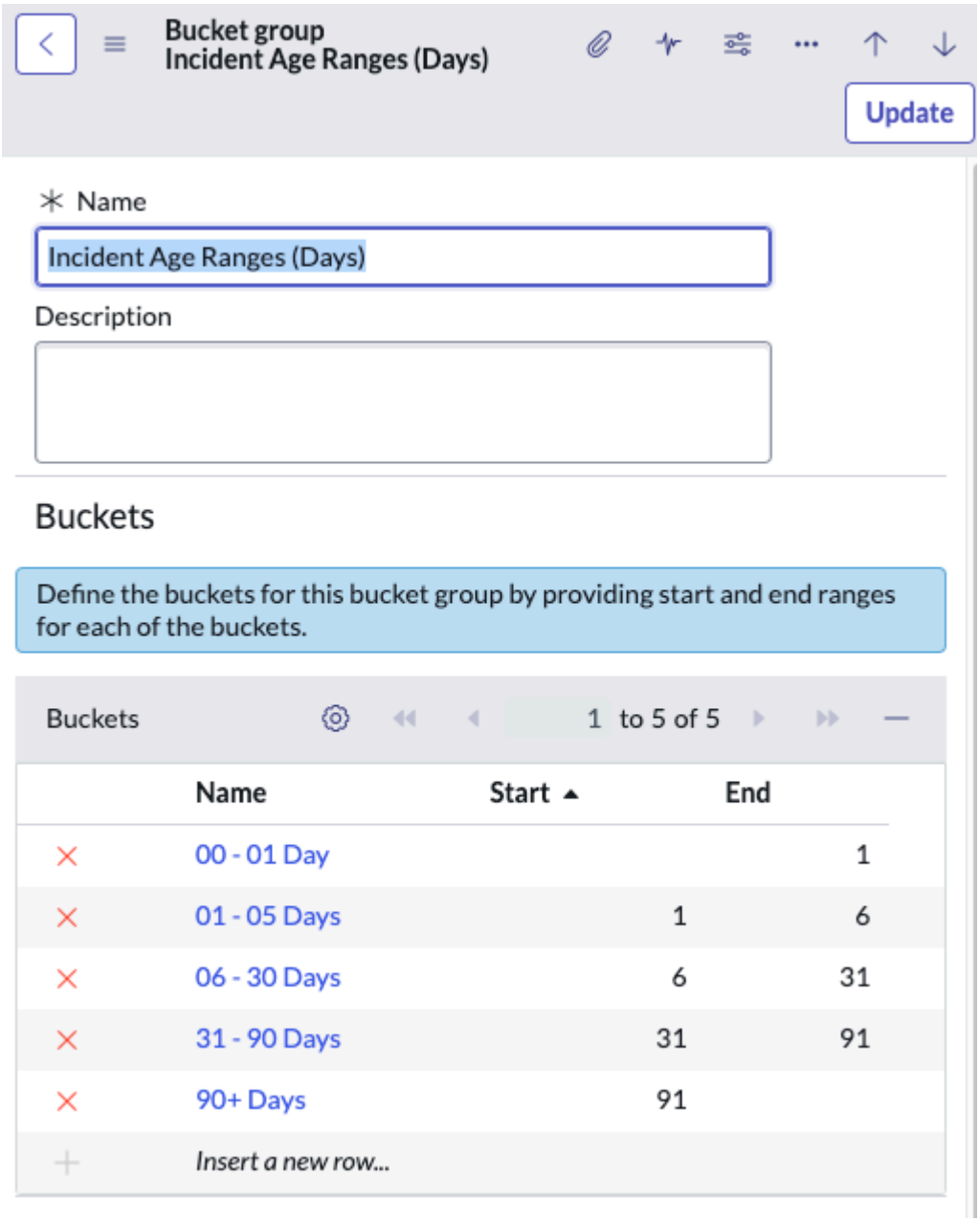


The Incident.Age.Days script takes the time stamp when the incident was opened from the incident table and subtracts this from the time stamp at the end of the collection period. The script converts this value from milliseconds to days.

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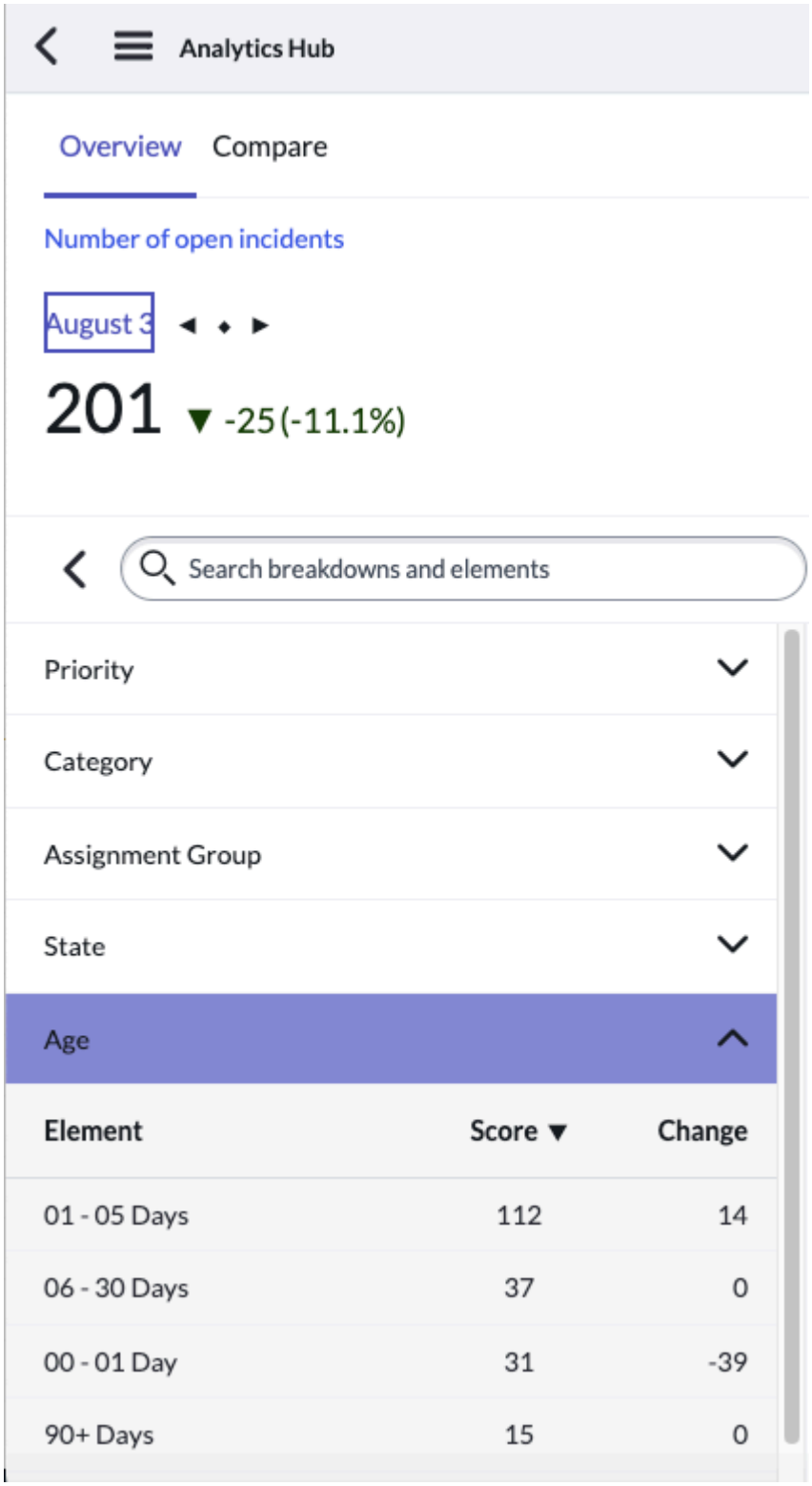
```
var diff=function(x,y){return y.dateNumericValue() -
 x.dateNumericValue();};
var days=function(x,y){return diff(x,y)/(24*60*60*1000);};
days(current.opened_at, score_end);
```

The resulting numbers of days are sorted into the buckets of the bucket group.



Here is the result of running this script on the Number of open incidents indicator.

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Related topics

Scripting in Performance Analytics

Assign an indicator to an automated breakdown

Associate automated or formula indicators with a breakdown to enable the collection of broken down scores for those indicators.

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Before you begin
The breakdown must have a breakdown mapping for the indicator source table.

Role required: pa_data_collector, pa_power_user, pa_admin, or admin

Procedure
1. Navigate to **All** > **Performance Analytics** > **Automated Breakdowns**.
2. Select a breakdown record.
3. In the **Indicators** related list, click **Edit**.
4. Use the slushbucket to select the indicators you want to assign to this breakdown.
5. Click **Save**.
6. **Optional:** In the **Indicator Breakdowns** related list, set the **Display** value to false to hide the breakdown on the Analytics Hub and dashboard widgets.
   If the **Display** field is false, broken-down scores are still populated during data collection, but the breakdown is not selectable on the Analytics Hub or on dashboard widgets.

What to do next
Run a data collection jobs on the indicator to collect scores for the new breakdown.

Important:
If you add a breakdown to an existing indicator for which you already have scores, be careful to collect scores for the new breakdown without overwriting any collected scores.

For this purpose, create a special one-off collection job. Set the job to collect data for as far back as you need. Select only the indicator or indicators to which you have added this breakdown. Configure the resulting job indicators to exclude all other breakdowns. Clear the **Collect indicator** option on the job indicators. Then run the job.

If your role does not allow you to create collection jobs, contact your Performance Analytics admin.

For more information, see Create or schedule a data collection job and Configure a job indicator.

Manual breakdowns

In a manual breakdown, you define the breakdown elements and the indicator scores for each element manually instead of using records from a breakdown source.

Unlike an automated breakdown, a manual breakdown does not map to any fields on the indicator source table. Instead, users must populate the broken-down scores manually.

Create a manual breakdown

Create a breakdown for an indicator where you add scores manually.

Before you begin
Roles required: pa_data_collector, pa_power_user, pa_admin, or admin

Procedure
1. Navigate to **All** > **Performance Analytics** > **Manual Breakdowns**.
2. Click **New**.
   The **Type** is set to **Manual** automatically.
3. Enter a descriptive **Name**.
4. Right-click the form header and select **Save**.

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5. In the **Manual** section, double-click **Insert a new row** to add a new breakdown element.
6. Press Enter or click the green check mark to save the entry.
7. **Optional:** Change the **Order** value.
   Elements with a lower **Order** value appear higher in the list of elements, such as on the Analytics Hub and dashboards.
8. Repeat steps 5-7 to add additional breakdown elements.
9. Click **Submit**.

What to do next
Associate manual indicators with this breakdown and populate scores using the scoresheet.

Assign a manual indicator to a manual breakdown

Associate a manual indicator with a manual breakdown to enable users to enter broken-down scores for the indicator.

Before you begin
Role required: pa_data_collector, pa_power_user, pa_admin, or admin

About this task
Note:
You can break down manual indicator scores by only one breakdown at a time. You cannot apply a 2nd-level breakdown to a manual indicator.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Manual Breakdowns**.
2. Select a breakdown record.
3. In the **Indicators** related list, click **Edit**.
4. Use the slushbucket to select the indicators you want to assign to this breakdown.
5. Click **Save**.
6. **Optional:** In the **Indicator Breakdowns** related list, set the **Display** value to false to hide the breakdown on the Analytics Hub and dashboard widgets.
   If the **Display** field is false, broken-down scores are still populated during data collection, but the breakdown is not selectable on the Analytics Hub or on dashboard widgets.

What to do next
Populate broken-down scores for the indicators using the scoresheet.

Element filters

Element filters enable you to specify or limit the displayed breakdown elements on visualizations.

An elements filter consists of a conditional filter or related list conditions and the breakdown source that the conditions apply to.

Tip:
Use an elements filter with dynamic conditions to create personalized visuals on a widget. For more information, see Personalized visuals.

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Related topics

- Analytics Hub
- Examining indicators with KPI Details
- Performance Analytics widgets

Create an elements filter

Select the breakdown source and filter conditions to filter breakdown elements from that breakdown source.

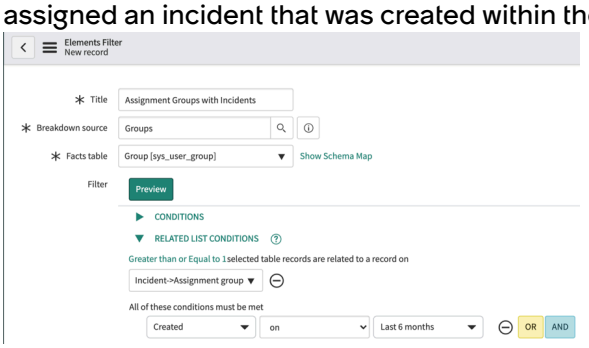
Before you begin

Role required: pa_data_collector or admin

Procedure

Navigate to **All** > **Performance Analytics** > **Elements Filters** and create a new record (see table for field descriptions).

Element filter fields

Field	Description
Breakdown source	Select the breakdown source you want to create an element filter for. The element filter is available for any breakdowns based on this breakdown source.
Facts table	Read-only. Displays the breakdown source facts table.
Filter	CONDITIONS: Specify the filter conditions to limit the available elements. Only elements that meet these conditions are displayed when you apply this element filter. For example, if the breakdown source facts table is User [sys_user], you can add a filter condition to include only users in the HR department. This filter condition is [Department][is][HR]. For Personalized visuals, the operator in the filter condition must be `[is (dynamic)]`.
	RELATED LIST CONDITIONS: Include a relationship with another table in the conditions. For example, you could create an element filter on the Groups breakdown source, which uses the Group [sys_user_group] table. If you added a related list condition on Incident [incident]->Assignment group, you would get only groups that had an incident assigned to them. If this condition included [[Created][on][Last 6 Months]], you would get groups that were assigned an incident that was created within the last six months. 

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Field	Description
Roles	Select any roles that a user must have to select this element filter on a widget form. A user must have at least one of the specified roles. If no roles are specified, all users who can edit a Performance Analytics widget can add this element filter.

What to do next

Use an element filter with dynamic conditions to create personalized visuals on a widget. For more information, see Personalized visuals.

All widget indicators that use this elements filter and all diagnostic results that mention this elements filter are listed at the bottom of the elements filter record.

Element filters in visualizations

Element filters can be seen in a Platform Analytics data visualization or on KPI Details. In the Core UI, they can be seen in Performance Analytics widgets or the Analytics Hub. Some restrictions apply.

You can select the element filter in the following ways on different visualizations:

- On the Core UI Analytics Hub: When you select a breakdown, if that breakdown has elements filters, you get a list of them to choose from.
- In a Core UI Performance Analytics widget: When configuring the widget, fill in the **Elements filter** field in the **Element settings** tab. Only breakdown, time series, and score widgets support elements filters. For time series and score widgets, an elements filter replaces the first-level breakdown element. For breakdown widgets, an elements filter limits the elements that are shown.
- In a Core UI widget indicator on a time series widget: Select a filter in the **Elements filter** field in the Element Settings. You must first select a breakdown with element filters on its breakdown source.

  Note:
  The names of all elements that get applied are appended to the name or label of the indicator.

- On KPI Details in Platform Analytics: When you select a breakdown in the **Filters** pane, if that breakdown has elements filters, you get a list of them to choose from under **Refine by**.
- In a Platform Analytics data visualization: While configuring the data visualization, select an indicator data source, a breakdown, and the [is (dynamic)] operator. Any elements filters for that breakdown are then available in the **Element** field. Only automated indicators with the Count, Minimize, or Maximize aggregate are supported.

In all of these cases, you can select an elements filter only if you first select a breakdown with at least one elements filter on its breakdown source. You may also need a certain role to select an elements filter, depending on the configuration of that filter.

Besides specifying an elements filter on a visualization, you can specify a **Default element filter** on a breakdown record. That elements filter is selected automatically for that breakdown in any visualization. Users that view the breakdown on the Analytics Hub or on KPI Details can change or clear the selected elements filter.

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Note:
It is not possible to change elements filters that are used to personalize visuals when simply viewing the visual on a dashboard or workspace. Only a user with the rights to edit the underlying widget or data visualization can change the elements filter. For more information, see Personalized visuals.

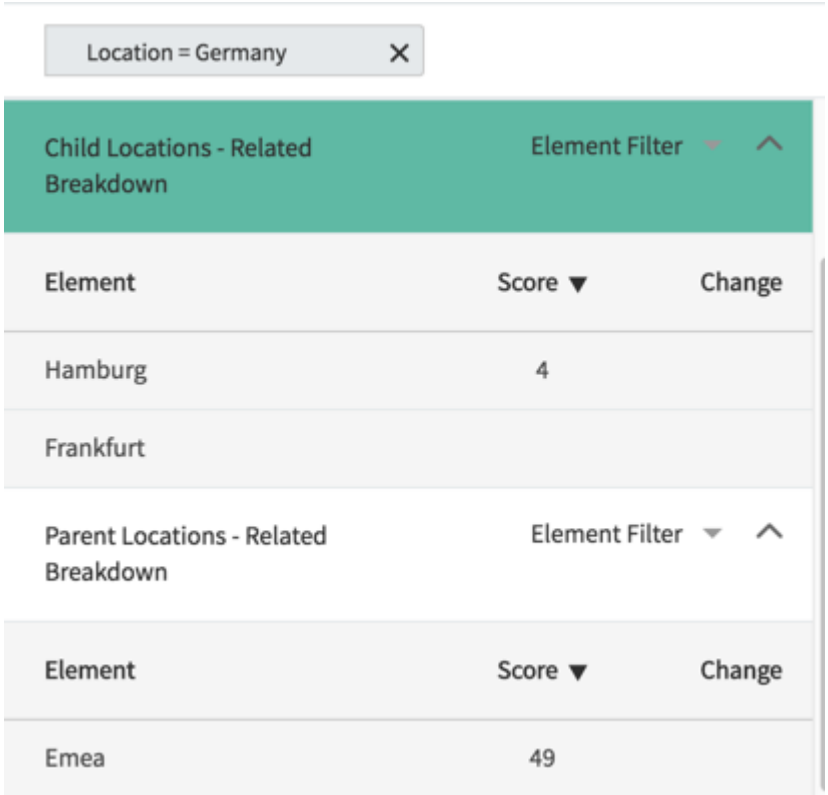
Navigating breakdown elements with breakdown relations

Breakdown relations open a new navigation path for viewing breakdown scores, by moving from one breakdown element to another breakdown element. Breakdown relations can be between the elements of different breakdowns, or they can be within a hierarchical structure of elements in the same breakdown. Breakdown relations affect navigation on the Analytics Hub and in breakdown widgets.

Important:
Platform Analytics features, such as KPI Details and data visualizations, do not support breakdown relations.

You can use breakdown relations to navigate between the elements of a single breakdown that are in a hierarchical relationship. For example, the Location breakdown has a hierarchy of 'parent' and 'child' elements, where a country can be the parent of cities. Breakdown relations let an Analytics Hub viewer navigate from a country down into a city, from a city to the country, or between cities in the same country.

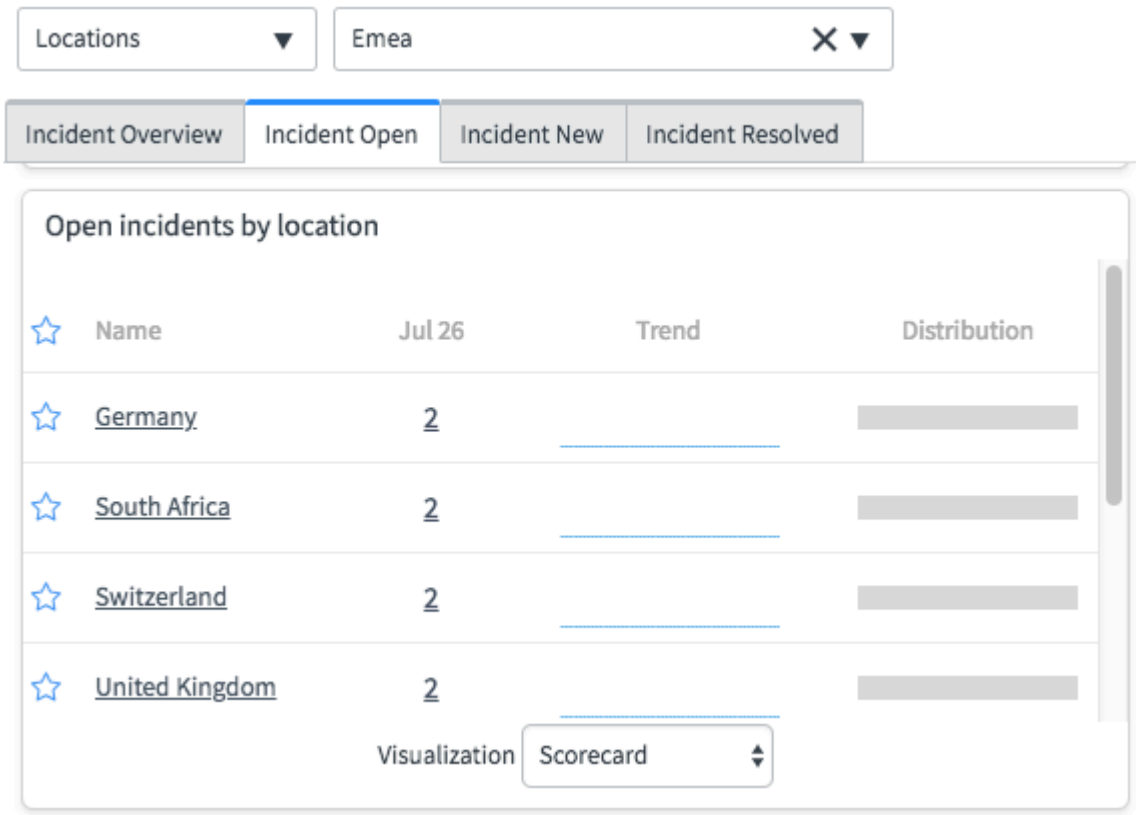
Navigating on the Analytics Hub between elements of the same breakdown



Similarly, a breakdown widget can show the parent, child, or sibling elements of the element that was chosen for the breakdown dashboard. For more information about using breakdown relations on breakdown dashboards, see Showing breakdown relations on dashboards.

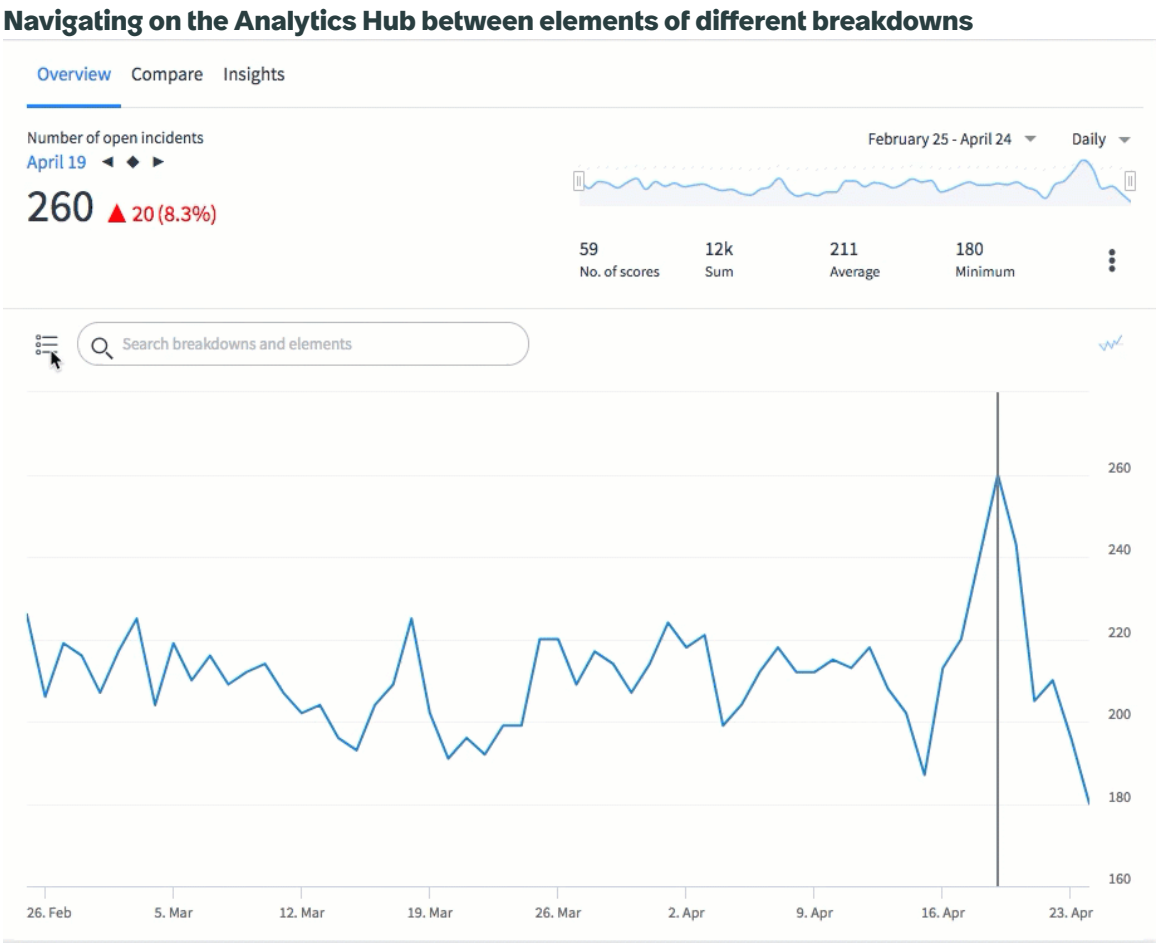
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Breakdown dashboard displaying children of the EMEA element



Breakdown relations also enable navigation between the elements of different first-level breakdowns. For example, first choose an element of the Assignment Group breakdown, then look at the Members breakdown relation. In this relation, navigate to an element of the Assigned To breakdown. The selected member of Assigned To is not necessarily a member of the Assignment Group. Furthermore, the number of assignments of members of Assigned To is greater than the number of assignments of the selected Assignment Group. You see the total of all assignments, not only the assignments in the originally selected Assignment Group. You are changing which first-level breakdown you are looking at, not drilling down to a second level of breakdown and element. Again, this breakdown relation can be used both on the Analytics Hub and in a breakdown widget on a breakdown dashboard.

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More details about these cases for using breakdown relations are in the topics about creating breakdown relations.

Create a breakdown relation between breakdowns

To set up navigation in a visualization between the elements of two breakdowns at the same level, create a breakdown relation between the breakdowns. A table must exist with fields that reference the records for both breakdowns.

Before you begin

Review the use cases for breakdown relations in Navigating breakdown elements with breakdown relations.

Important:
Platform Analytics features, such as KPI Details and data visualizations, do not support breakdown relations.

Role required: pa_data_collector, pa_power_user, admin

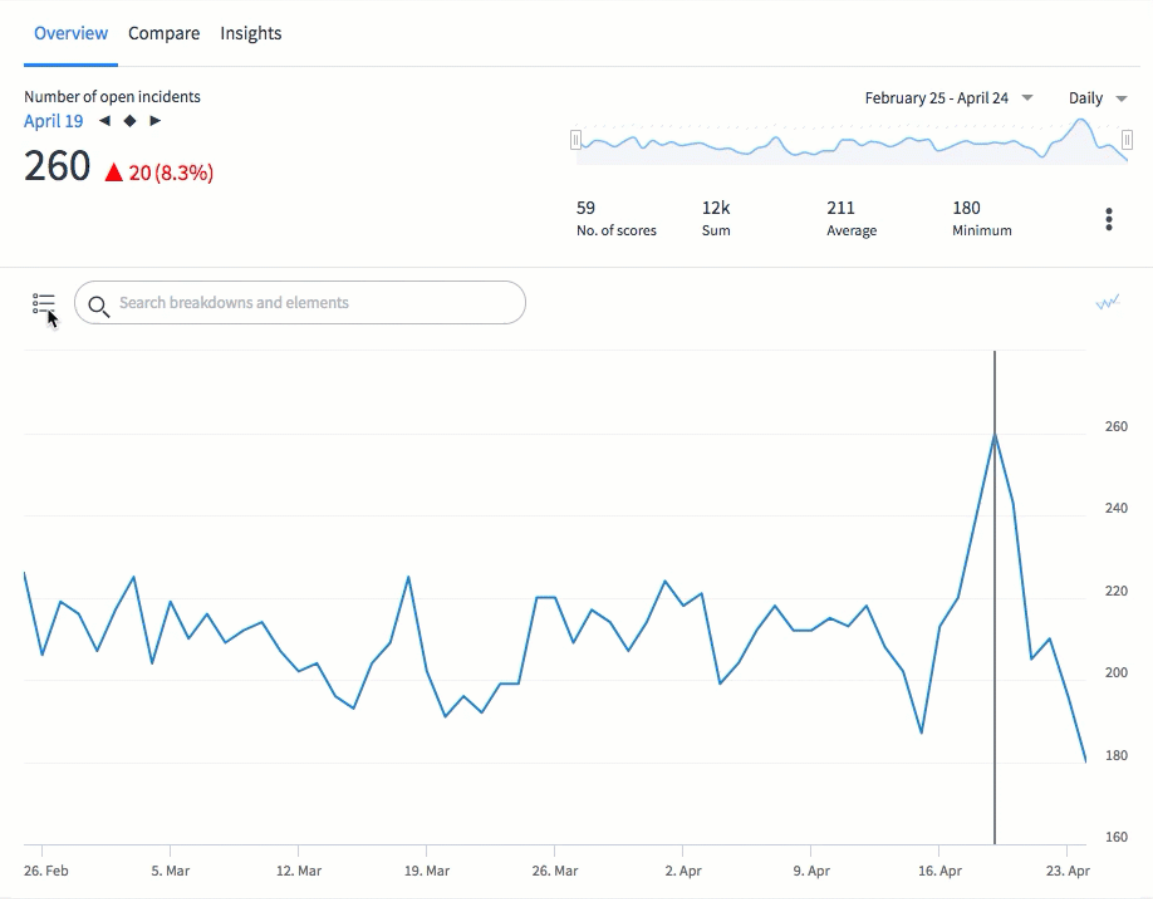
Note:
While a business analyst, typically with the pa_power_user role, is most likely to know what breakdown relations to create, creating them requires the knowledge and access to tables of a technical expert with pa_data_collector. A pa_admin is likely to understand both. Consider having either a pa_admin create the relation or have a collaboration between a pa_power_user and a pa_data_collector.

About this task

You want to be able to navigate quickly between two breakdowns at the same level that are logically related. The example used in this topic involves the breakdowns

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Assignment Group and Assigned To for the indicator Number of open incidents. In the following animation, you switch from seeing the number of incidents assigned to the Oracle Support group and seeing the number of incidents assigned to Candace Bruckman. Both breakdowns are first level, which means that you see the total number of incidents assigned to Oracle Support and the total assigned to Candace Bruckman. If you had selected Candice as a second-level breakdown instead of through a breakdown relation, you would have seen only the Oracle Support issues that they were working on.



Note:
Breakdown relations are one-way relationships. To create a bi-directional relationship, define multiple breakdown relations.

Procedure

1. Navigate to **All** > **Breakdowns** > **Breakdown Relations** and click **New**.
2. Fill in the fields on the form, as follows.

Breakdown Relation form

Field	Description	Example
Breakdown	Select the breakdown that this relationship belongs to. You can access related breakdowns from this breakdown only.	For our example, where you want a selection of group members to appear when you select an Assignment Group, the **Breakdown** is Assignment Group.

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Field	Description	Example
Related breakdown	Select the breakdown you want to associate with the first breakdown.	For our example, the related breakdown with the Assignment Group members is Assigned To.
Table	Select a table with fields that reference the facts table records of the sources of both breakdowns. For many-to-many relationships, select a many-to-many table. For one-to-many relationships, select a facts table.	The Assignment Group breakdown uses Group data. The Assigned To breakdown uses User data. Assignment Groups can have many members, and a user can be a member of more than one Assignment Group, so they have a many-to-many relationship. Therefore, you select the Group Member [sys_user_grmember] table, which is a many-to-many table that joins groups and users.
Breakdown field	Select the field from the specified table that identifies the breakdown element you can navigate from.	In our example, you select the **Group** field. This field in the Group Member [sys_user_grmember] table identifies the element of the Assignment Group breakdown.
Related breakdown field	Select the field from the specified table that identifies the breakdown elements you can navigate to when viewing this relation.	In our example, you select the **User** field. This field in the Group Member [sys_user_grmember] table identifies the element of the Assigned To breakdown.
Common field	Leave this field empty when defining a relation between breakdowns.	
Conditions	Define any further conditions that a record must fulfill to appear as a related breakdown for this relationship.	In our example, you add the condition **[User.Active] [is] [true]** to filter our inactive group members.

Result

After you submit the Breakdown Relation form, the navigation options are available in the Analytics Hub for the relevant indicator. You do not need to run a data collection job first.

What to do next

View examples of breakdown relations that are shipped by default in every instance. The example shown here is the **Members** breakdown relation. The **Member of** breakdown relation provides navigation in the reverse direction, starting with an element in Assigned To and navigating to an Assignment Group. Lastly, the **Manager** breakdown relation is similar to **Members**, but because each assignment group has only one manager, it shows a many-to-one relationship. It thus uses a facts table instead of a many-to-many table.

Create relations between elements of one breakdown

Use a breakdown relation to set up navigation on an Analytics Hub between a hierarchy of elements within the same breakdown. A field in the breakdown records must identify the hierarchical relationship of one record to another.

Before you begin

Review the use cases for breakdown relations in Navigating breakdown elements with breakdown relations.

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Important:
Platform Analytics features, such as KPI Details and data visualizations, do not support breakdown relations.

Role required: pa_data_collector, pa_power_user, admin

Note:
While a business analyst, typically with the pa_power_user role, is most likely to know what breakdown relations to create, creating them requires the knowledge and access to tables of a technical expert with pa_data_collector. A pa_admin is likely to understand both. Consider having either a pa_admin create the relation or have a collaboration between a pa_power_user and a pa_data_collector.

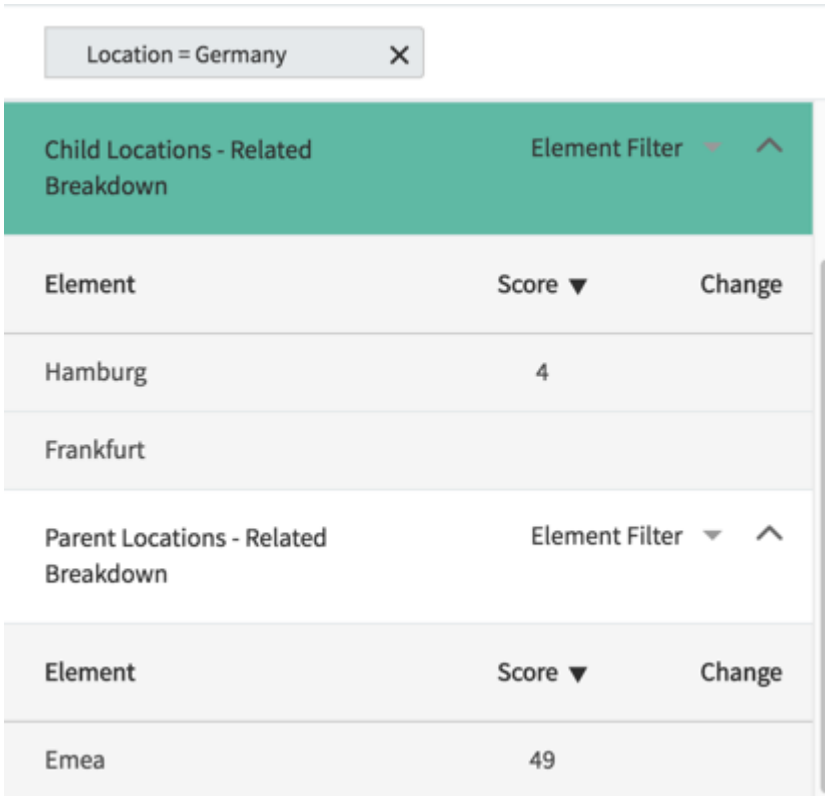
About this task

You can create breakdown relations to navigate the following hierarchical relationships between elements of a breakdown:

- Child relations, to navigate from a parent element to its children
- Parent relations, to navigate from a child element to its parents
- Sibling, or peer relations, to navigate between elements that share the same parent element

In a breakdown with a hierarchical relationship between elements, one field in the element record identifies the position of the element in the hierarchy. Typically this field is Parent, and identifies the parent element. Elements that are the parent of one element can themselves have a parent element, and you can navigate this multi-level hierarchy in the Analytics Hub.

The example used in this topic is the Location breakdown for the Number of open incidents indicator. A child relation and a parent relation are needed to navigate the several levels of hierarchy, such as from region to country to city and back.



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Note:
Breakdown relations are one-way relationships. Define multiple breakdown relations to create a bi-directional relationship.

Procedure

1. Navigate to **All** > **Breakdowns** > **Breakdown Relations** and click **New**.
2. In the **Breakdown** and **Related breakdown** fields, select the breakdown whose elements you want to navigate between.
   These fields have the same value when you are creating a relation between elements of the same breakdown. For our example, select the **Location** breakdown in both fields.
3. In the **Table** field, select the same table as the breakdown source facts table.
   In our example, select **Location [cmn_location]**.
4. Fill in the rest of the form, depending on whether you are creating a child, a parent, or a sibling/peer relation.

Breakdown Relation form

Field	Child relation	Parent relation	Sibling/peer relation
Breakdown field	Select the field that identifies the parent element. For the Location breakdown, select **Parent**.	Select the unique identifier field for elements of this breakdown. For the Location breakdown, as for most breakdowns, select **Sys ID**	Select the unique identifier field for elements of this breakdown. For the Location breakdown, as for most breakdowns, select **Sys ID**
Related breakdown field	Select the unique identifier field for elements of this breakdown. For the Location breakdown, as for most breakdowns, select **Sys ID**	Select the field that identifies the parent element. For the Location breakdown, select **Parent**.	Select the unique identifier field for elements of this breakdown. For the Location breakdown, as for most breakdowns, select **Sys ID**
Common field	Leave empty.	Leave empty.	Select the field that identifies the parent element. For the Location breakdown, select **Parent**.

5. Under **Conditions**, define any further conditions that a record must fulfill to appear as a related breakdown for this relationship.

Result

After you submit the Breakdown Relation form, the navigation options are available in the Analytics Hub for the relevant indicator. You do not need to run a data collection job first.

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What to do next
View examples of breakdown relations that are shipped by default in every instance. For the Location breakdown, the **Child Location** and **Parent Location** breakdown relations are included. The **Sibling Group** breakdown relation is an example of a sibling or peer relation.

Control ability to view breakdown elements

To limit which breakdown elements a subset of users can view on indicators, implement element security. Element security applies to widgets, workspaces, and the Analytics Hub .

Before you begin
Roles required: pa_admin or admin

About this task
There are no visibility options for breakdowns. Instead, access to breakdowns is regulated by ACLs in the breakdown sources.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Breakdown Sources**.
2. Open the breakdown sources record for the breakdown you want to set access to.
3. In the **Security type** list, select from the following choices.
4. Define an Elements Security List record and either:
   - Select the elements for the list.
   - Set conditions to define which elements are on the list.
5. Specify the roles that the elements security list applies to.

Define an elements security list

An elements security list prevents unauthorized access to breakdown elements.

Before you begin
Role required: pa_admin

Procedure
1. Navigate to **All** > **Performance Analytics** > **Breakdown Sources**.
2. Open an existing breakdown source record.
3. In the **Elements Security List** related list, click **New**.
4. Fill in the fields, as appropriate.

Name	Description
Name	Descriptive name of the elements security list.
Description	A more detailed description of what the elements security list does and its purpose.
Active	Check box for making the elements security list active (selected) or inactive (cleared).

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Name	Description
All roles	Select to indicate that the list applies to all roles. Clear the check box and click the lock icon to specify the roles belonging to this elements security list. You can use the search button to look for specific roles.
Security type	[Read-Only] Security type selected for the associated breakdown source.
Dimension	[Read-Only] Dimension selected for the associated breakdown source.
Facts table	[Read-Only] Facts table selected for the associated breakdown source.
Select elements	Select to specify explicitly the elements that this security list applies to. If this option is cleared, use **Conditions** to determine which elements to include.
All elements	Select for the security list to include all elements. Clear to specify individual elements in this security list. Default: selected
Show blank option	Select to allow a user on a breakdown dashboard to see scores without any breakdown elements specified. Clear to allow a user on a breakdown dashboard to see only scores for the breakdown elements that are visible to their role. This setting affects only widgets that follow breakdown dashboard elements. Users with the admin role can always see unfiltered scores on breakdown dashboards.
Conditions	The conditions for determining which breakdown elements the security list applies to. For example, **[User.Manager] [is (dynamic)] [Me]**. Conditions are applied on top of the breakdown source conditions. This field is available only if **Select elements** is not selected.

5. Click **Submit**.

Role restrictions with deny lists

If deny list security is specified for a breakdown source, and any of the roles of a user are on an element security list for that breakdown source, that user cannot see the elements which that security list applies to.

Visibility of breakdown element by user role with deny list security

User role on element security list?	Visibility of elements
None of the roles of the user are in an element security list.	All elements that the security list applies to are visible.
Any of the roles of the user are in an element security list.	None of the elements that the security list applies to are visible.
User has the admin role.	All elements are visible.

Role restrictions with allow lists

If allow list security is specified for a breakdown source, and any of the roles of a user are on an element security list for that breakdown source, that user can see the elements which that security list applies to.

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Visibility of breakdown element by user role with allow list security

User role on element security list?	Visibility of elements
None of the roles of the user are in a security list.	None of the elements that the security list applies to are visible.
Any of the roles of the user are in a security list.	All elements that the security list applies to are visible.
User has the admin role.	All elements are visible.

Using breakdowns on dashboards

You can add breakdown sources to a dashboard. Dashboard users then can select a breakdown source and one or more breakdown elements to filter scores in the visualizations on the dashboard.

The selected elements filter those Performance Analytics widgets on the dashboard that follow these conditions:

- An indicator on the widget uses a breakdown that is based on the selected breakdown source. For formula indicators, all the contributing indicators in the formula must use a breakdown based on this source.
- The widget follows elements on breakdown dashboards.

The selected elements filter reports on the dashboard under the following conditions:

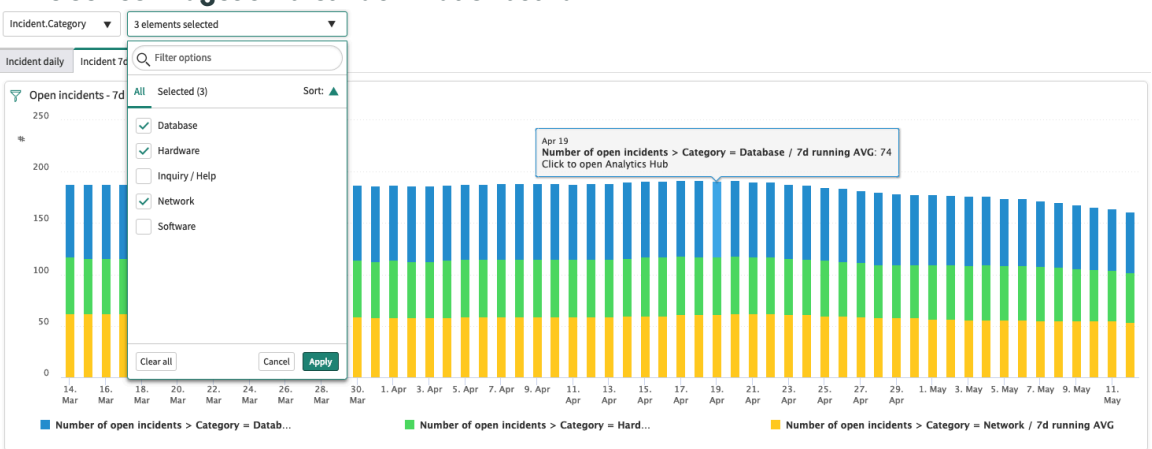
- You have configured the dashboard to use the breakdown source as an interactive filter.
- The report follows interactive filters on the dashboard.

If the dashboard user selects multiple elements, widgets can show scores separately for those elements, or show a single aggregate, depending on the widget type and configuration. For more information, see Showing multiple elements separately or aggregated.

Note:
If you show a breakdown relation on a widget, that widget cannot show multiple elements. For more information, see Showing breakdown relations on dashboards.

The following illustration shows a breakdown widget with the scores given separately for each selected element of the Category breakdown. The dashboard user has selected three elements of the Incident.Category breakdown source. If this user has access to the Analytics Hub, they can click any score to view the score trend in the Analytics Hub.

Time series widget on breakdown dashboard



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Note:
If you view a breakdown dashboard with a breakdown applied but no elements, the widgets show the base indicator scores. The breakdown does not filter the scores. These scores are usually higher than the scores when you select a breakdown and all elements. Often not all elements are available due to element security or an element filter. You also usually cannot select the Unassigned score, which contributes to the indicator scores.

Related topics

Performance Analytics widgets

Indicator breakdowns

Define a breakdown source

Analytics Hub for a specific indicator

Make a breakdown act as an interactive filter

Add breakdown sources to a dashboard

To enable dashboard users to filter visualizations on a dashboard by breakdown element, add breakdown sources to the dashboard.

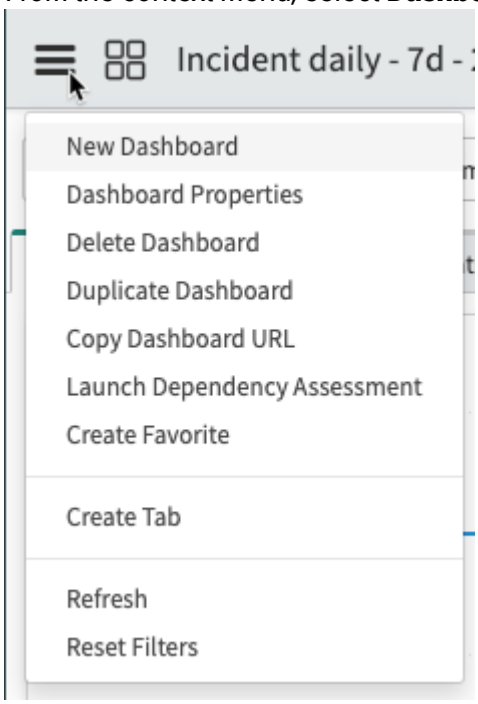
Before you begin

Role required: pa_admin, pa_power_user, or admin

About this task

Procedure

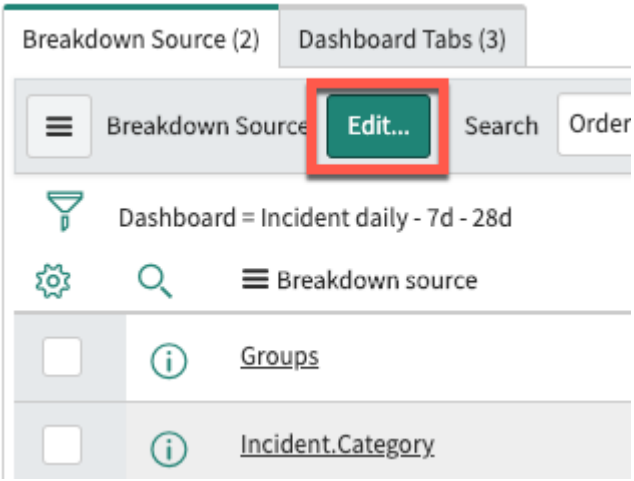
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Open the relevant dashboard.
3. From the context menu, select **Dashboard Properties**.



The dashboard record opens.

4. Click **Edit** in the Breakdown Source related list.

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A dialog opens where you can move breakdown sources into and out of the list.

5. Move the breakdown sources you want to apply to the Breakdown Source List.
6. Click **Save**.

Result

The breakdown sources are available on the dashboard. Users can group the dashboard on the selected elements.

What to do next

- You can configure the entries in the Breakdown Source related list so that reports on the dashboard can use the breakdown sources as interactive filters. You first create interactive filters that are based on the same tables as the breakdown sources. For more information, see Make a breakdown act as an interactive filter.
- Configure the Performance Analytics widgets on the dashboard so that users can filter them by selecting breakdown elements on the dashboard. For more information, see Configure widgets for breakdown dashboards.

Configure widgets for breakdown dashboards

Configure each widget that goes on a breakdown dashboard. The configuration determines whether and how the widget follows the elements selected on the dashboard. For some widgets and indicators, you can select whether to show multiple element values separately or as an aggregate.

Before you begin

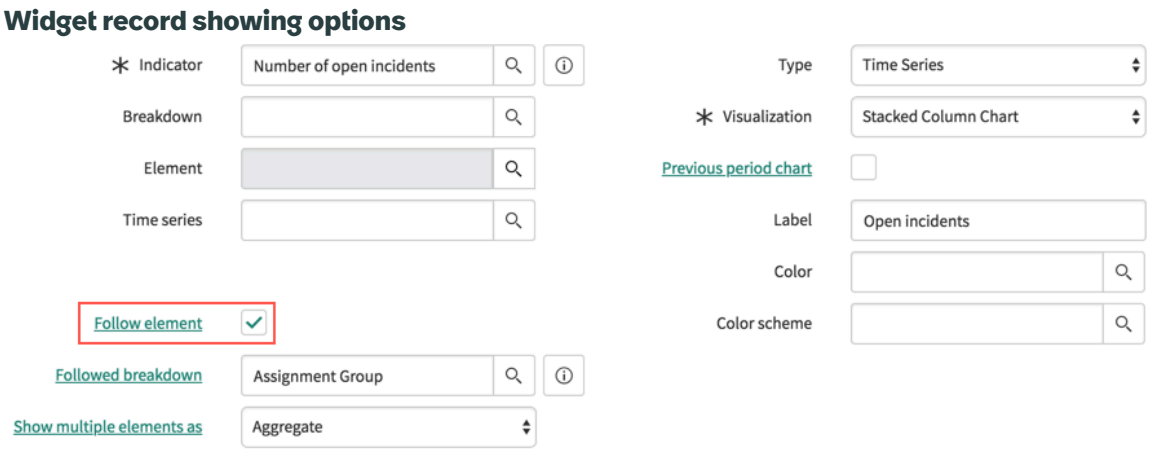
This task assumes that you are starting from an open breakdown dashboard.

Role required: pa_power_user, admin

Procedure

1. On the breakdown dashboard, click the plus sign ( ) to put the dashboard in edit mode.
2. Point to the widget, then click the pencil icon ( ).
   The widget record opens.
3. Select **Follow element** in the widget record.

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If you do not select **Follow element** for a widget, that widget does not follow any breakdown elements selected on the dashboard. The **Followed breakdown** and **Show multiple elements as** options are not visible.

If the widget is for a formula indicator, all contributing indicators in the formula must support the selected breakdown source on the dashboard. Otherwise, no scores are displayed in the widget. In this case, a message displays to inform you of the situation.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

4. If more than one breakdown uses one of the breakdown sources on the dashboard, specify which breakdown applies to the widget in **Followed breakdown**.

   Example
   For example, the breakdowns Opened by, Requested by, Requested for, and Assigned to use the Users.Active breakdown source. If you add Users.Active to a dashboard, select the relevant breakdown in **Followed breakdown** for each of the widgets that you have on that dashboard. This option does not affect any other breakdown sources you may have added to the dashboard.

5. In the **Show multiple elements as** field, select how to show scores when a dashboard viewer selects multiple breakdown elements.
   Choose from two possibilities:

   - **Aggregate**, which shows a single, aggregate score of all selected elements.
   - **Separate**, which shows each selected element separately.

   Not all widget and indicator types support both views. Some types do not support selecting multiple elements at all. If it is not possible to select multiple elements for a widget/indicator combination, the field says **Not available**. For more information, see Showing multiple elements separately or aggregated.

Showing multiple elements separately or aggregated

When you select multiple elements on a dashboard, widgets that follow these elements can show their values either separately or as an aggregate.

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On a widget form, use the **Show multiple elements as** field to set whether multiple elements are shown separately or as an aggregate. Widgets with the view type **Separate** show a different value for each breakdown element selected. Widgets with the view type **Aggregate** show a single value that represents the aggregated value of all selected breakdown elements.

The widget type logically determines whether an aggregated view, a separate view, or both are available. Also, formula indicators support the aggregated view only when the aggregated view is explicitly enabled on the indicator record. For example, a Score widget can only show an aggregated view. Without aggregated views being enabled, a Score widget for a formula indicator cannot be filtered on multiple elements. In this case, the **Show multiple element as** field displays **Not available** and is grayed out. For more information, see the section Indicators that support an aggregate of multiple elements.

Widget support of aggregate and separate views

- Time series widgets support aggregate and separate views.
- List widgets support aggregate and separate views.
- Score widgets only support the aggregate view.
- Breakdown widgets only support the aggregate view.

Note:
You cannot select multiple elements on workbench or text Performance Analytics widgets. If you try, all selected elements are ignored. This limitation does not apply to Platform Analytics data visualizations.

Indicators that support an aggregate of multiple elements

The following indicators support the aggregated view:

- Automated indicators that aggregate data as a Count, Sum, Minimum, or Maximum value

  Note:
  The word "aggregate" is used for two different things here: the aggregate view of multiple indicator scores, and the data aggregation that is set on an indicator.

- Manual indicators
- External indicators that do not use `SQL AVG()` or `SQL COUNT(DISTINCT...)` in their SQL statement
- Formula indicators that have aggregate element views enabled on their indicator records. For more information, see the entry on the **Allow aggregation of multiple breakdown element scores** field on the Other tab in Create a formula indicator.

Important:

- Indicators that aggregate data as an Average or a Count Distinct do not support the Aggregate view.
- The **Show multiple elements as** value applies to both the main widget and any indicator widgets. If **Aggregate** is selected but one of the indicator widgets does not support the **Aggregate** view, that indicator does not follow the elements on the breakdown dashboard. Instead, the indicator follows any first-level breakdown and element that are set in the widget configuration. The other indicators follow the elements on the breakdown dashboard and show an aggregate of their values.

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Results when showing aggregate view

The aggregate view of multiple elements shows a different result depending on the indicator's data aggregation:

Automated indicator data aggregation	External indicator SQL statement	In a widget, what an aggregate view of multiple elements shows
COUNT	`SQL COUNT()`	A sum of the scores of the selected elements
SUM	`SQL SUM()`	A sum of the scores of the selected elements, which themselves are sums
MAX	`SQL MAX()`	Whichever element had the highest value at each time point
MIN	`SQL MIN()`	Whichever element had the lowest value at each time point

With the aggregate view selected, not all features are available on all widgets or when the user navigates from the widget to the Analytics Hub:

- Targets, thresholds, and comments are not available when you navigate to the Analytics Hub from a widget with multiple breakdown elements selected in an aggregate view. The breakdown selector and search functionality are also unavailable.
- Targets and thresholds are not available in time series widgets.
- Targets and bullet charts are not available in list widgets.

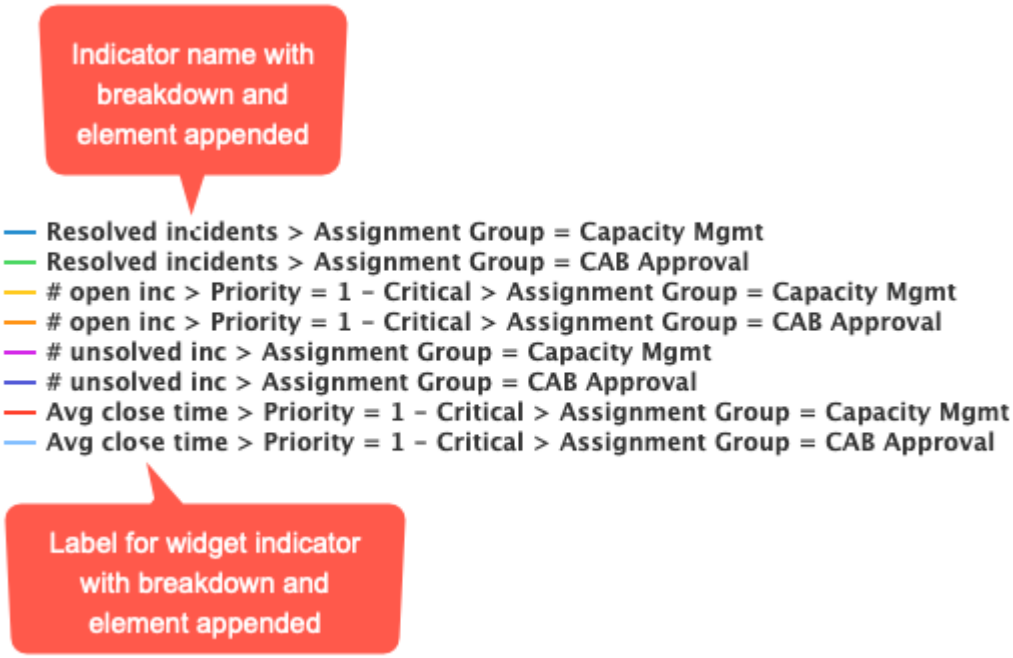
Widget indicators and breakdown dashboards

When a user selects breakdown elements on a breakdown dashboard, the breakdown and element names are appended to the widget indicator names. Widget indicator labels also have the breakdown and element names appended. The breakdown and element names are not appended to the widget indicator names and labels in the following circumstances:

- The widget shows an aggregate view of multiple elements, and the widget indicator does not support this view.
- The widget does not follow elements.
- The widget indicators do not support the selected breakdown elements.

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Names and labels for widget indicators with multiple elements selected, separate view



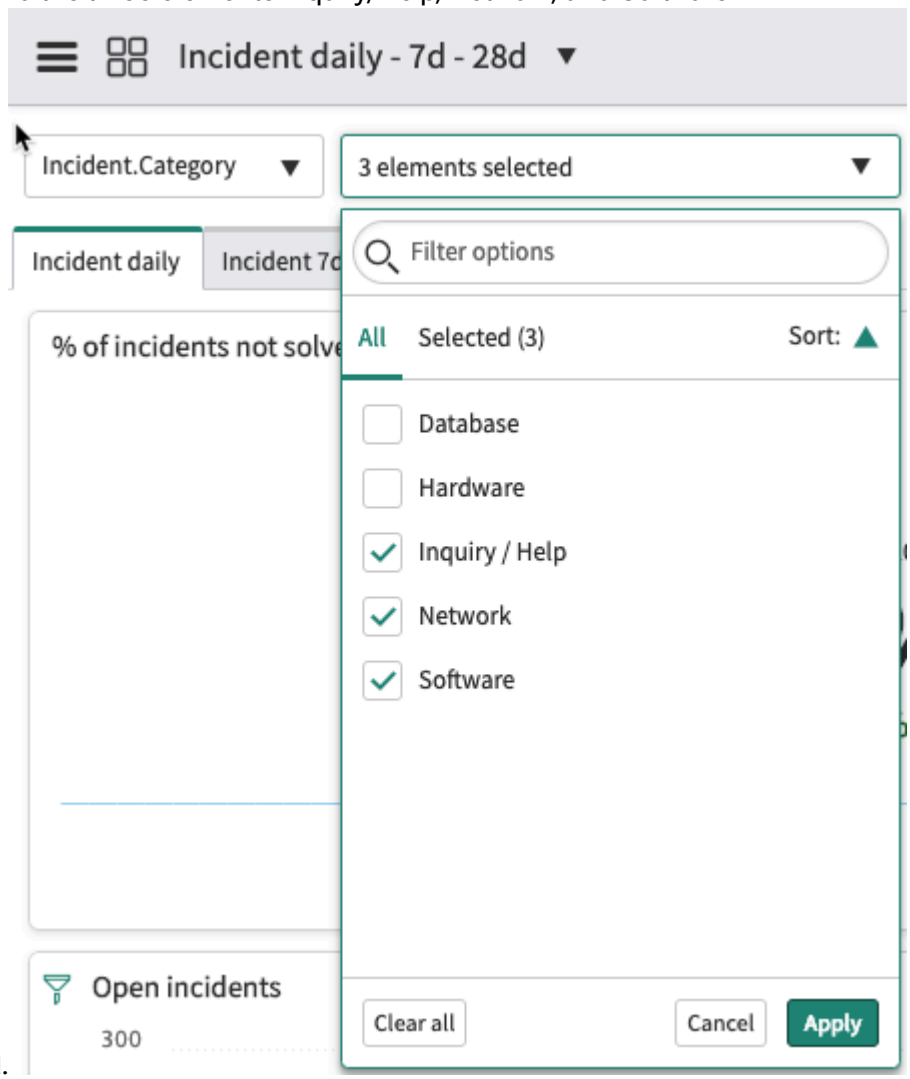
Names and labels for widget indicators with multiple elements selected, aggregate view



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Example: Open incidents with aggregate and separate values for multiple elements

Consider a breakdown dashboard with the Incident.Category breakdown source and the three elements Inquiry/Help, Network, and Software selected.

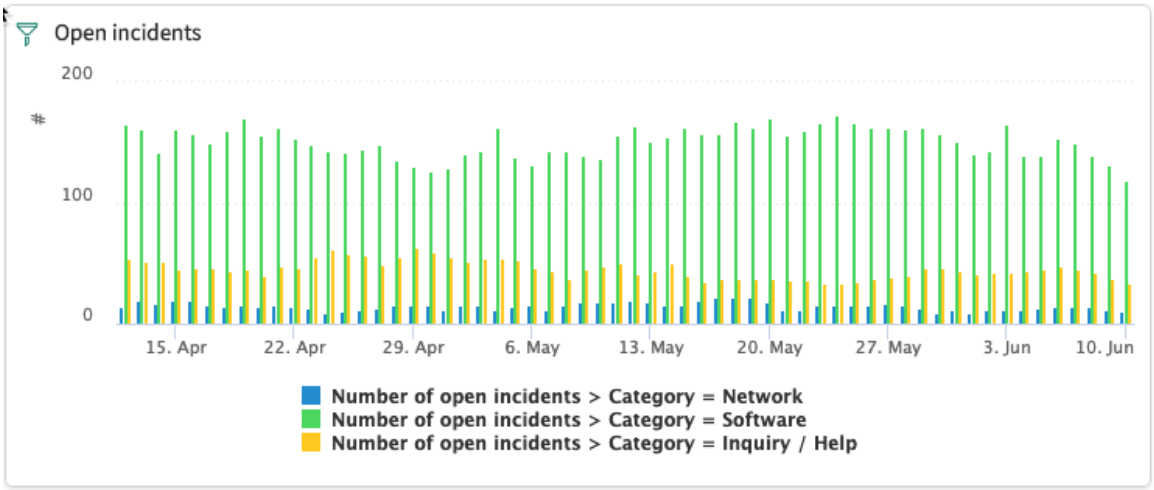


The dashboard contains a time series widget called Open Incidents. This widget shows the Number of Open Incidents indicator, which has the Count aggregate. The widget follows the elements that are selected on the dashboard. Therefore, the widget can show multiple elements selected on the dashboard either separately or as an aggregate value. The **Show multiple elements as** field is set to **Separate**.

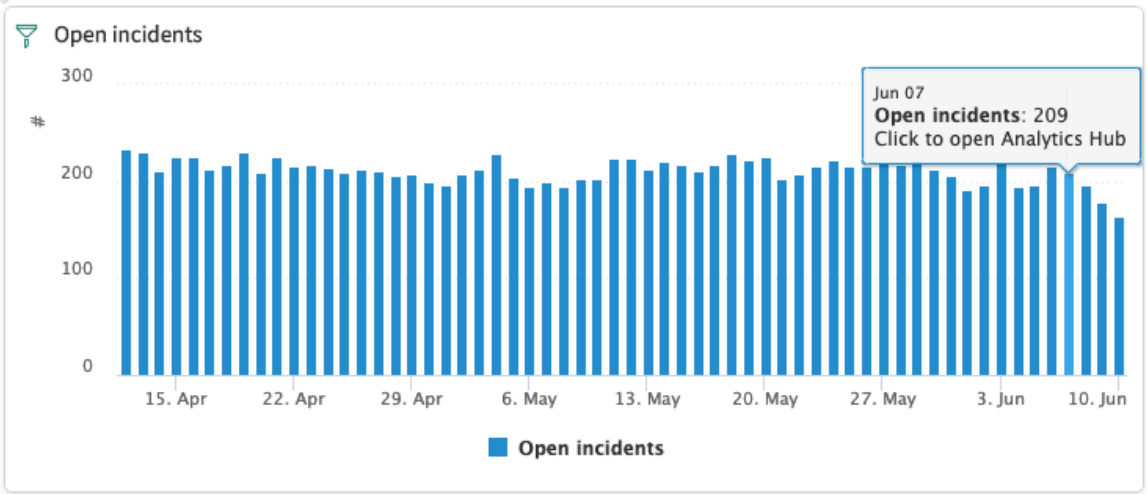


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On the dashboard, a separate column is shown for each of the three selected elements for each day.



With the **Show multiple elements as** field set to **Aggregate,** a single, aggregate score is shown for the three selected elements.



Same breakdown on widget and dashboard

If a widget uses the same breakdown as the dashboard, the dashboard breakdown does not apply.

When you design a widget, you can specify up to two levels of breakdown to apply to that widget. Then you can add that widget to any dashboard, including a breakdown dashboard. If one of the breakdowns for the dashboard is the same as one of the breakdowns of the widget, that dashboard breakdown does not affect the widget. The behavior for that breakdown is the same as though **Follow element** was disabled for this widget.

If you add a breakdown type widget with interactive breakdown selection to a dashboard, this limitation does not fully apply. When the user selects the same breakdown on the widget and on the dashboard, the dashboard breakdown is ignored. However, when the user selects any other combination of widget and dashboard breakdowns, both breakdowns apply.

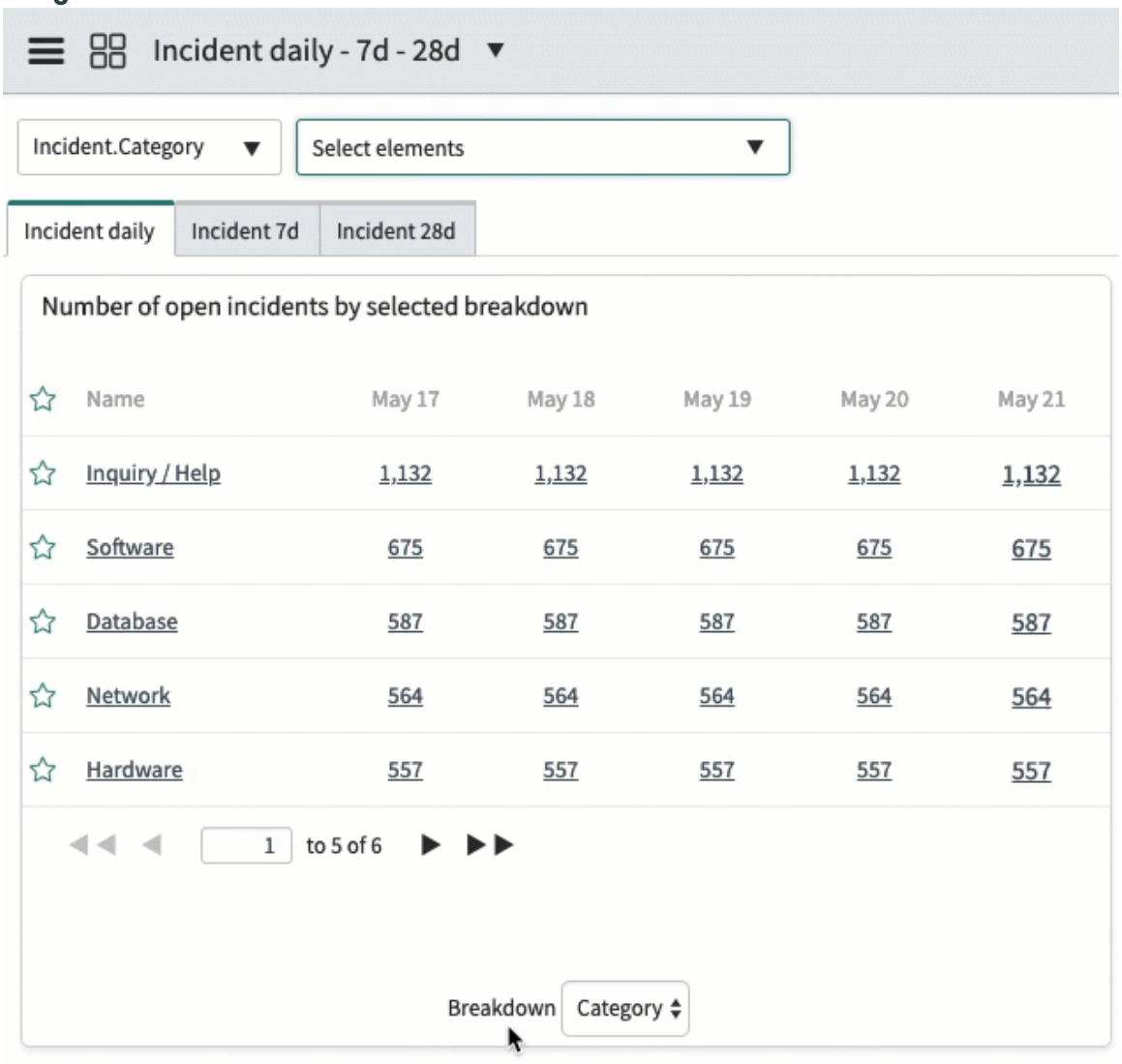
Example: Breakdown widget on a breakdown dashboard

In the following animation, you have a breakdown widget on a breakdown dashboard. The widget has **Follow element** selected in its configuration. Both the dashboard and the widget are using elements of the Category breakdown. When you select elements on the dashboard, it has no effect on the widget. Then you select the Urgency breakdown on the widget. Now selecting

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elements on the dashboard does affect the widget. If you had changed the breakdown source on the dashboard instead of the breakdown on the widget, selecting elements on the dashboard also would have affected the widget.

Widget with interactive breakdown selection on a breakdown dashboard



Showing breakdown relations on dashboards

A breakdown widget can display 1st level breakdown elements that are related to the element selected for the dashboard. The widget must be on a breakdown dashboard, and that dashboard must include the breakdown sources of the related breakdowns.

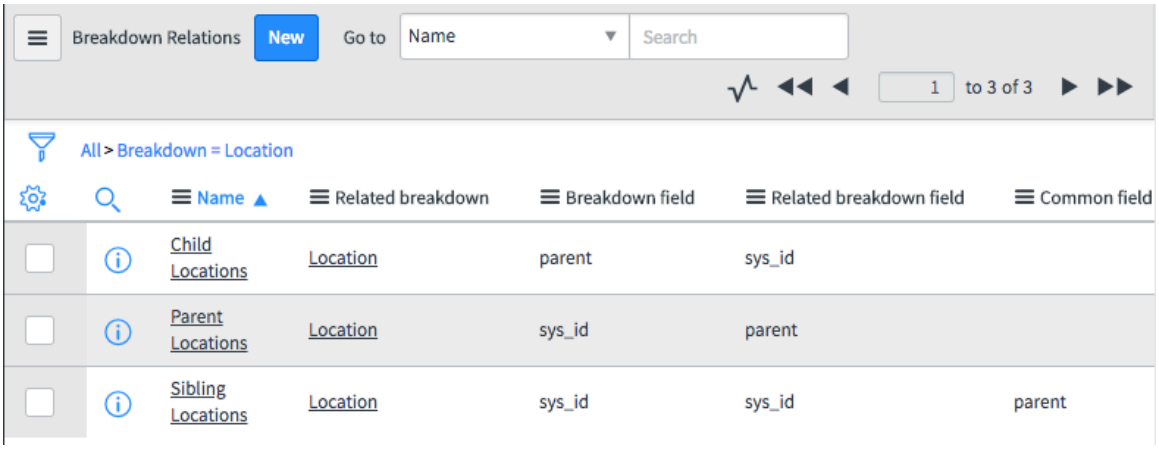
Note:
You cannot select more than one element on the dashboard for a widget that shows breakdown relations.

Consider an indicator such as Number of open incidents. This indicator uses the Location breakdown. The Location breakdown has three breakdown relations between its own elements. For an element of Location, these relations are:

- Parent Locations, whose Sys ID value is in the Parent field of other Location elements.
- Child Locations, which have the Sys ID value of another Location element in their Parent fields.
- Sibling Locations, consisting of Location elements who share the same value in the Parent field.

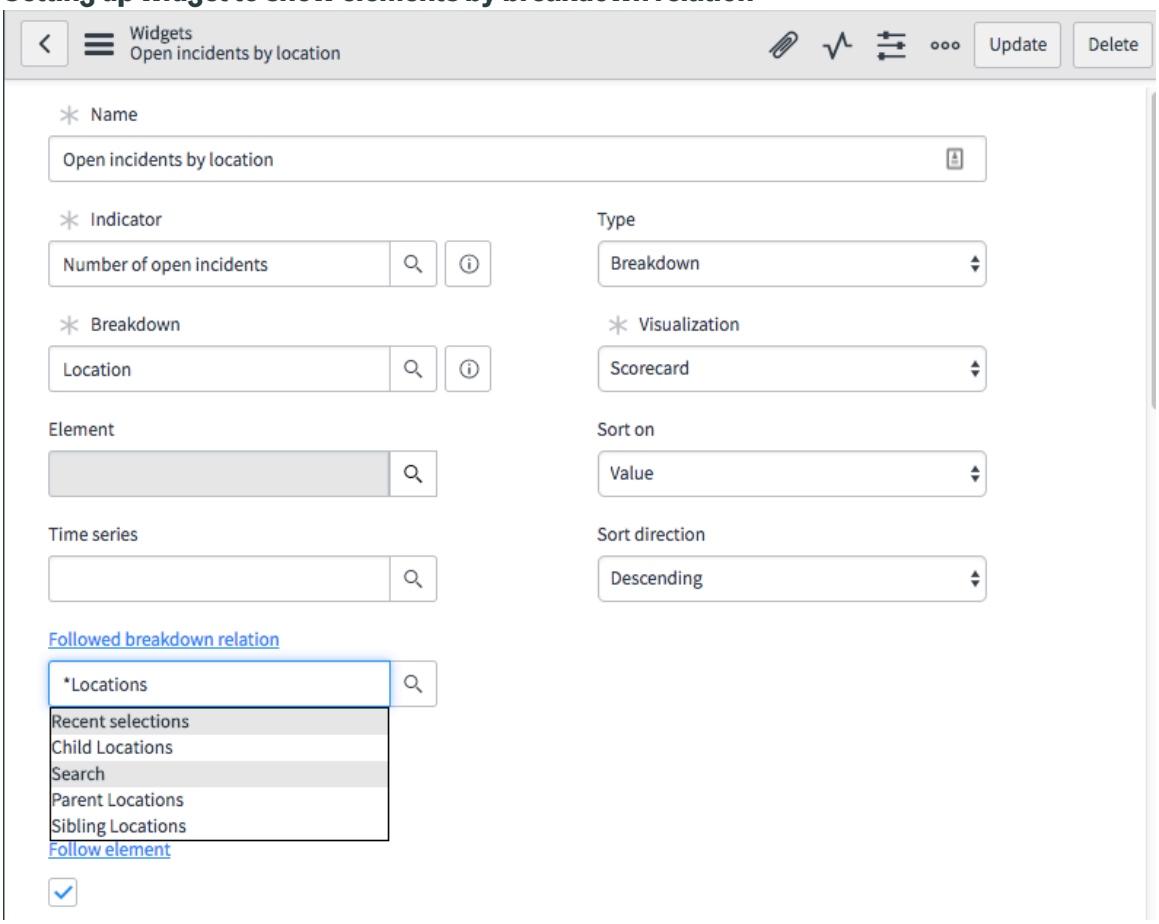
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Breakdown relations between elements of Location



Now consider a widget that displays the Number of open incidents indicator scores grouped by Location. You set the widget to follow an element selected in a breakdown dashboard. Now you must select which of the breakdown relations to follow.

Setting up widget to show elements by breakdown relation



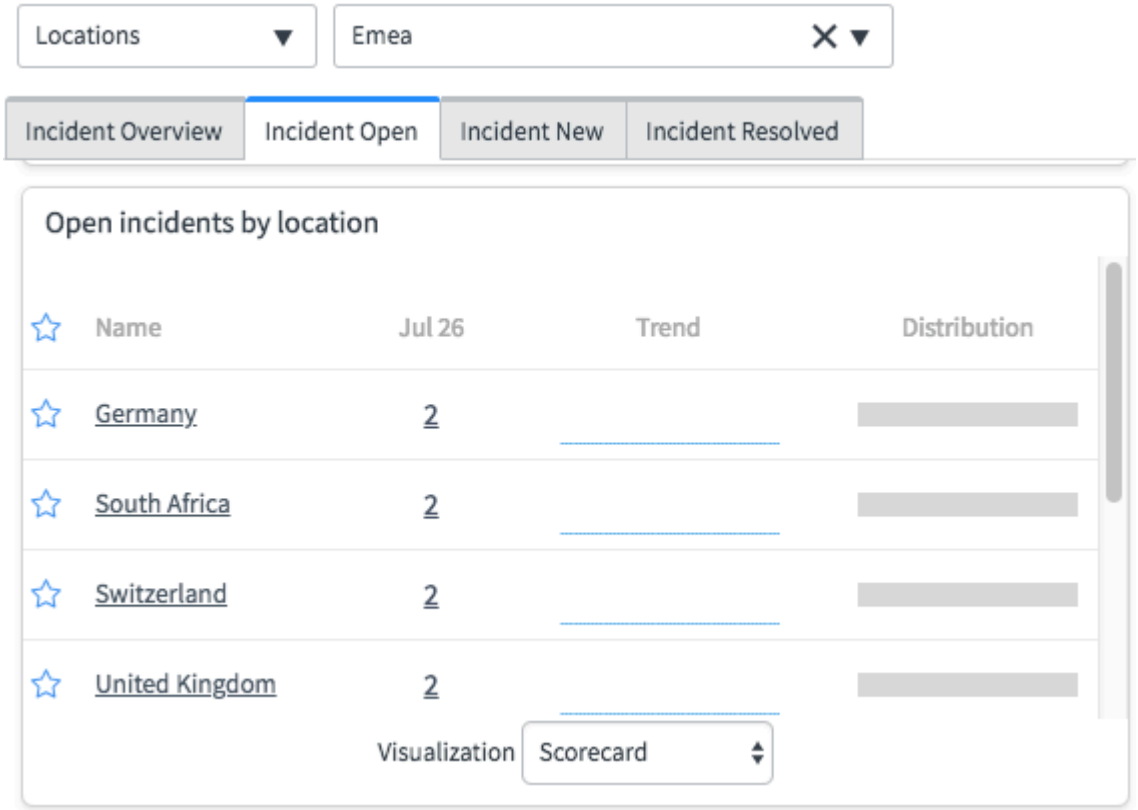
Important:
The **Followed breakdown relation** menu works only when the **Scorecard** visualization is selected. To allow the user to follow breakdown relations with other visualizations, select **Show visualization selector** on the widget form.

You select Child Locations. Now you put the widget in a breakdown dashboard that uses the Locations breakdown source. Locations is the breakdown source of the Location breakdown, so

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on the dashboard you can select any of the elements of Location. If you select EMEA, the widget shows the locations that have EMEA as a parent.

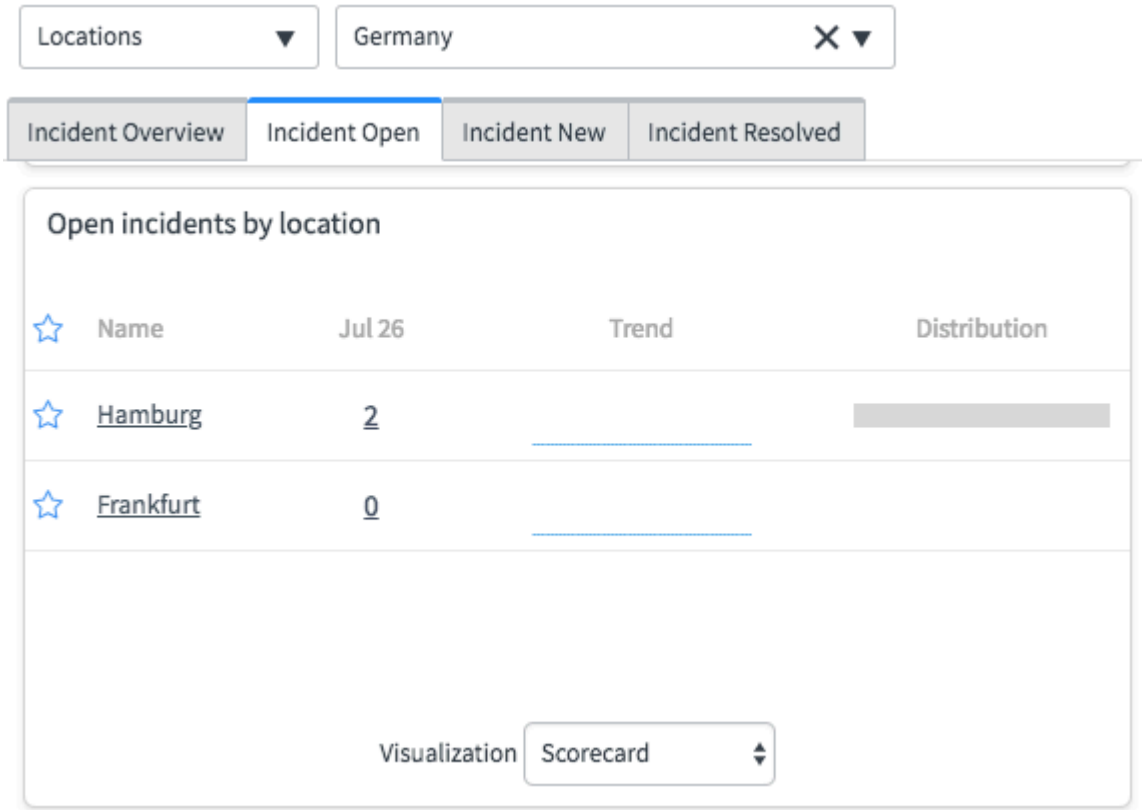
A widget on a breakdown dashboard showing the children of the dashboard element



You can go down more levels, to "grandchild" and "great-grandchild" elements. For example, here the location of Germany is selected:

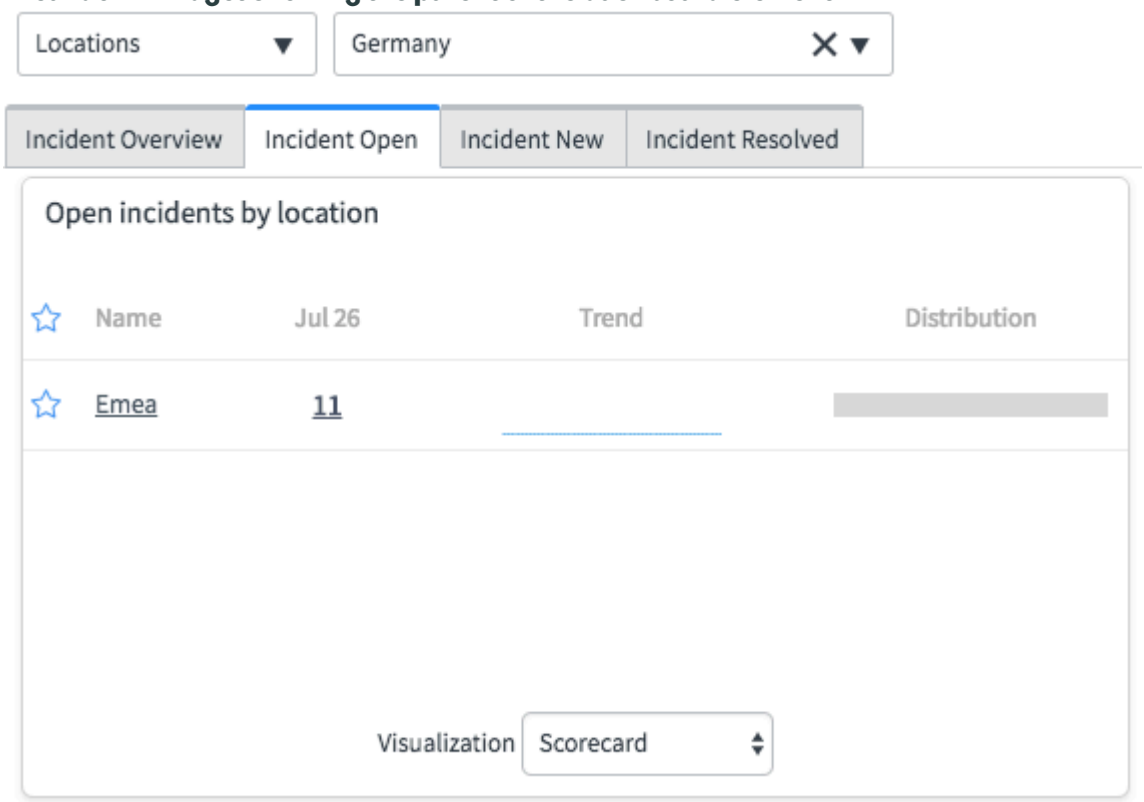
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Breakdown widget with a child of EMEA selected



If you edit the widget to display the Parent Location instead of the Child Locations and select Germany on the dashboard again, you see the parent location of Germany.

Breakdown widget showing the parent of the dashboard element



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Related topics

Navigating breakdown elements with breakdown relations

Create a scorecard visualization for a breakdown widget

Data snapshots and multiple breakdowns

Data snapshots in Platform Analytics allows for multiple breakdowns while analyzing your indicators (KPIs). This architecture uses a change data capture (CDC) process, which captures data changes from configurable tables that are optimized for generating scores and time series at run-time.

Classic Performance Analytics has always calculated multiple breakdowns applied to an indicator through a matrix. Mathematically, the number of calculations increases geometrically with the number of breakdowns. Practically, this approach limits you to a maximum of two breakdowns that can be applied to an indicator simultaneously.

Data snapshots does not use breakdown matrices. Thanks to the use of CDC instead, you can apply multiple breakdown levels. The ability to apply more than two levels of breakdown addresses one of the longstanding pain points of Performance Analytics. This feature deepens your ability to analyze data and broadens the insights you can gain through Performance Analytics.

Important:

- Data snapshots requires that your instance uses the RaptorDB Professional database.
- Domain-separated instances are not supported.
- To get data snapshots and enable multiple levels of breakdown, activate the Data Snapshots (com.snc.pa.mlb) plugin. A Performance Analytics subscription and the admin role are required. Consider testing data snapshots in a development environment before activating them on a production instance.
- When you have activated the Data Snapshots plugin, you still have to enable it for supported indicators. For more information, see Activate data snapshots.
- Only Platform Analytics experience components (Data visualizations, KPI Details) support data snapshots. You cannot show more than two levels of breakdowns in Core UI components like PA widgets and the Analytics Hub.
- Data snapshots collection jobs may result in increased storage use by Performance Analytics. The jobs copy subsets of the source tables and store every daily change for related records.

The following indicators support data snapshots:

- Automated indicators that do not use scripted aggregations (non-scripted indicators).
- Formula indicators with only non-scripted, automated contributing indicators
- Formula indicators that contain other formula indicators, provided that ultimately the underlying indicators are non-scripted, automated indicators.

If an indicator does not support data snapshots, the reasons appear in a warning on the indicator's record page.

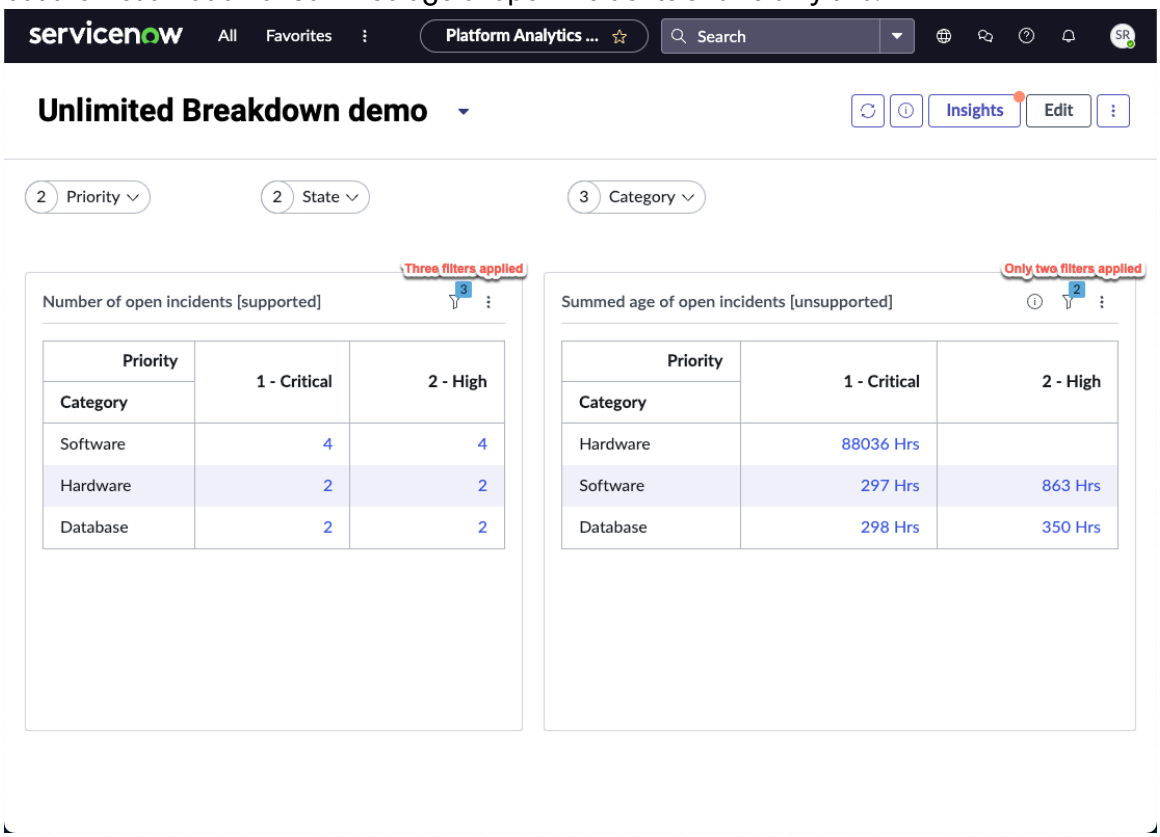
Important:

You cannot apply multiple breakdowns to data that was collected before the feature was activated. You can apply only two levels of breakdown to such data. If you try to apply more levels of breakdown, the result is an empty area for that date range on your data visualization or KPI Details chart.

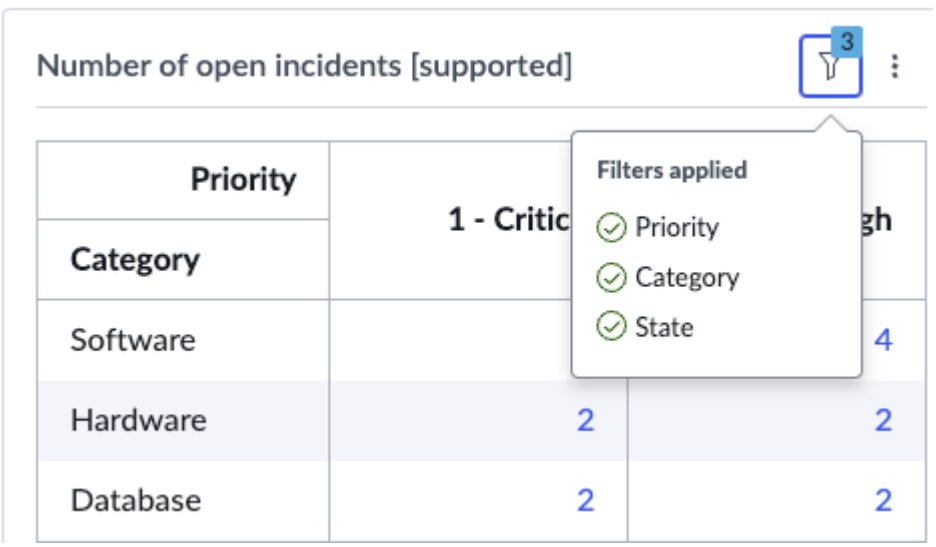
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Example: Supported and unsupported indicators

Filters apply differently to visualizations of indicators that support and that don't support multiple breakdowns. In this example, you have a dashboard with two pivot table data visualizations. One pivot table shows the indicator Number of open incidents. This indicator isn't scripted and thus supports multiple breakdowns. The other pivot table shows the indicator Summed age of open incidents. This indicator is scripted so doesn't support multiple breakdowns. The dashboard has three filters, each of which filters on a breakdown that is on both indicators. All three filters are being applied. The filters were applied in the following chronological order: first Priority, then Category, then State. The visualization of Number of open incidents shows three filters applied, but the visualization of Summed age of open incidents shows only two.

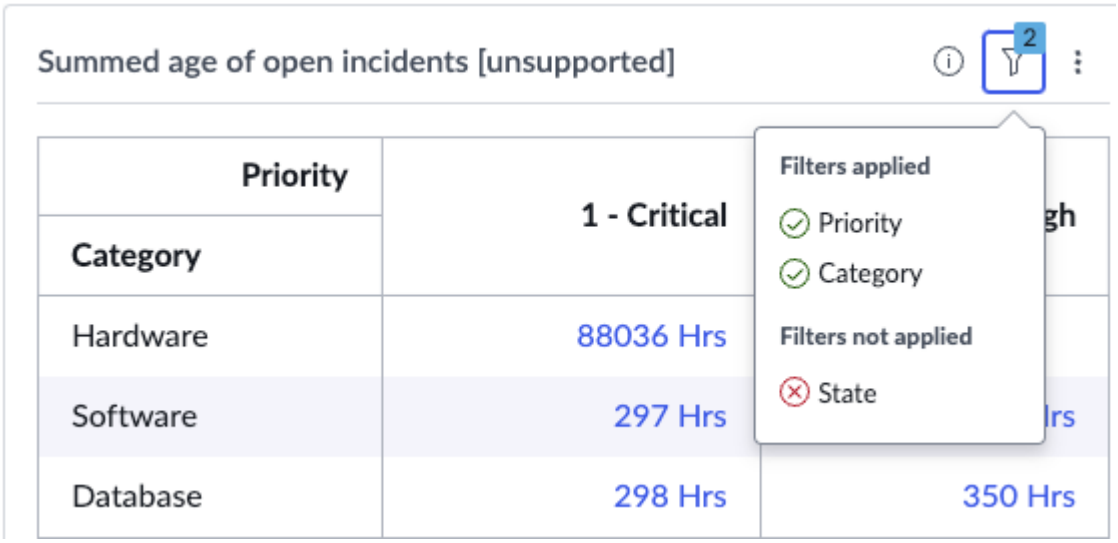


Examining the filters that are applied to the Number of open incidents indicator, you see that all three filters are being applied.



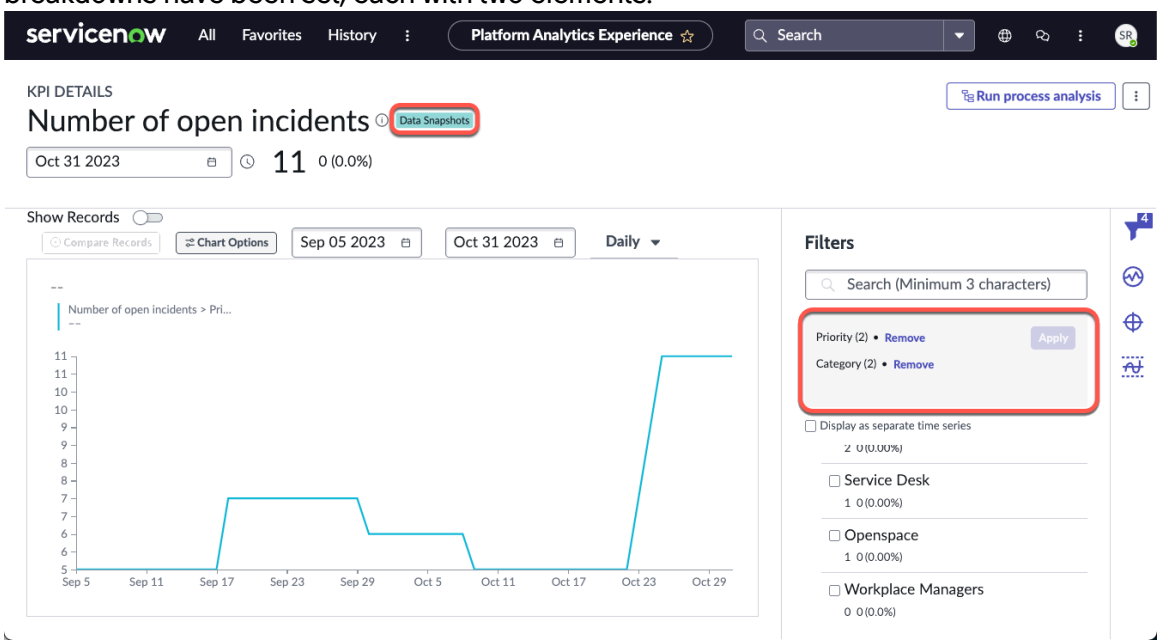
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For the Summed age of open incidents indicator, you see that only the first two filters that were applied to the dashboard apply to this indicator.



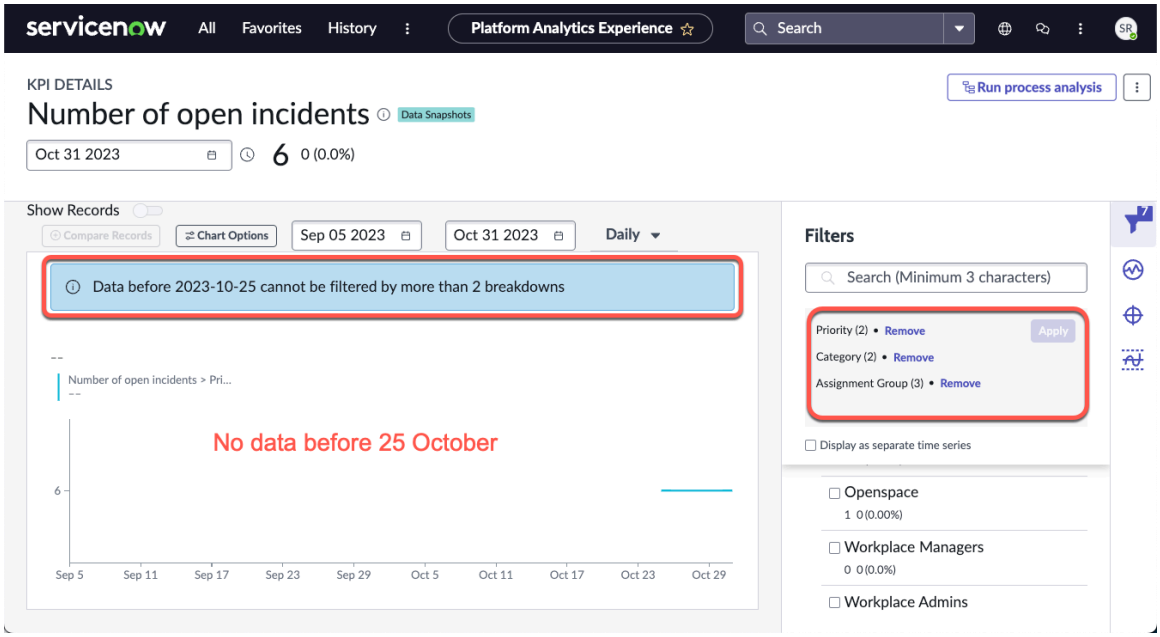
Example: KPI Details for an indicator that uses data snapshots

This example shows the KPI Details for the indicator Number of open incidents. The indicator supports data snapshots and multiple breakdowns, as is shown by a badge in the header. Two breakdowns have been set, each with two elements.



You can select a third breakdown. However, data snapshots were only implemented on this instance a few days ago. Once you select a third breakdown, no data before this date is shown. You have a banner warning you to this effect.

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Activate data snapshots

Enable data snapshots on an instance as a whole and on individual existing indicators (KPIs) on the instance. When data snapshots are enabled, you can apply multiple breakdown levels to an indicator.

Before you begin

The Data Snapshots (com.snc.pa.mlb) plugin must be activated on the instance. You also must have a subscription to Performance Analytics to use data snapshots on a production instance, as described in Activating your Performance Analytics subscription. On a non-production instance, activate any of the Performance Analytics Premium plugins.

Role required: pa_data_collector or higher

About this task

Certain indicators support more than two levels of breakdown. This feature is called multiple breakdowns, and is one of the features of data snapshots. This feature is not available for all indicators. For a list of restrictions, see Limitations and requirements for data snapshots.

You have to activate data snapshots for the instance by enabling the Data Snapshots (com.snc.pa.mlb) plugin. You then have to activate data snapshots for each indicator, either one-at-a-time or in bulk.

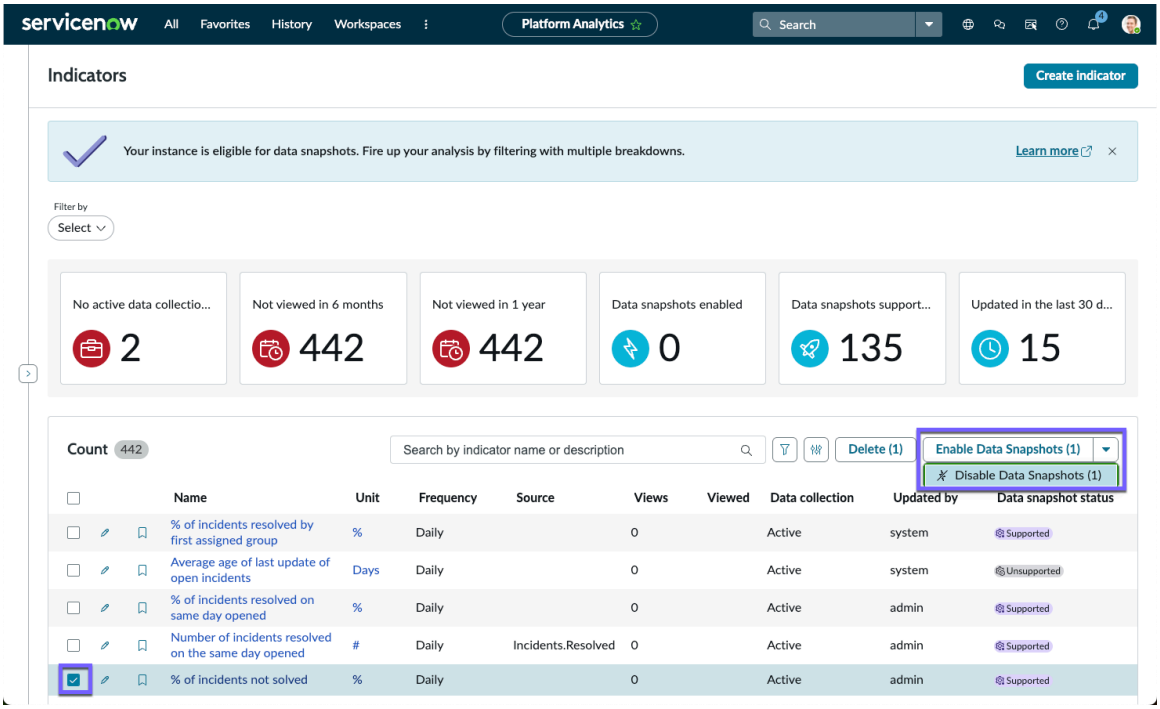
Important:
Classic Performance Analytics data collection jobs continue to run in parallel on indicators that have data snapshots enabled. The scores that the classic job collects are not used while data snapshots are enabled. Parallel job collection ensures smooth rollback if necessary.

Procedure

1. Navigate to **All** > **Platform Analytics** > **Library** > **Indicators**.
2. Press **Check instance eligibility** to see if your instance is eligible for data snapshots and, if not, why.

   When your instance is eligible for data snapshots, you have a banner announcing this fact and two new tiles, Data snapshots enabled and Data snapshots supported.

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3. To set an individual indicator to support more than two levels of breakdown, perform the following actions:

   a. Open the indicator record.

   b. Select **Enable Data Snapshots**.

   A modal opens explaining the process of enabling data snapshots:

   - That the indicator will be linked to an appropriate data snapshots source if one exists
   - That if no suitable data snapshots source exists, one will be created
   - Which of the requirements for data snapshots are met or not met
   - Whether the record volume is within the allowed threshold for your license

   c. If you meet all the requirements and agree with the process, select **Continue**.

What to do next

The scheduled conversion process runs hourly and synchronizes any changes to existing indicators. The job also converts any newly created indicators. To trigger the conversion process and sync changes manually, select **Update Data Snapshots status**. For example, manually synchronize changes after you have fixed an unsupported indicator configuration and you now want to enable data snapshots for that indicator.

If data snapshots were not enabled on some of the indicators, the indicator record contains a message giving the reasons why that indicator was not compatible. You also get suggestions about how to make the indicator compatible.

Related topics

Create an automated indicator

Create a formula indicator

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Limitations and requirements for data snapshots

Several features of indicators and breakdowns are not supported with data snapshots and multiple breakdowns.

Instance-level limitations

Limitation or unsupported feature	Notes
Database requirements	Only instances with the RaptorDB Professional (PostgreSQL) database are supported, not Oracle or MariaDB/MySQL. (Checked when plugin is activated.)
Domain separation	Domain-separated instances are not supported.

Table-level limitations

Limitation or unsupported feature	Notes
System tables	System tables (named `sys_*`) are not supported.
Technical limitations on table size	Change data capture (CDC) works by determining and tracking the data that has changed (the "deltas"). If an indicator source is too large for data snapshots to track the deltas, multiple breakdowns are not supported for that indicator.
Licensing limitations on table size	Data sources with more than 30 million records are not supported, due to potential performance issues.
High volume of changes	If any table that contributes to an indicator, either as a data source or through breakdowns or conditions, has had more than 1 million changes in the last month, data snapshots are not enabled for that indicator.
Benchmarking indicators	Not supported

Indicator- and breakdown-level limitations

Limitation or unsupported feature	Notes
Benchmarking indicators	Not supported
Indicators with no conditions	Not supported
Scripted breakdown mappings/aggregations	Not supported
Breakdowns/aggregations on string and numeric type fields are not supported	The same limitations apply as with classic Performance Analytics breakdowns and indicators: Breakdowns on Choice fields that are strings or integers are supported.

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Limitation or unsupported feature	Notes
	Only purely string and numeric fields are not supported. For example, a breakdown on Incident.Category would be supported because Category is a Choice field. A breakdown on Short Description would not be supported, because that is purely a string.
Only some query operators are supported	Unsupported operators for each field type on the source: • Boolean/ChoiceTable/Reference: ISEMPTYSTRING • SysClassName: INSTANCEOF • String: MATCH_PAT and MATCH_RGX • Currency: NOT_EQUALS, LESS_THAN, GREATER_THAN, LESS_THAN_OR_EQUALS, GREATER_THAN_OR_EQUALS, BETWEEN, EQUALS • Relative Dates: LESS_THAN, LESS_THAN_EQ, GREATER_THAN, GREATER_THAN_EQ, BETWEEN
Formula indicators	All contributing indicators must support data snapshots.
Formula methods	Formula indicators that use methods in their formulas are not supported.
Manual or external indicators or breakdowns	Only automated indicators, formula indicators, and automated breakdowns are supported. All contributing indicators in a formula indicator must be supported for the formula indicator to be supported.
Indicators based on database views	Only supported when the join conditions do not include fields other than sys_id.
Database view prefix limitations	If the indicator source is a database view and there is an uppercase character in the database view prefix, the indicator is not supported. Also, if the two tables in the database view have the same prefix, the indicator is not supported.
Indicators with more than 250 breakdown/ aggregation fields	Only 250 levels of breakdown are supported.
Indicators whose collection jobs have more than one timezone	Only daily collection and only one timezone are supported.
Historical processing	Only data collected after the enablement date is supported. Attempts to apply more than two levels of breakdown to older data do not return any results.
Breakdown matrices	Not applicable. All breakdown combinations are supported by design.

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Limitation or unsupported feature	Notes
Collection periods set on data collector	All collections are daily.

Field-level limitations (Indicator, breakdown, source, and data collector fields)

Limitation or unsupported feature	Notes
Label for unmatched	The **Label for unmatched** option on breakdown sources is ignored with data snapshots.
Value when nil	The **Value when nil** option on automated indicators is ignored with data snapshots.
Security type	Data snapshots does not support the security type defined in the breakdown source.
Data collection job settings	Start/end periods, specific time configurations, and other settings do not affect data snapshots. All data collection is daily. Only the timezone set on the data collection record has an effect.
Bucket groups	Not supported
Related list conditions	Related list conditions do not apply with data snapshots
Targets and Thresholds	Support only up to two filters.
KPI Signals	Support only one filter.
Indicator scorecard visualizations	Support only up to two filters.
Scoresheets	Manual changes to scoresheets for indicators that are enabled for data snapshots have no effect.
String fields in indicator or source conditions	4000-character limit

Deactivate data snapshots for an indicator

You can turn data snapshots off or back on for an indicator, provided that indicator supports data snapshots.

Before you begin

Role required: pa_data_collector or higher

About this task

The limitations of data snapshots could make an indicator unusable. In this case, you can deactivate data snapshots on that indicator. You can re-activate data snapshots on that indicator later. For more information, see Limitations and requirements for data snapshots.

Important:
An admin can disable data snapshots across an instance by setting the system property com.snc.pa.dm.enable.mlb to false.

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Procedure

1. Navigate to **All** > **Indicators** > **Automated indicators** or **All** > **Indicators** > **Formula indicators**, depending on the indicator.
2. Open the indicator that you want to restore to the previous indicator and breakdown sources and breakdown matrix.
3. Select **Disable Data snapshots**.
4. Select **Update**.

What to do next

At any time in the future, you can reverse this procedure. The indicator is then moved to the new source type that supports data snapshots. If an admin disables data snapshots for an instance and then re-enables them, data snapshots are re-enabled automatically for those indicators that previously had them enabled.

Data snapshot sources and collection

Data snapshots include data sources for indicator score collection and the mapping between indicators and these sources.

Mapping between indicators and Data Snapshot sources

For each indicator that successfully has Data snapshots activated, the Performance Analytics indicator and breakdown sources are replaced by a Data snapshots source. The mapping between these sources and indicators is visible in the Indicator to Data Snapshots Mapping [pa_cdc_indicator_analytics_mapping] table. The pa_admin role is required for viewing. This table shows the Data snapshots data source for each indicator, along with the date when Data snapshots started to be supported for the indicator. This date is important, because multiple breakdown scores cannot be collected from before this date.

From the Data snapshots field, you can navigate to the data snapshots data sources.

Data snapshots data sources

Data snapshots sources are available to users with the pa_admin role on the Data Snapshots [pa_dm_analytics_source] table. By default, the contents of this table are read-only. However, an admin user can add the **Enable data collection** checkbox to the form, in which case a pa_data_collector or pa_admin user can enable or disable the data collection job.

Data snapshots collection jobs

Data snapshots jobs are accessible read-only to pa_admin users. To open the jobs, navigate to **Platform analytics administration** > **Data collection** > **Data snapshots**.

Classic Performance Analytics data collection jobs continue to run in parallel with data snapshots collection jobs. The scores from the classic jobs are not used for indicators with data snapshots enabled. The classic jobs still run to simplify rollback if necessary.

Data snapshots collection jobs copy a subset of the source table. These jobs also create a copy of every daily change for a record. These jobs may therefore result in increased storage use by Performance Analytics.

Performance Analytics targets and thresholds

Targets and thresholds enable you to define important points in your data and provide notifications when a score reaches a specific point.

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Indicator targets

Targets are goals your organization wants to achieve. Targets show the difference between the desired score at a certain date and the actual score of an indicator.

You can create targets on KPI Details or its Core UI equivalent, the Analytics Hub.

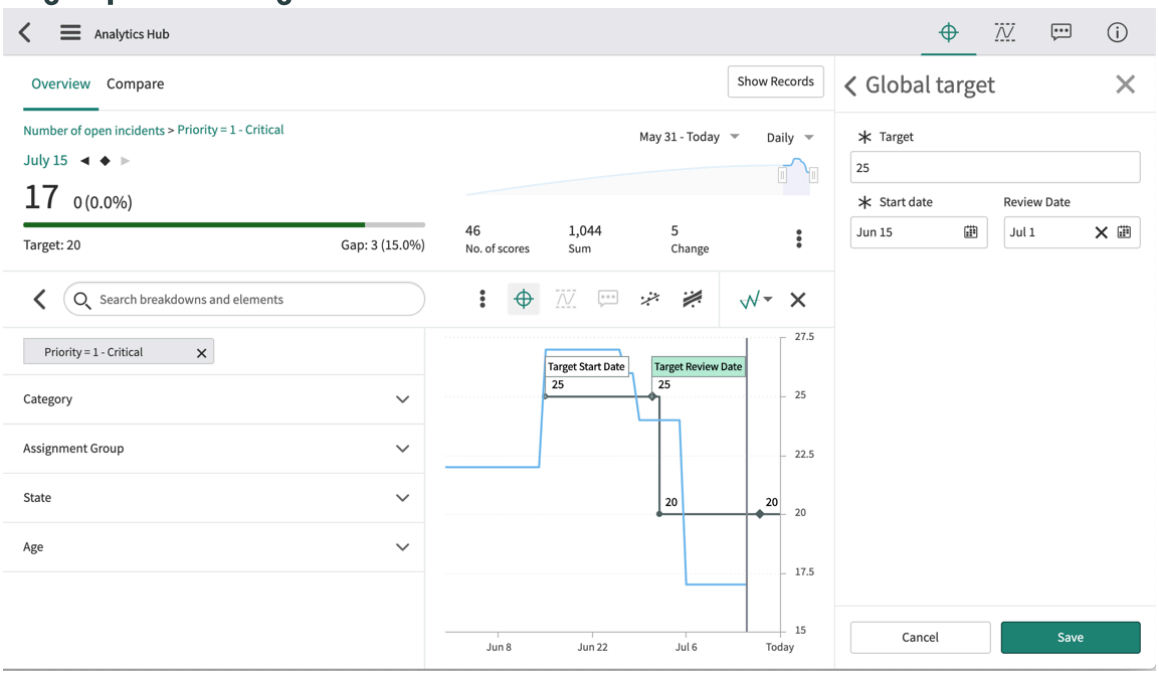
A target can be personal or global. A personal target is visible only to the user that created it and appears as a light line. A global target is visible to all users and appears as a dark line. Because you cannot share a personal target, it appears only on the Analytics Hub and KPI Details. The matrix of target visibility follows:

Features that show targets

Platform Analytics experience feature	Equivalent Core UI feature	Global or Personal targets	View or set
KPI Details	Analytics Hub	Global and personal	Set and view
Time series and Single score Platform Analytics data visualizations	Time series Performance Analytics widgets	Global	View only
Dashboards in Platform Analytics containing time series or single score data visualizations that show targets	Responsive dashboards containing Time series Performance Analytics widgets that show targets	Global	View only
Proactive analytics insights cards on Platform Analytics dashboards, which show targets being met or breached	No equivalent	Global	View only
UI Builder pages containing time series or single score data visualizations that show targets	No equivalent	Global	View only

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Target open for editing



Create or edit targets

You can set target values for indicators. You can have the targets apply only to specific breakdown elements and time series. The target starts to apply at a selected date and continues to apply until you set the next target. However, you can set a review date on which to reconsider the target.

Before you begin

Role required: pa_target_admin to create global targets that are visible to all users. Any user who can view an indicator on the Analytics Hub or KPI Details can view targets and create personal targets. A pa_target_admin, pa_power_user, or pa_admin can edit any global target.

Procedure

1. Either:
   - Open the Analytics Hub for an indicator.
   - If you are working in the Platform Analytics experience, open KPI Details for an indicator. For more information, see Create a target in KPI Details.

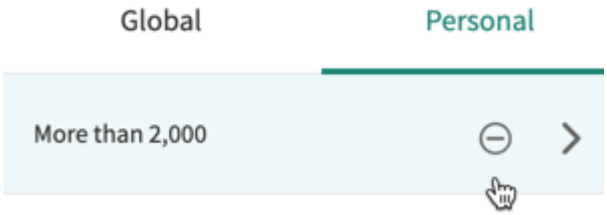
   Note:
   KPI Details gives you the additional option to set targets in bulk for multiple breakdown elements. For more information, see Add targets for multiple breakdown elements in KPI Details.

2. To limit the target to a subset of the scores, select a breakdown and a breakdown element. You can also select a 2nd-level breakdown and element.
3. Select a time aggregation if the target should apply only to a specific time series, such as 7-day SUM.
   For more information, see Applying time series aggregations.
4. Click the Target icon ( ).
   The Targets panel opens.
5. In the Targets panel, select either Global or Personal targets.

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You see all the existing Global or Personal targets on this indicator that apply to whichever breakdown elements or time series you selected. You can select and deselect breakdown elements or a time series interactively, and the list of targets updates.

6. Either create a new target or edit or delete an existing target:
   - To create a target, click the + plus sign.
   - To edit an existing target, click it in the Targets panel.
   - To delete an existing target in the Analytics Hub, click the delete icon.



7. Enter the target value for the score, in one of the following ways:
   - Enter an absolute value in **Target**, or
   - Select **Set target as an improvement of the baseline**. If you select this option, the following fields become available:

Field	Description
Target Calculation	Select either a percentage improvement or a number of units of the indicator to improve by.
Direction	When the indicator has a defined direction, this field is read-only. If the indicator direction changes, this field changes. Targets are recalculated accordingly. If the indicator does not have a direction, you can set a direction on the target here. However, usually it is better to define a direction on the indicator. For example, the score color that indicates an improvement or a deterioration works only when a direction is defined on the indicator.
Percentage/Units of the KPI	Enter either the percentage or the number of units of the KPI that you want as the targeted change to the baseline.
Baseline	Decide whether the improvement applies against the existing target or against the average value for the date range selected in the Analytics Hub . Another target must already exist to select **Existing Target**. For more information about the date range, see Date ranges of scores in the Analytics Hub.
Baseline value	Read-only calculated value that serves as the basis for the target.

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Field	Description
Target	This value is calculated from the baseline and the target calculation. You can adjust this value, for example to change a decimal value to a whole number for a count. If you adjust the target, the Percentage/Units of the KPI are recalculated.

8. Select a start date.
   You can set a date in the future.
9. Select a review date.
   The target applies from the selected start date until the start date of the next target, if any. If you do not define a later target, the target applies indefinitely. Thus, the review date serves as a reminder to consider changing the target. Whether or not you change the target value after review, consider selecting a new, future review date.

   Note:
   Overlapping targets are not allowed. Only one target at a time can be active.

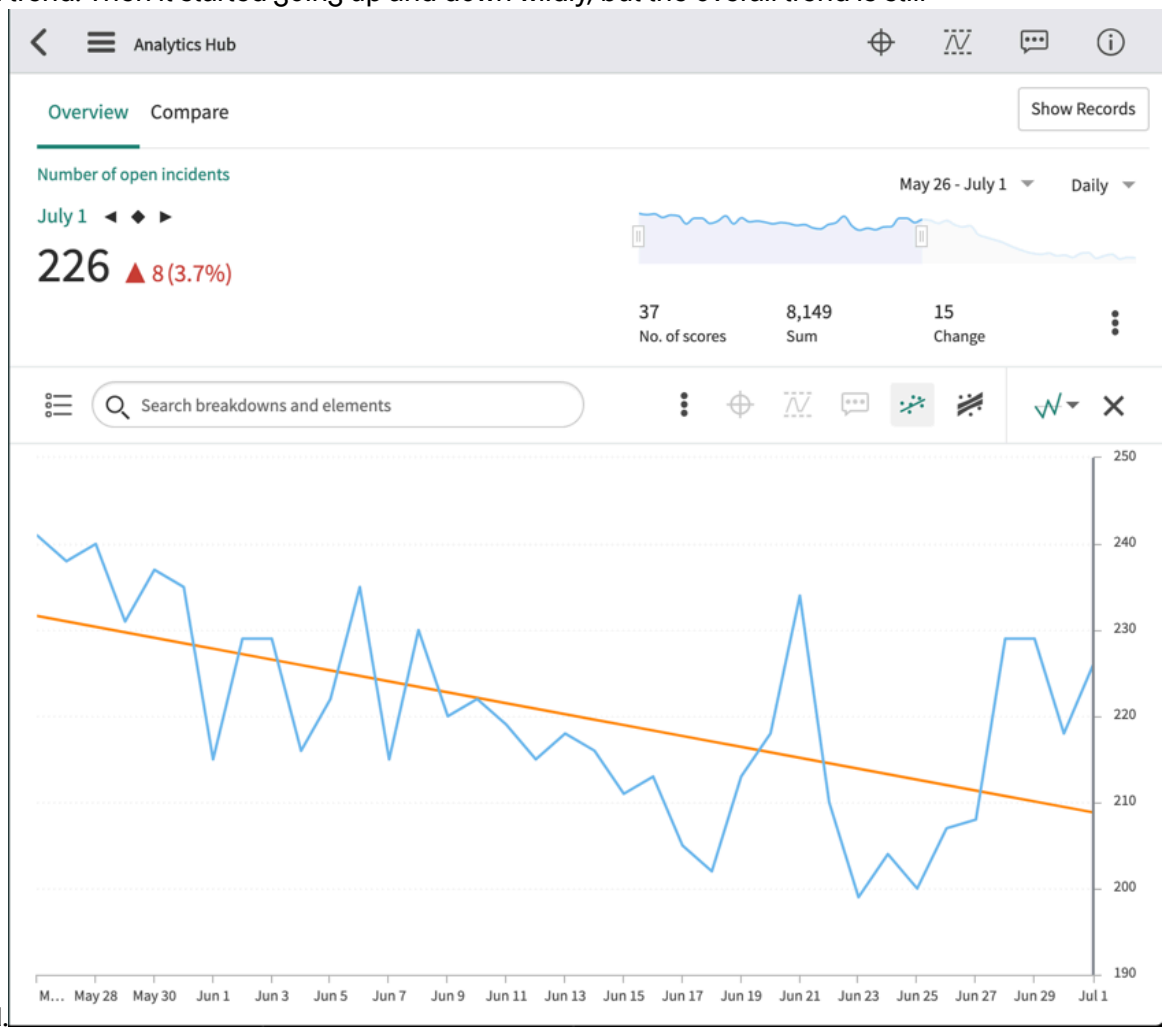
10. Click **Save**.

Example: Creating, reviewing, and editing a target

Here we are going to look at the more advanced target features. Let's say it's July 1 and your Number of Open Incidents varied regularly from late May until mid-June, with a gradual

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downward trend. Then it started going up and down wildly, but the overall trend is still downward.

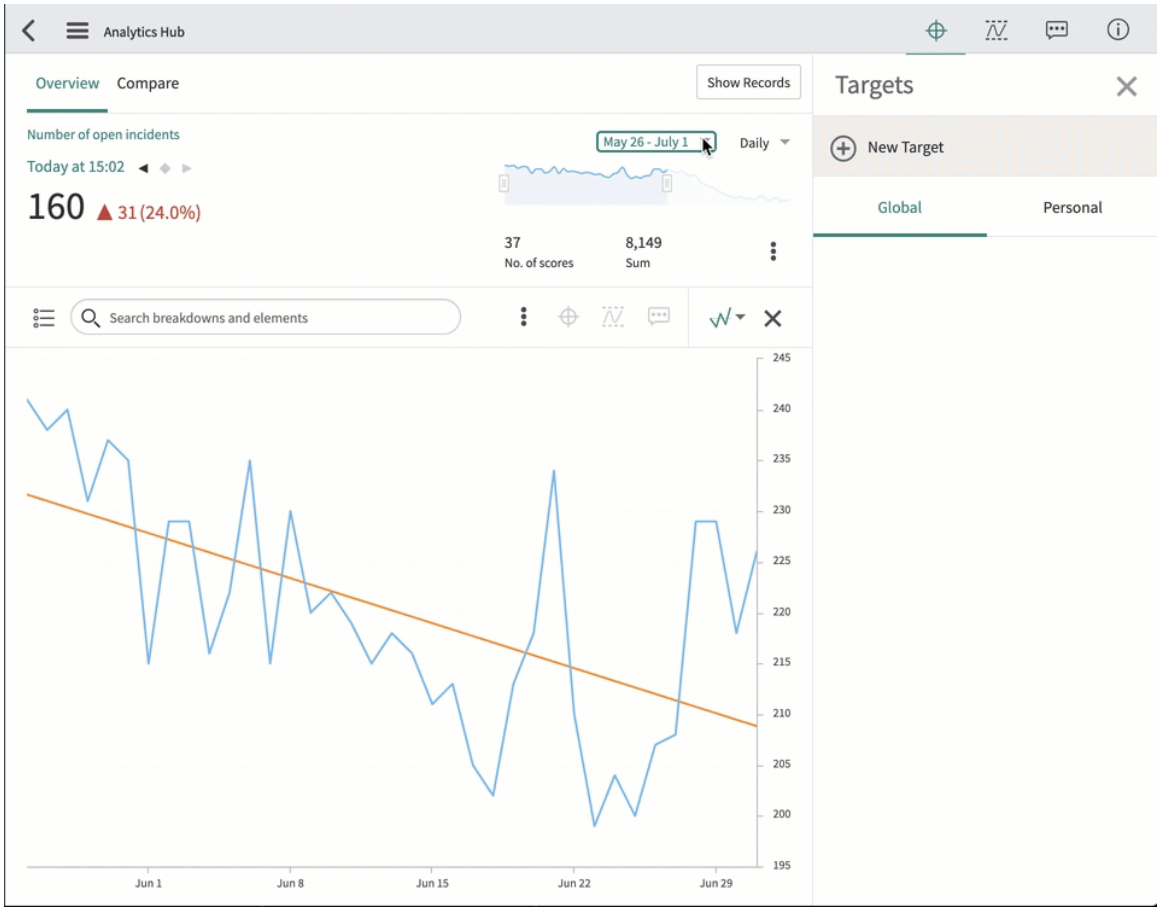


As an incident manager, you want the number of open incidents to go down. You are not sure from your scores on a good target to set. However, the numbers look reliable up to mid-June, so a 10% decrease in the average score up to that point seems reasonable. So you create a new global target for your team. You select a date range up to June 15, and you set a 10% decrease on the average for that period as your target. You decide to start the target today and evaluate it on July 15.

Field settings of first target

Field	Value
Target Calculation	Percentage (%)
Percentage	10
Baseline	Average score for the selected date range (only choice, because no older target was set)
Target	Originally calculated as 202.5. Since the incident count can only be a whole number, you decide to round off this value to 203.
Start/End date	July 1/July 15

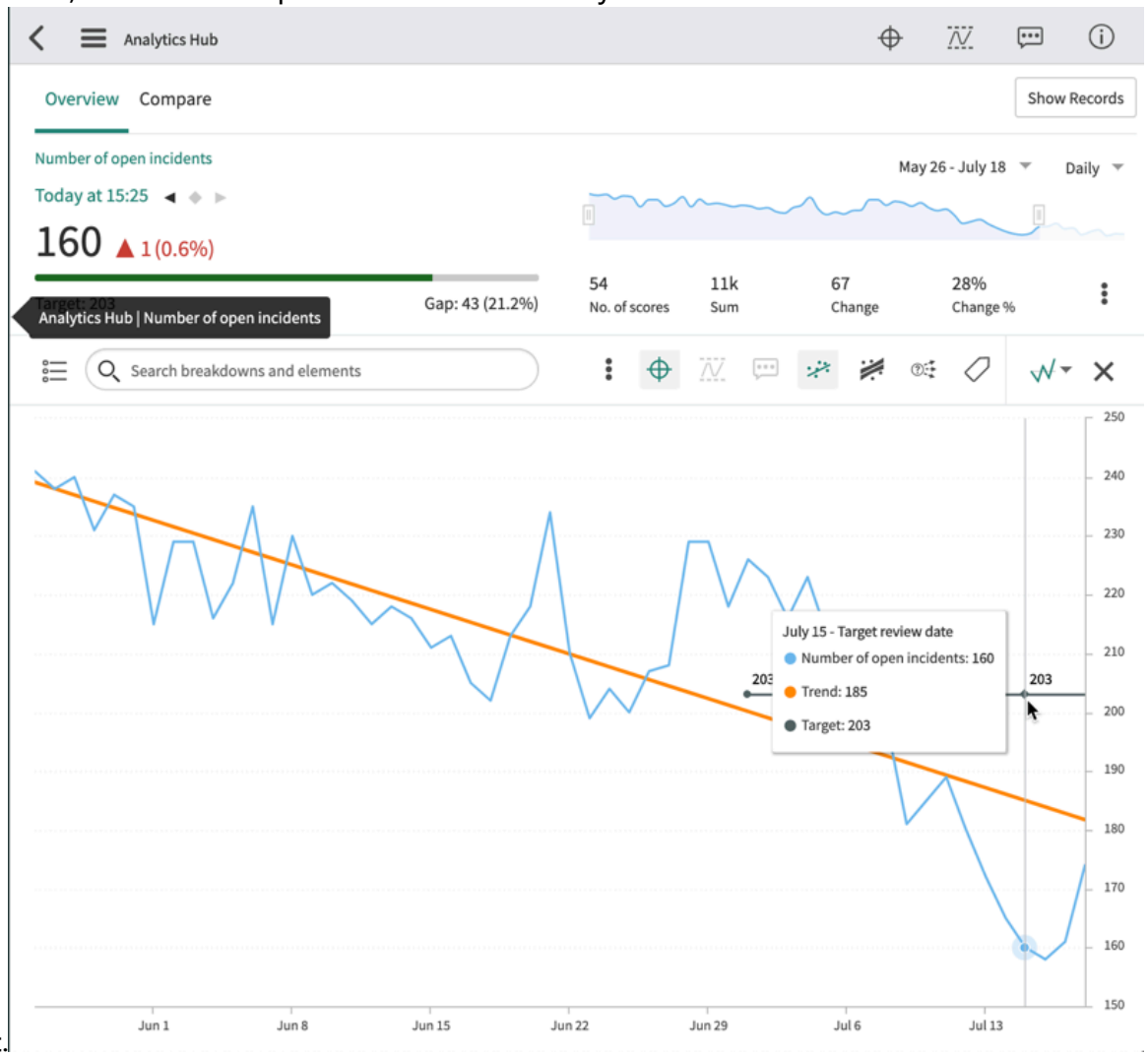
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July 15 comes around, and your team has exceeded all expectations —Or your customers are all on holiday and not reporting incidents.

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In any case, the number of open incidents is far below your target.



You now have several options:

- Edit the existing target. Set a new target value and a new review date, for example 160 and August 15.
- Create another target. The old target ceases to apply on the date the new target starts. The new target could again be an improvement of the baseline. You have the option of setting the old target as the baseline for the new target.

What to do next

Select which users receive notifications. Notifications are sent when a target is achieved or is expected to be achieved within 14 days. For more information, see Configure which users receive a target notification.

You can also nominate responsible users for targets in KPI Details. For more information, see Responsibility for global indicator targets.

Related topics

KPI Details

Create a target color scheme

A target color scheme can be used to visualize the position of the indicator score relative to its target.

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Before you begin
Role required: pa_admin, pa_power_user, or admin

About this task
For example, if you want to filter the number of open incidents, the scores for an increase of 25% can be shown in red, an increase of 10% in orange, and no change in yellow. Whereas, for example, a decrease by 25% can be shown in dark green. Two target color schemes are available in Performance Analytics by default: the 3-color traffic light and the 5-color traffic light.

Note:
You can only set a color scheme for a global target, not a personal target.

Procedure
1. Navigate to **All** > **Performance Analytics** > **System** > **Target Color Schemes**.
   You have several target color schemes provided with the base system.
2. Click **New**.
3. Enter a **Name** and a **Description**.
4. Define each of the five ranges and their associated colors.

   If you do not want to use all the ranges, you can use the same range color for multiple range limits.

   You select colors from the Color Definitions [sys_report_color] table. For information about defining more colors, see Define system colors for analytics.
5. Click **Submit**.

   A **Default indicator target color scheme** can be set in **Performance Analytics** > **System** > **Properties**. This is used when no color scheme has been selected for an indicator target.

Add a target for all elements of a breakdown

You can specify a target that applies separately to each subset of data for an indicator with a breakdown.

Before you begin
Role required: pa_target_admin or admin

About this task
For example, you can set a target on an Incident indicator that applies separately to the scores for each assignment group.

Note:
This functionality is available only for global targets. The **Any element** check box does not appear for personal targets.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Targets**.
2. Select the **Indicator** you want to set the target for.
3. Select a **Breakdown**.
   The **Any element** check box is selected by default. Do not clear this check box.
4. **Optional:** Select a **Time series**.
   For example, you can measure closed incidents daily and set monthly targets for closed incidents.

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5. **Optional:** Select a **Color scheme** for the target.
6. Click **Submit**.

What to do next
Define target values for the new target.

Configure which users receive a target notification

You can control which users receive a notification when a target is achieved. Notifications are also sent when it appears that a target will be achieved within the next 14 days.

Before you begin
Role required: pa_target_admin

About this task
This functionality applies to global targets only. For personal targets, the target owner automatically receives notifications.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Targets**.
2. Select a target.
3. In the **Users** related list, click **Edit**.
4. Move the users that you want to notify from the **Collection** column to the **Users List** column.
5. Click **Save**.

What to do next
The notification is sent automatically when a target is reached. Users that receive a notification can unsubscribe from that notification.

Related topics
Notifications

Indicator thresholds

Thresholds define a normal range of scores for an indicator and alert you when certain events occurs, like when a score reaches an all-time high.

When a threshold is triggered, the instance generates an email notification. This message is associated with the indicator and the message is directly available via the Analytics Hub or KPI Details.

A threshold can be personal or global. A personal threshold is visible only to the user that created it and appears as a light grey dotted line, a global threshold is visible to all users and appears as a dark grey dotted line. Personal thresholds appear only on the Analytics Hub and KPI Details. The matrix of threshold visibility follows:

Features that show thresholds

Platform Analytics experience feature	Equivalent Core UI feature	Global or Personal targets
KPI Details	Analytics Hub	Global and personal
Time series Platform Analytics data visualizations	Time series Performance Analytics widgets	Global

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Features that show thresholds (continued)

Platform Analytics experience feature	Equivalent Core UI feature	Global or Personal targets
Dashboards in Platform Analytics containing time series data visualizations that show thresholds	Responsive dashboards containing Time series Performance Analytics widgets that show thresholds	Global
Proactive analytics insights cards on Platform Analytics dashboards, which show thresholds being breached	No equivalent	Global
UI Builder pages containing time series data visualizations that show thresholds	No equivalent	Global

Global thresholds can also appear on Performance Analytics time series widgets and data visualizations. Platform Analytics dashboards can alert viewers to events related to thresholds through proactive analytics insights cards.

Create or edit a threshold

Create a threshold to define the range of scores considered normal.

Before you begin

Role required: Any role for your own personal thresholds. The pa_threshold_admin role or a role containing it (pa_power_user, pa_admin, or admin) for global thresholds and for personal thresholds created by other users.

About this task

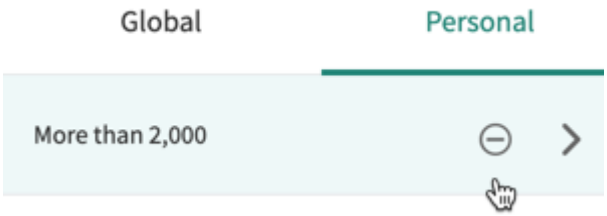
Thresholds can be set for any indicator. You can specify a breakdown and element combination and a time series aggregate that a threshold applies to.

Procedure

1. Open KPI Details for an indicator.
   If you are not using Platform Analytics, open the Analytics Hub instead.
2. To limit the threshold to a subset of the scores, select a breakdown and a breakdown element. You can also select a 2nd-level breakdown and element. You can select more breakdowns if the indicator has data snapshots enabled.
3. If the threshold should apply only to a specific aggregation of the data, select a time series aggregation.
4. Click the threshold icon ( ).
   The Thresholds panel opens.
5. In the Thresholds panel, select either a Global or a Personal threshold.
   Personal thresholds are visible only to you, although users with the admin role can edit or delete them Personal thresholds are not visible on widgets.
6. Either create a new threshold or edit or delete an existing threshold:
   - To create a threshold, click the plus + sign.
   - To edit an existing threshold, click it in the Thresholds panel.

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- To delete an existing threshold in the Analytics Hub, click the delete icon.



  To delete an existing threshold in KPI Details, open it for editing and click **Delete**.

7. If you are creating or editing a threshold, select the condition that triggers the threshold notification.
   The condition can be when the score reaches an all-time high, or when the score falls lower than a specific value.
8. Click **Save**.

What to do next
After you create a threshold, set up threshold notifications.

Related topics
KPI Details

Configure which users receive a threshold notification

Configure which users should receive an email when a threshold is reached.

Before you begin
Role required: The pa_threshold_admin role or a role containing it (pa_power_user, pa_admin, or admin)

About this task
This procedure applies to global thresholds. Notifications for personal thresholds are sent only to the owner of the threshold.

Procedure
1. Navigate to **All** > **Platform Analytics Administration** > **Indicators** > **Thresholds**.
   If you are not fully migrated to Platform Analytics, the path is **All** > **Performance Analytics** > **Indicators** > **Thresholds**
2. Open a threshold.
3. In the **Users** related list, click **Edit**.
4. In the Edit Members screen, select and add members.
5. Click **Save**.

What to do next
Besides the notifications for each indicator, you can also send notifications with an overview of all indicators for which the threshold is reached. For more information, see Configure threshold overview notifications.

Configure the threshold comment

The Check PA Thresholds job triggers the PA threshold reached comment script action, which adds a comment for the indicator that has reached the threshold.

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Before you begin
Role required: admin

About this task
The comment is displayed when you open KPI Details or the Analytics Hub for the indicator. Configure the threshold comment to display different text.

Procedure
1. Navigate to **All** > **System Policy** > **Events** > **Script Actions**.
2. Open **PA threshold reached comment**.
3. Modify the `buildMessage` function within the script.
4. Select **Update**.

Configure threshold overview notifications

Besides the notifications for each indicator, you can also send notifications with an overview of all indicators for which the threshold is reached.

Before you begin
Role required: admin

About this task
This procedures describes how to access the summary notification and change the users who receive the notification as well as the content of the notification.

Procedure
1. Navigate to **All** > **System Policy** > **Email** > **Notifications**.
2. Select **PA Thresholds Notification**.
3. **Optional:** Add users or groups to the **Who will receive** section by clicking the lock icon for either **Users** or **Groups** and then selecting the appropriate users or groups.
4. **Optional:** Change the content of the message by modifying the **Message** field.
5. Click **Update**.

Bulk delete targets/thresholds or delete another user's personal target or threshold

If you can create global targets or thresholds, you can delete them in bulk. Use the same process to delete another user's personal targets or thresholds.

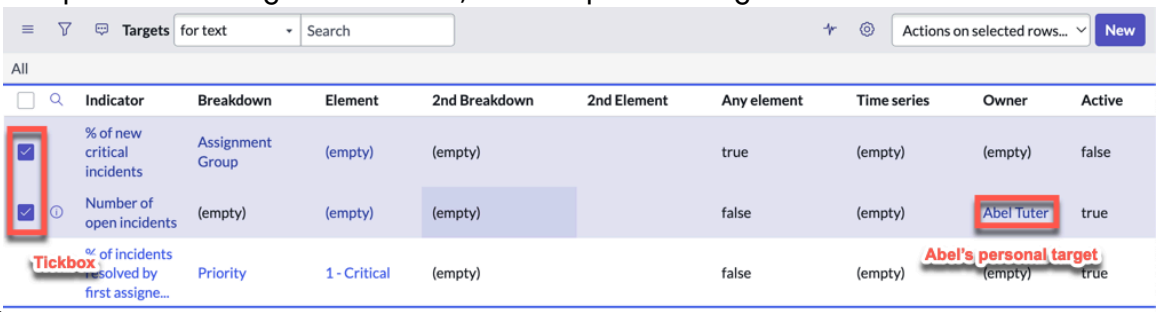
Before you begin
Role required: pa_target_admin, pa_threshold_admin, pa_power_user

About this task
If your roles allow you to create a global target or threshold, you can delete any target or threshold, including personal ones, from the target or threshold list.

Procedure
1. Navigate to **Performance Analytics** > **Targets** or **Performance Analytics** > **Thresholds**.
2. Select the tickboxes for the targets or thresholds that you want to delete.

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If an owner is specified for a target or threshold, it is their personal target or threshold.



3. Expand the **Actions on selected rows...** list and select **Delete**.
   The Confirmation dialog opens.
4. Read through the warning in the Confirmation dialog and if you're certain it is safe, select **Delete**.

Add or modify another user's personal target or threshold

If you can create global targets or thresholds, you can modify or add personal targets and thresholds for any user.

Before you begin

Role required: pa_target_admin, pa_threshold_admin, pa_power_user

About this task

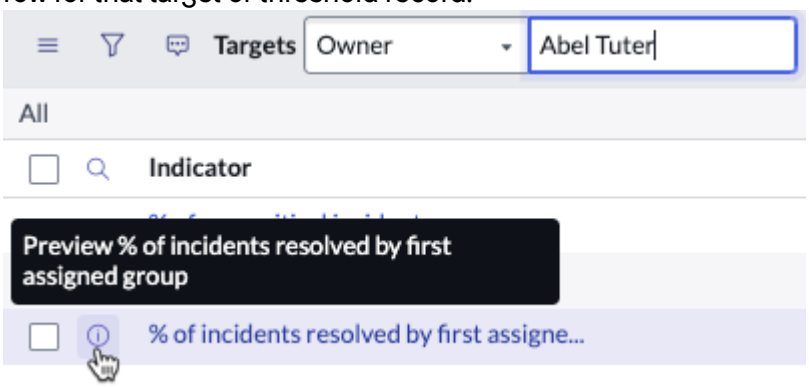
You can either look up the personal targets or thresholds of a user or create a new target or threshold and assign it to a user.

Procedure

1. Navigate to **Performance Analytics** > **Targets** or **Performance Analytics** > **Thresholds**.
2. To open an existing personal threshold or target to modify, follow these steps:

   a. Search the records by the Owner.

   b. When you find the target or threshold that you want to modify, select the info icon on the row for that target or threshold record.



   The preview for that target or threshold record appears.

   c. In the preview, select **Open Record**.
   The previewed record opens.

3. To create a new personal threshold or target, follow these steps:

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a. In the Targets or Thresholds list, select **New**.

b. In the target or threshold form that opens, specify the **Owner**.
The owner is the only person who will see this target or threshold in the indicator's KPI Details or Analytics Hub.

For a threshold, instead of selecting a single owner, you can specify several users in a related list. All of these users will see this threshold in the KPI Details and Analytics Hub of the indicator.

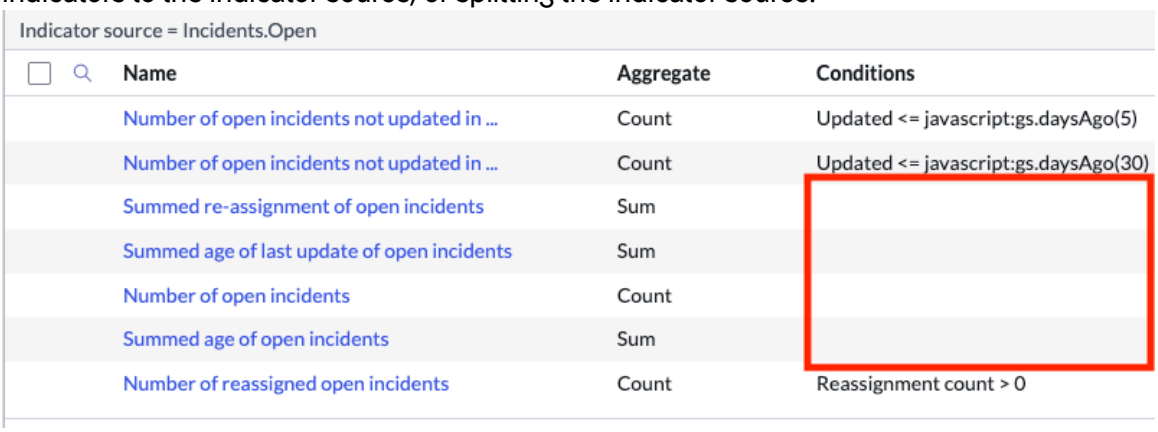
4. Specify or change the **Indicator** and any breakdowns, breakdown elements, or time series aggregation for the target or threshold.
5. Complete any other relevant fields.
6. If you are creating a new target, save it.
The Target values related list appears.
7. For a target, alter the start date, review date, or value of any existing target value, or select **New** to create a new target value.
You can have more than one target value, but the date ranges between start and review cannot overlap.

Conditional filters and operators for indicators and breakdowns

Conditional filters for indicator data cascade from indicator and breakdown sources up to data visualizations. Where conditions are applied can affect data collection efficiency. Some condition operators are only available at some levels, or in some conditions.

Conditional filters on indicators and indicator sources

Conditional filters can be applied to both automated indicators and indicator sources. In general, conditions that are applied to all indicators with the same source should be applied on the indicator source. To verify that your conditions are well designed, list the indicators for an indicator source and include the Conditions field in the view. You should have at least one indicator that only uses the conditions on the indicator source. Otherwise, your indicator source is probably collecting unused data. In this case, consider moving common conditions from the indicators to the indicator source, or splitting the indicator source.


Indicator source = Incidents.Open

Name	Aggregate	Conditions
Number of open incidents not updated in ...	Count	Updated <= javascript:gs.daysAgo(5)
Number of open incidents not updated in ...	Count	Updated <= javascript:gs.daysAgo(30)
Summed re-assignment of open incidents	Sum	
Summed age of last update of open incidents	Sum	
Number of open incidents	Count	
Summed age of open incidents	Sum	
Number of reassigned open incidents	Count	Reassignment count > 0

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Warning:
To avoid a data collection job completing with errors, follow these limitations:

- Do not add a condition that references Roles to an indicator. You can reference the Roles table only in an indicator source.
- If you define conditions that refer only to dot-walked fields, you must associate at least one breakdown with the indicator.

In general, try to avoid dot-walking to sys_id or the display value of a table, as doing so creates unnecessary table joins.

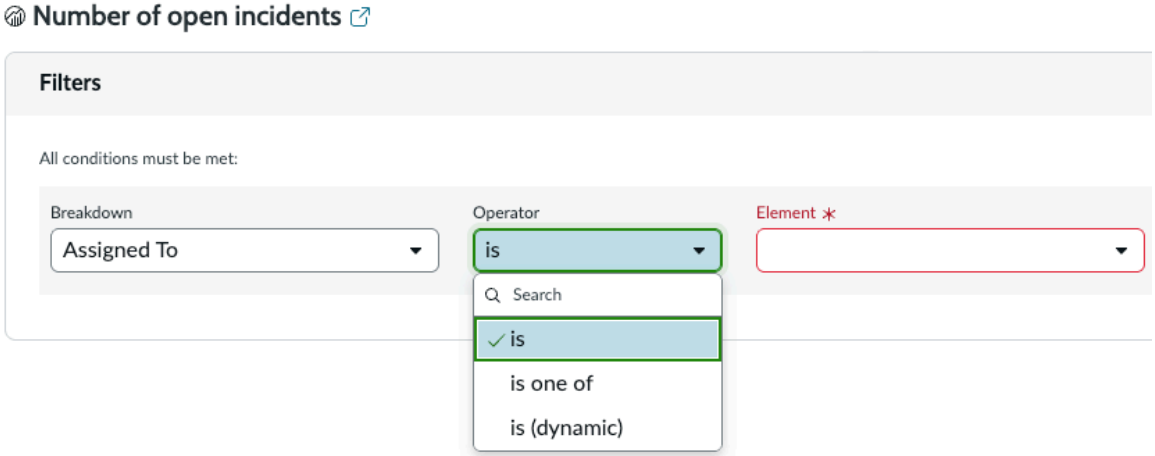
Unsupported operators on indicator conditions

The following operators are not supported on indicators. You can use these operators on the indicator source conditions instead:

- **keywords**
- **greater than field**
- **less than field**
- **greater than or is field**
- **less than or is field**

"Is one of" and "Is (Dynamic)" operators on breakdown conditions in data visualizations

When you select an indicator data source for a data visualization, you have the option to filter the scores by breakdown element.



The availability of the "is one of" and "is (dynamic)" operators depends on how you configure the indicator. The indicator must support multi-element aggregates. The required configuration settings follow:

Is one of

- The aggregation method must not be AVG or COUNT DISTINCT. This requirement applies to automated indicators including the contributing indicators of formula indicators.
- If the indicator is a formula indicator, the **Allow aggregation of multiple breakdown element scores** option must be on.

Is (dynamic)

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- The aggregation method must not be AVG or COUNT DISTINCT. This requirement applies to automated indicators including the contributing indicators of formula indicators.
- The field in the breakdown source must be a reference field.
- An elements filter must be defined for the breakdown source, and this elements filter must have a dynamic conditional filter. For an example, see the Me elements filter on an instance. For more information, see Element filters.
- If the indicator is a formula indicator, the **Allow aggregation of multiple breakdown element scores** option must be on.

Real-time scores

You can view some Performance Analytics scores in real-time instead of from the most recent data collection job. If real-time scores are enabled, you can view them in KPI Details and in some data visualizations.

Usually, the most recent score that a visualization can show is the one from the most recent successfully run data collection job. However, some visualizations can show indicator scores in real-time, for some indicators.

You can show real-time scores for an indicator that meets the following criteria:

- The indicator is an automated indicator.
- It is configured to show real-time scores.
- The aggregate function for the indicator does not use a script.
- The indicator source does not use a database view.
- None of the breakdowns that are applied to the indicator use a scripted breakdown source.

The following visualizations can show scores in real time:

- The Analytics Hub
- Platform Analytics data visualizations that support real time update, such as Single score.
- KPI Details
- Performance Analytics score widgets with the Real-time visualization
- Workbench widgets, for the main indicator

Warning:
Real-time scores can differ per viewer and differ from collected scores. Real-time scores are taken directly from the relevant facts tables. Therefore, the Access Control Lists (ACL) of those facts tables determine the real-time scores that each logged-in user sees.

Important:
The Analytics Hub does not update real-time scores automatically. To see the most up-to-date scores on the Analytics Hub , refresh the browser page. Widgets and KPI Details do update automatically.

Related topics

Create an automated indicator

Analytics Hub for a specific indicator

Create a real-time score visualization for a score widget

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Single score report

Monitor a workflow with a workbench process widget

Applying time series aggregations

You can aggregate changes in indicators into discrete time intervals. These aggregations can make trends more easily visible, or help track progress against a target.

A time series aggregation consists of a math function, such as AVG or SUM, combined with a time formula, such as By quarter. In Platform Analytics, you can select an aggregation when exploring an indicator in KPI Details or when creating a data visualization for an indicator data source, such as a time series visualization. In the Core UI, you can select an aggregation either in the Analytics Hub or when creating a Performance Analytics widget such as a score widget.

To understand time series aggregations, first consider a watch, phone, or fitness tracker that keeps tabs on how many steps they walked each day. These devices all collect and save your measurements on a minute by minute basis. However, the apps and reports are often designed to show how your activity is progressing compared to last week, last month, or last year. It's one thing to see if you were more active at noon versus 10 am. What you really want to know, however, is whether you're continuing to improve over time. Aggregating your steps into weekly, monthly, and yearly scores gives you an easier way to identify trends in your activity.

While daily indicator scores are foundational and almost always desired, sometimes you also want to have the scores available by week, month, or quarter. In other cases, you want to have a month/quarter/year-to-date number that shows cumulative progress up until the current point. Instead of defining multiple indicator sources and indicators to track each interval, Performance Analytics natively allows you to capture the data once and then adjust the view. Use a time series aggregation for any of these scenarios:

- Aggregate the data to a less frequent period with a Period time series.
- Smooth out spikes in the data to reveal trends with a Running time series.
- Determine a period-to-date cumulative score with a To date time series.

Note:
Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget or Analytics Hub entry for an indicator that uses such a calendar.

For examples and a deeper exploration of using time series aggregations with indicators, see this Performance Analytics Academy video, Leveraging Time Series with Performance Analytics.

Partial periods

Some time series include indicator scores from incomplete collection periods. These periods can include the current period and the period from the beginning of data collection. A plus sign in the name, +, identifies these time series.

A time series that does not include data from partial periods must have data from the beginning and the end of the period. For example, a **By month SUM** time series aggregation requires scores from the start and the end of the month to be present. Otherwise that month is not included. A time series that includes data from partial periods, such as **By month SUM +**, needs only data from one day in the period.

Warning:
Partial periods can skew the results of certain aggregations, such as averages.

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Aggregation definitions

Performance Analytics comes with default SUM, AVG, and other time series aggregation definitions.

Danger:
Do not alter these definitions. Do not add new definitions. Any changes to aggregation definitions can have unexpected results. Creating a new definition can prevent the data collector jobs from running.

Disallowed time series aggregations

You are not allowed to put a SUM aggregation on an indicator with percentage % as the unit. It is not meaningful to sum percentages.

Validation of time series aggregations

Time series aggregations are validated on the Analytics Hub and in KPI Details but not in widgets. Therefore, you might navigate from a working widget to the Analytics Hub and get a warning that the indicator has an invalid aggregation.

Excluding time series aggregations for an indicator

Some time series aggregations, while technically allowed, are not helpful to apply to an indicator. For example, a SUM of percentage values is unlikely to provide useful insight. You can exclude these time series aggregations from the indicator. For more information, see Exclude time series from an indicator.

Displaying time series aggregations with a date range selector

If on a widget you combine a time series aggregation such as By month SUM with a date range selector, you may show one more time period than you expect. The reason is that when a period such as 3m is selected in the date range selector, the instance interprets that as 0-3 months and shows four months of scores.

Related topics

- Applying time series to result or to contributing indicators
- Select time aggregation in KPI Details
- Time-series aggregations in the Analytics Hub
- Indicator data options for time series visualizations
- Create a latest score visualization for a score widget

Use cases for time series aggregations

Performance Analytics offers four different types of time series. Understand their use cases to know which type to use.

Rounded calculations based on averages may be off by a small amount due to rounding errors.

Use cases and examples for each type of time series

Type	Examples	Use Case
Running	28d running AVG/SUM	Smooths out spikes in the data to make trends easier to spot. For example, looking at daily incident counts may show a drop

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Use cases and examples for each type of time series (continued)

Type	Examples	Use Case
	30d running AVG/SUM 7d running AVG/SUM 12m running AVG/SUM 3m running AVG/SUM 6m running AVG/SUM 13w running AVG/SUM 4w running AVG/SUM 4q running AVG/SUM	every weekend, but a 7-day running average smooths out those drops.
To Date	Fiscal quarter-to-date AVG/SUM Fiscal year-to-date AVG/SUM Month-to-date AVG/SUM Quarter-to-date AVG/SUM Week-to-date AVG/SUM Year-to-date AVG/SUM	Shows cumulative scores for the period. These time series aggregations are very useful if you have a monthly target to hit, but you need to also see the velocity throughout the month.
By Period	By week AVG/SUM By month AVG/SUM By fiscal quarter AVG/SUM By quarter AVG/SUM By fiscal year AVG/SUM By year AVG/SUM	Shows the cumulative scores for entire periods. While you may want to track the number of P1 incidents daily, the frequency is too high when scores are considered daily. Instead, you can set a target at the monthly level with a "By Month" time series. The current period will never appear in the results because it is incomplete.
By Period (Including Partial)	By week + AVG/SUM By month + AVG/SUM By fiscal quarter + AVG/SUM By quarter + AVG/SUM By fiscal year + AVG/SUM By year + AVG/SUM	The "+" version of the "By" Time Series includes partial periods, so a score is always provided for the current period.

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Indicator frequency limitations on time series aggregations

The frequency with which scores are collected for the indicator determines which time series are applicable. Some time series include data from partial collection periods.

When you select a time series aggregation, the frequency with which indicator scores are collected limits which time series you can choose. You cannot select a time series aggregation that is applied to scores more frequently than those scores are collected. For example, the **By week SUM** time series aggregation can apply to an indicator with a daily frequency. However, **By week SUM** cannot apply to an indicator with a weekly, monthly, quarterly, or yearly frequency.

Note:

- Only weekly indicators support the **4w running** and **13w running** time series. Weekly indicators support only weekly and yearly time series.
- Bi-monthly and yearly indicators do not support any time series aggregations.

The following table shows which time series are supported for which indicator frequencies. These relationships are independent of which aggregation (AVG, SUM, or custom) is combined with a time series, and therefore only the time series are shown.

Time series and associated indicator frequencies

Time series	Indicator frequencies			
	Daily	Weekly	Monthly	Quarterly (Fiscal Q, 4-weekly, Bi-weekly)
Daily	Yes	No	No	No
7d running	Yes	No	No	No
28d running	Yes	No	No	No
30d running	Yes	No	No	No
4w running	No	Yes	No	No
13w running	No	Yes	No	No
3m running	No	No	Yes	No
6m running	No	No	Yes	No
12m running	No	No	Yes	No
4q running	No	No	No	Yes
By week, by week +	Yes	No	No	No
By month, by month +	Yes	No	No	No
By quarter, by fiscal quarter, by quarter +, by fiscal quarter +	Yes	No	Yes	No
By year, by fiscal year, by year +, by fiscal year +	Yes	Yes	Yes	Yes

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Time series and associated indicator frequencies (continued)

Time series	Indicator frequencies			
	Daily	Weekly	Monthly	Quarterly (Fiscal Q, 4-weekly, Bi-weekly)
Week to date	Yes	No	No	No
Month to date	Yes	No	No	No
Quarter to date, fiscal quarter to date	Yes	No	Yes	No
Year to date, fiscal year to date	Yes	Yes	Yes	Yes

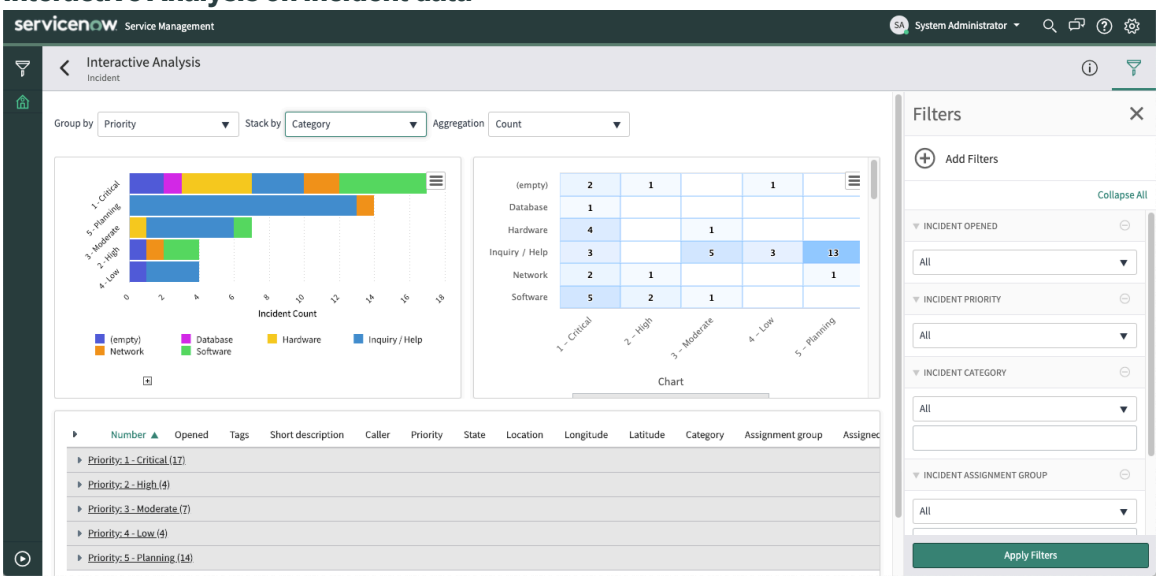
Interactive Analysis for Performance Analytics

Interactive Analysis enables you to quickly explore Performance Analytics data using visualizations.

Note:
Platform Analytics does not support interactive analytics.

From any Core UI list of records, you can access an interactive set of reports on the list data. You can also manipulate the data by grouping, stacking, aggregating, and applying interactive filters. Click the visualization to drill down into the data. Click the information icon ( ) to edit the source filter, view the list of applied filters, and copy the URL of the analysis.

Interactive Analysis on Incident data



Launch Interactive Analysis

Launch Interactive Analysis from any list.

Before you begin
Role required: none.

You must have access to the list of records that you want to analyze.

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Procedure

1. Navigate to any list.
2. **Optional:** Configure the columns that are displayed on the list.
   The columns that appear on the list when you launch Interactive Analysis determine which fields are included in the analysis. The included fields determine which **Group by** and **Stack by** options are available, and which interactive filters appear by default.
3. Right-click the column header for a reference, choice, date/time, integer, or boolean field and select **Launch Interactive Analysis**.
   The column that you launch Interactive Analysis from is used as the default **Group by** value.
4. **Optional:** Change how data is aggregated by selecting different values in the **Group by** and **Stack by** choice lists, or filter the data by applying one or more interactive filters.
5. **Optional:** Drill down into a subset of the data by clicking a visualization, such as a bar in the bar chart or a cell in the heatmap.

In-form analytics

In-form analytics integrate performance insights into forms so that users can access important metrics in context and make better decisions.

In-form analytics involve a UI action on a form that opens a view of a dashboard based on a breakdown. This breakdown dashboard provides valuable performance insights to the user who is completing the form. For example, you want support engineers, while creating an incident, to be able to see the expected time to close the incident based on the incident category. To enable the engineers to view this information, you create an in-form analytics UI action for incident forms. This UI action opens an Incident. Category breakdown dashboard with a widget that shows the expected time to close an incident.

Important:
In-form analytics do not support Platform Analytics artifacts. They open only Core UI responsive dashboards. After full migration to Platform Analytics, in-form analytics are no longer available.

Incident: Category in-form analytics



The UI action for in-form analytics is activated through an icon next to the field on the form that represents the breakdown. If that field is not visible in the form view, neither is the icon. When you set up in-form analytics, you have the option of also including a Related Action link on the form. This link is always available.

Related topics

Using breakdowns on dashboards

UI actions

Add in-form analytics to a form

Create a UI action that enables users to view relevant analytics while completing a form. The UI action associates the table that uses the form, a breakdown used with that table, and a breakdown dashboard.

Before you begin

Role required: pa_power_user, pa_admin, or admin. In addition to the Performance Analytics roles, you must be able to create records on the UI Actions [sys_ui_action] table.

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Before adding in-form analytics for a specific table and breakdown, create a breakdown dashboard that uses that table and the breakdown source of that breakdown. Design the dashboard so that it prominently displays the most useful information to the users who create records on that table. For more information about breakdown dashboards, see Using breakdowns on dashboards.

Performance Analytics must be active to create in-form analytics.

About this task

Procedure

Navigate to **All** > **Performance Analytics** > **In-Form Analytics** and create a new record (see table for field descriptions).

In-form analytics fields

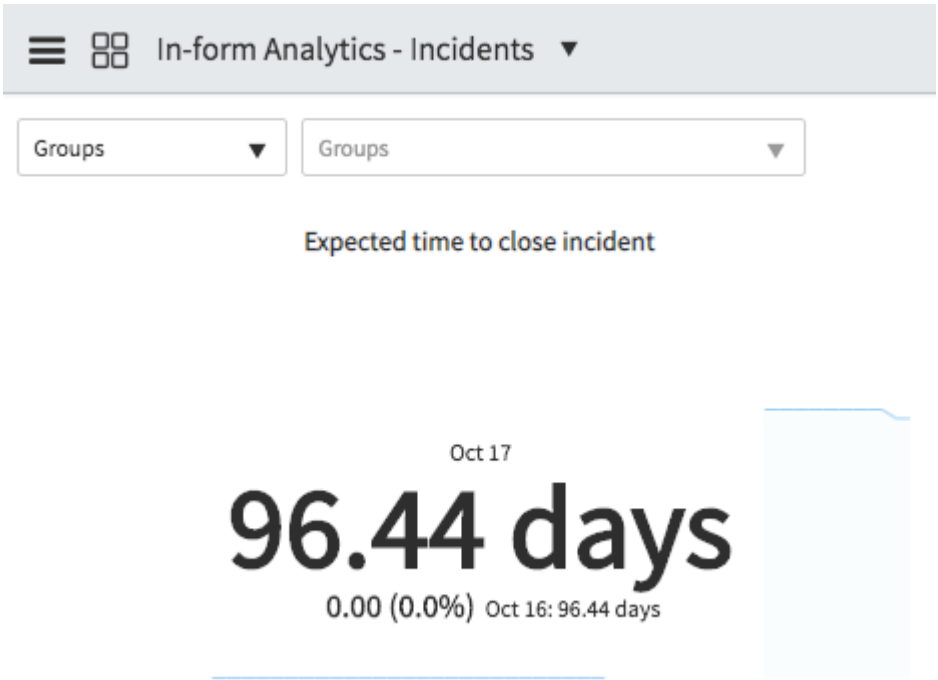
Field	Description
Name	A descriptive name for the UI action.
Table	The table to display analytics for. The in-page icon appears on forms for this table.
Breakdown	The breakdown for analyzing the table. The UI action icon appears next to the field that corresponds to this breakdown, if the field is included in the form view.
Dashboard	The breakdown dashboard to display. The dashboard must use the selected **Table** and the breakdown source of the **Breakdown**.
Icon	The icon to display next to the breakdown-related field on the form.
Icon color	The color of the form icon.
Create in-form link	Display a related link on the form in addition to the icon when this check box is selected. The related link directs to the same dashboard as the icon.

Example: Incident Assignment Group in-form analytics

Consider the case where you want support engineers who create incidents to be able to see the expected time to close the incident based on the assignment group. You have designed a widget that shows the expected time to close an incident. You have added this widget to the In-form Analytics breakdown dashboard, which uses the Groups breakdown source. 'Groups' is the source for the Assignment Group breakdown.

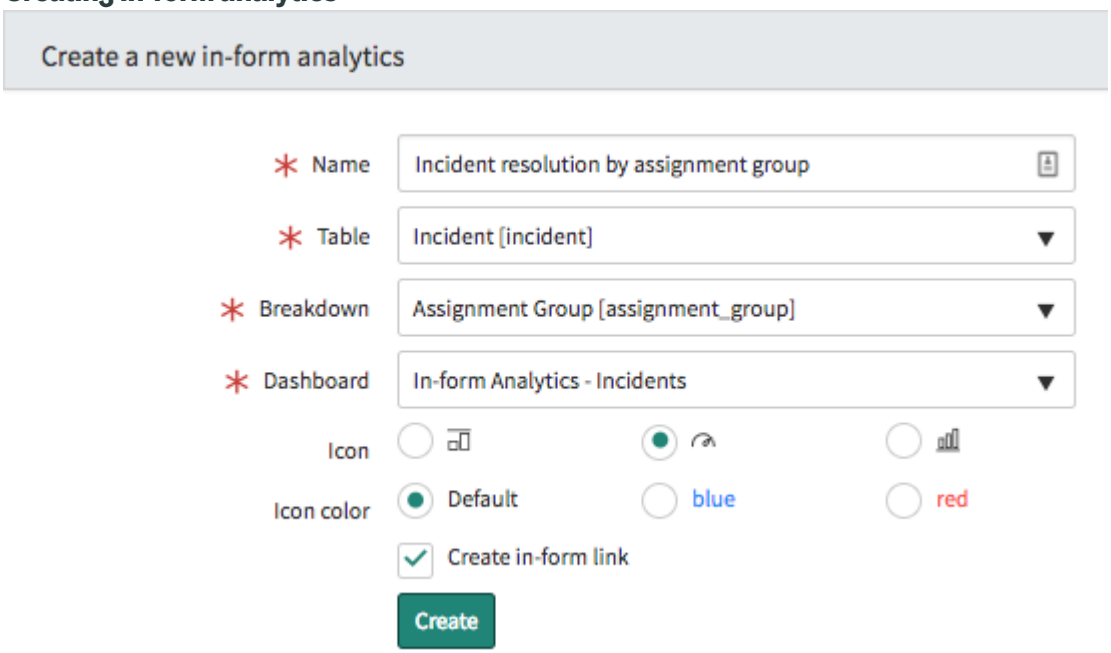
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Breakdown dashboard



Now you create in-form analytics for the Incident [incident] table, the Assignment Group breakdown, and the In-form Analytics - Incidents dashboard. You select the icon for the UI Action. This icon will appear next to the Assignment Group field. You also decide to create a Related Link to the dashboard.

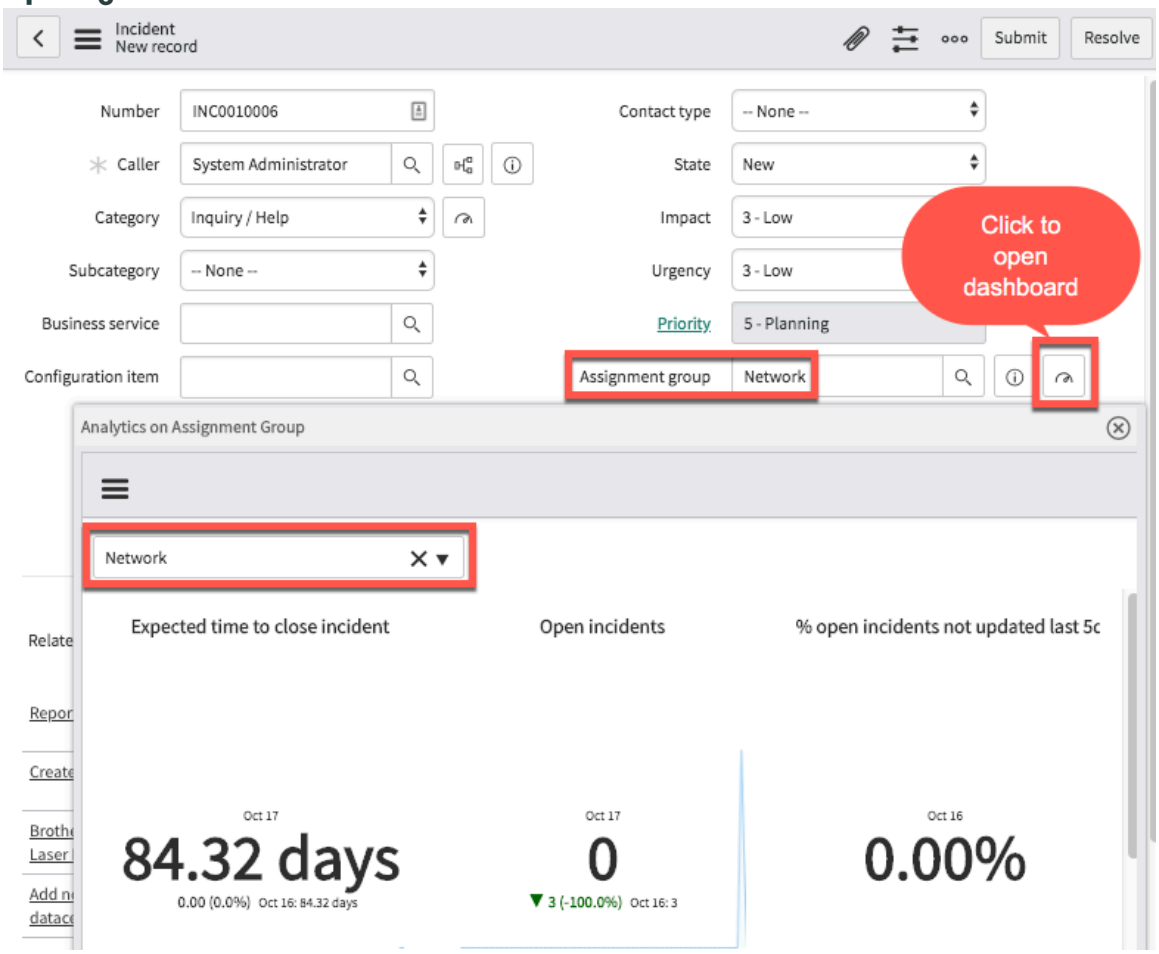
Creating in-form analytics



Clicking the dial icon opens the pop-up view of the dashboard. Note that instead of the dashboard name, the pop-up window is titled "Analysis of [Breakdown name]".

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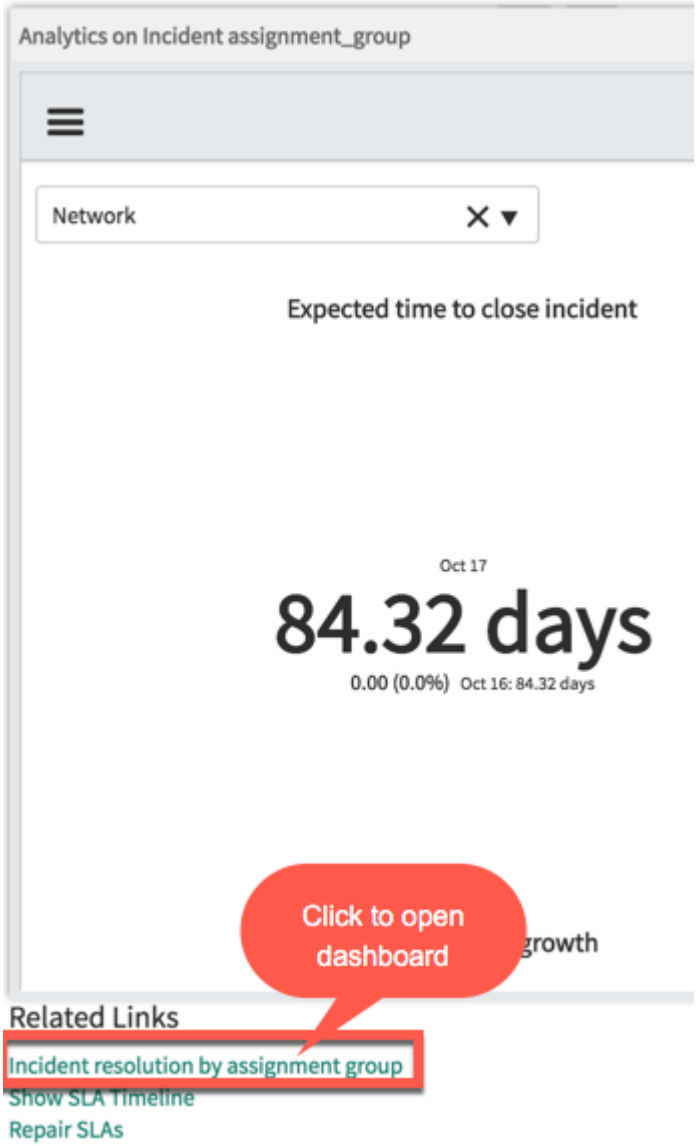
Opening dashboard view from incident form



The Self-Service view does not show the Assignment Group field by default. In this case, you can still view the analytics from the Related Links.

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Related link to analytics



Preconfigured in-form analytics

Preconfigured in-form analytics are available as plugins for several applications and their associated tables and forms.

In-form analytics plugins and associated tables

Plugin name	Plugin ID	Table and forms
Performance Analytics - Context Sensitive Analytics for Change Management	com.snc.pa.change.context_sensitive_analytic	Change Request [change_request]
Performance Analytics - Context Sensitive Analytics for Chat	com.snc.pa.chat.context_sensitive_analytic	Chat Queue Entry [chat_queue_entry]
Performance Analytics - Context Sensitive Analytics for Customer Service	com.snc.pa.cs.context_sensitive_analytic	Case [sn_customerservice_case]

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In-form analytics plugins and associated tables (continued)

Plugin name	Plugin ID	Table and forms
Performance Analytics - Context Sensitive Analytics for Incident	com.snc.pa.incident.context_sensitive_analytics	Incident [incident]
Performance Analytics - Context Sensitive Analytics for Problem Management	com.snc.pa.problem.context_sensitive_analytics	Problem [problem]

Note:
When you activate a plugin for preconfigured in-form analytics, you also activate the Performance Analytics Solution for that application. For more information, see Analytics solutions.

Configure Performance Analytics advanced features

Define key metrics and data structure to generate scores.

The topics in this section are meant primarily for Performance Analytics administrators who deal directly with data structures.

Activating your Performance Analytics subscription

Without a paid Performance Analytics subscription, your use is limited to 180 days of data collection (five months for monthly indicators) and to specific indicators provided by ServiceNow, and you cannot activate Data snapshots. For unlimited access to all features, purchase a subscription to Performance Analytics.

After you purchase the subscription, you might need to activate the plugin associated with that subscription on production instances.

Performance Analytics subscriptions enable you to use the following functionality beyond what is available with the base system:

- Custom Performance Analytics indicators, breakdowns, widgets, or other configuration records
- The ability to activate Data snapshots for indicators. For more information, see Data snapshots and multiple breakdowns.
- Scores preserved for longer than 180 days (Five full months for monthly indicators)
- Text analytics widgets (Core UI only)
- Proactive analytics insights on dashboards

If you have purchased Performance Analytics through a Professional or Enterprise offering, you may use it with no restrictions in these situations:

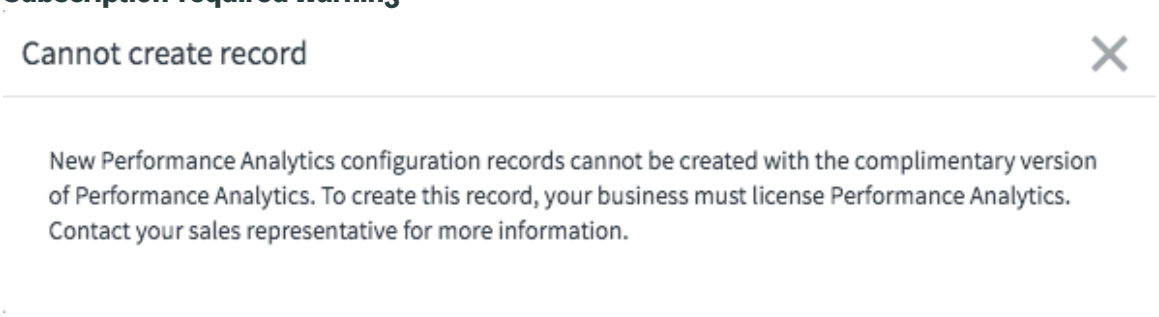
- On the tables of the associated subscription, including associated ServiceNow store apps
- With any platform and common apps, such as Knowledge Management, CMDB, or Catalog
- With any paid-for Partner store apps

Note:
The tables of free Partner store apps are considered custom tables and are mapped to ServiceNow subscriptions. Your right to use these tables with Performance Analytics depends on your entitlement to Performance Analytics for the mapped subscription.

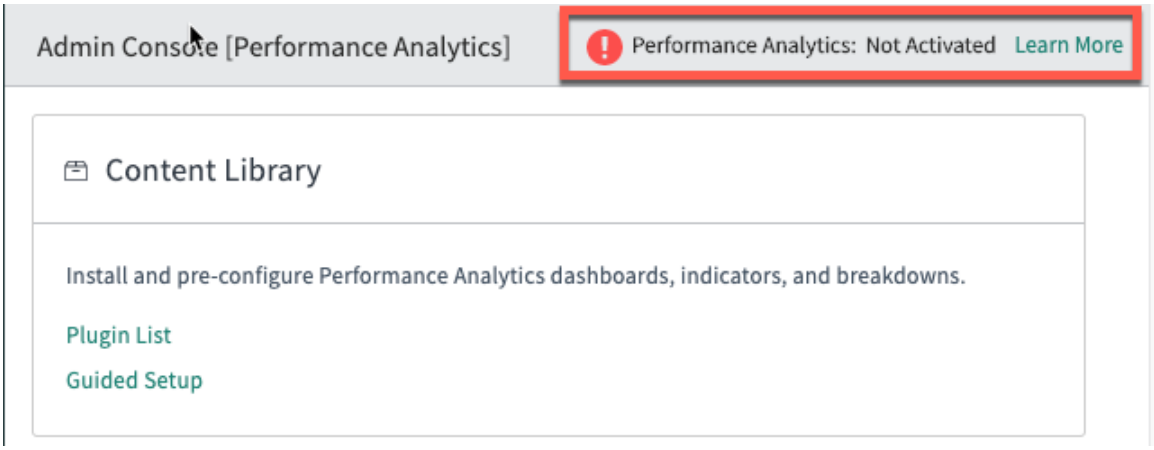
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If you try to perform these tasks on a production instance that doesn't have a Performance Analytics subscription, you get a warning that a subscription is required.

Subscription-required warning



The Performance Analytics Admin Console also warns you when an instance doesn't have the full version of Performance Analytics activated.



Subscription Management for Performance Analytics

With a subscription to Performance Analytics, your features should be activated automatically.

Starting in Tokyo, Subscription Management applies to Performance Analytics. If you use Subscription Management, you should not need to activate a Performance Analytics plugin manually. The remainder of this page describes the older, manual system of activating a subscription.

This feature is available only on hosted instances. On self-hosted and non-production instances, you still have to activate the appropriate Performance Analytics plugin manually. For more information, see Subscription Management.

Identify your entitlement to Performance Analytics on an on-premises instance

Confirm manually whether you are entitled to a Performance Analytics product line. If so, you are entitled to activate the corresponding plugin on production instances.

Before you begin

Role required: admin

About this task

On-premises instances do not have access to Subscription Management, so you must verify your entitlements manually. On other instances, this is not necessary.

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Procedure

1. Navigate to **Subscriptions** > **Application Entitlements** or directly open `subscription_entitlement_list.do`.
2. In the Subscription Entitlements list, search for entitlements with a name that includes `Performance Analytics`.

Result

On production instances, you may install Performance Analytics Premium plugins that correspond to these entitlements. You can install any Performance Analytics Premium plugin on non-production instances.

Activate the plugin for your Performance Analytics subscription

When you have purchased a Performance Analytics subscription and identified the associated plugin, activate that plugin as follows.

Before you begin

Important:
Set up and test Performance Analytics on a non-production instance before you set it up on a production instance.

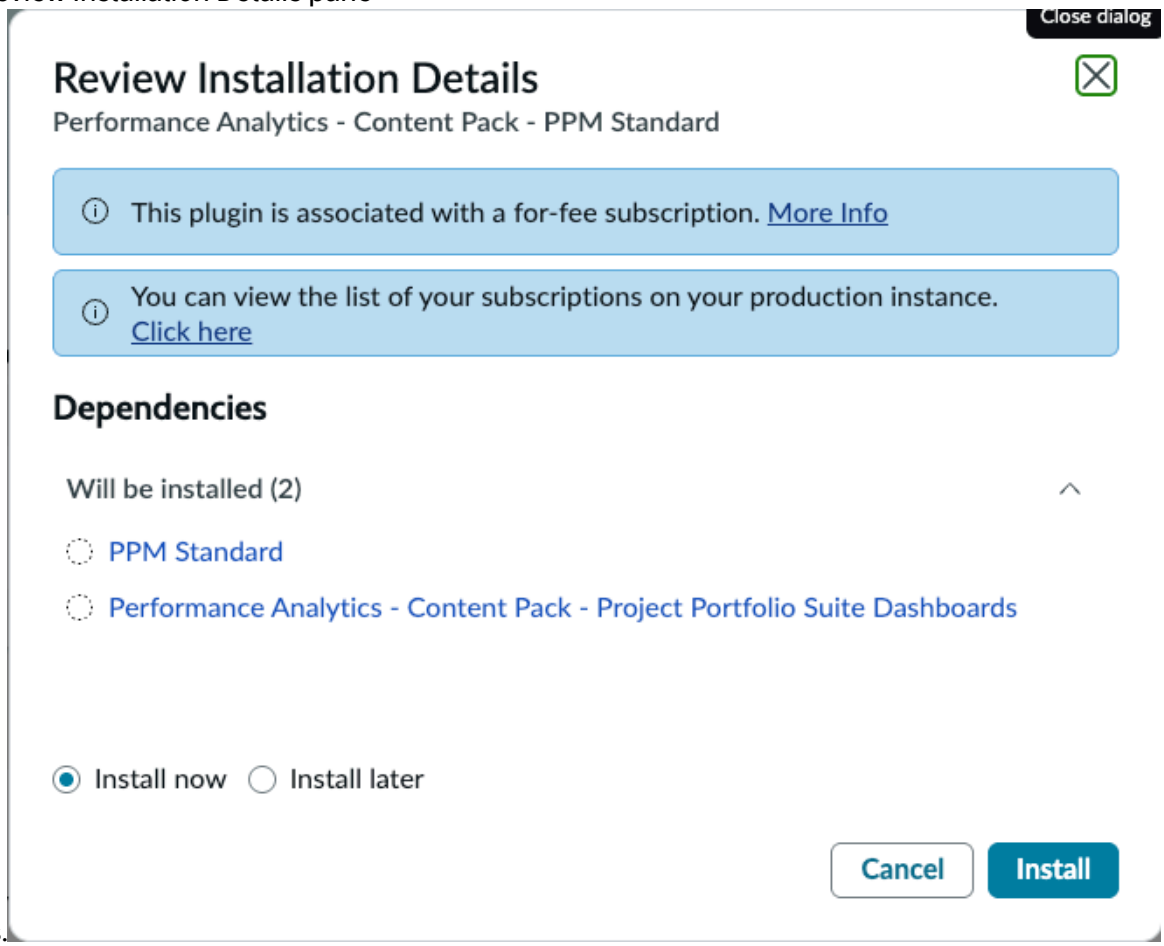
Role required: admin

Procedure

1. Navigate to **System Applications** > **All Available Applications** > **All**.
2. Under **Filters**, find the Listings section and select **Plugins**.
3. Search for plugins with `performance analytics premium` in the name.
4. Find and open the Performance Analytics premium plugin that matches your entitlement.
5. Select **Install**.

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The Review Installation Details pane



opens.

6. Review the dependencies and install now or later.

Result
A progress bar shows you the progress of the plugin activation, after which you have several options of what to view.

What to do next
When the process is complete, consider installing Analytics Solutions, which include preconfigured dashboards and all necessary underlying components. For more information, see Analytics solutions.

Also consider activating Spotlight. Spotlight helps prioritize records by evaluating them against multiple weighted criteria. For more information, see Ranking records with Spotlight.

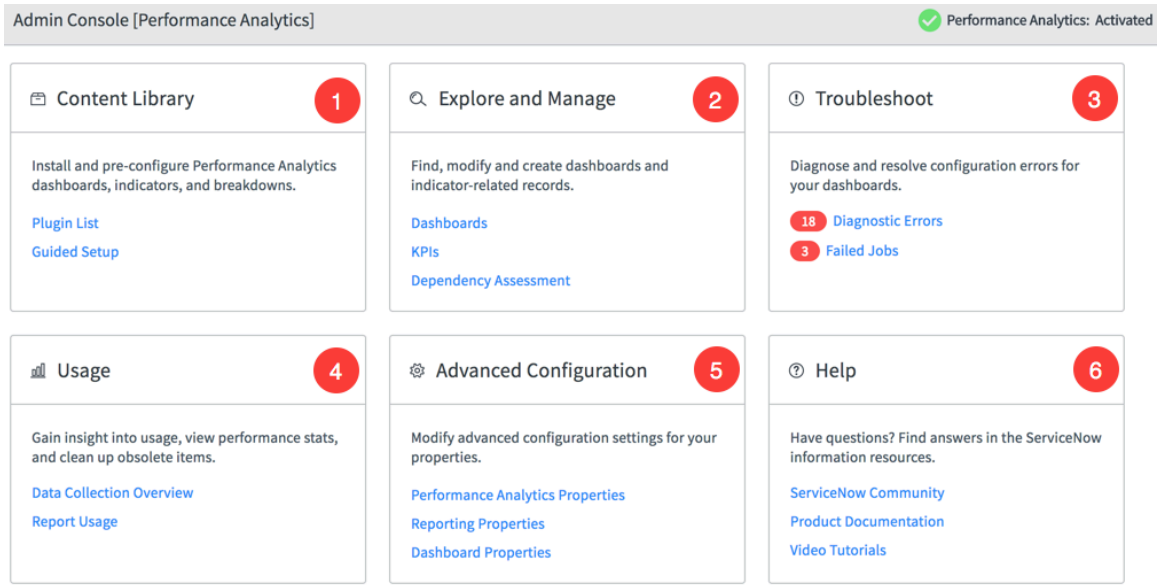
Performance Analytics Admin Console

From a single console, administrators can manage Platform Analytics Solution content, manage Performance Analytics widgets and dashboards, diagnose and resolve errors, view usage analytics, modify configuration settings and access ServiceNow help.

Important:
This admin console does not support Platform Analytics artifacts. It shows information only for Core UI Performance Analytics widgets and responsive dashboards.

Users with the admin or pa_admin roles can navigate to **Performance Analytics** > **Admin Console**. If Performance Analytics is not enabled, click **Learn More** for information about activating it.

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1 Content Library

Guided Setup for the Platform Analytics Solutions.

Click **Plugin List** to show a list of available system plugins for inactive Platform Analytics Solutions.

> **Note:**
> You must have the admin role to see the list of plugins.

Click **Guided Setup** to launch guided setup for Platform Analytics Solutions.

2 Explore and Manage

A single place where you can quickly identify and manage the relationships between your Performance Analytics elements and gauge the impact of change. For example, you can identify all the reports, indicators, and interactive filters in a dashboard group that are affected if you change a field name.

Click **Dashboards** to explore all of the dashboards in your instance sorted by group. Expand the group to view the individual dashboards.

Click **KPIs** to open the Analytics Hub, where you see an exploratory view of your indicators.

Use Dependency Assessment to view, analyze, and manage your Performance Analytics components.

3 Troubleshoot

The **Troubleshoot** panel enables you to utilize diagnostics delivered by the ServiceNow application to investigate tests that result in an Error warning and failed data collection jobs. Out-of-the-box diagnostics run on a schedule, but can also be executed on demand. The Scheduled Data Collection list filters out jobs that are run only once and jobs that are run only on demand.

> **Note:**
> If either of the numbers on the Troubleshoot card are greater than 0, there may be something wrong with your Performance Analytics implementation.

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- Click **Diagnostic Errors** to view the Diagnostic Executions list, a summary of how many diagnostic tests were run, and how many issues were found. Use the **State** field to track which issues have been resolved. For more information on diagnostic executions, see Analytics Diagnostics.
- Click **Failed Jobs** to view the Scheduled Data Collection list. A failed job is a scheduled job for which the latest complete run is in the state **collected_error**. For more information on data collection, see Performance Analytics data collection and cleanup.

4 **Usage**

Dashboards with statistics about data collection jobs and report usage.

- Use the **Data Collection Overview** dashboard to track and manage data collection. Note that data collection jobs are not run by default. dashboard widgets do not show data until you run the associated data collection jobs. For more information, see Performance Analytics data collection and cleanup.
- Use the **Reports Usage** dashboard to track and manage report usage. For more information, see Report statistics.

5 **Advanced Configuration**

Quick links to advanced configuration settings.

- Performance Analytics properties
- Reporting properties
- Responsive dashboard properties

6 **Help**

The community, product documentation, and the video tutorials on the ServiceNow YouTube channel provide additional insights into Performance Analytics functionality.

Related topics

Interactive Analysis information panel

Collecting indicator scores

Performance Analytics uses data collection jobs to collect and clean scores and snapshots. You can also set indicator scores manually.

To collect data immediately for existing records, run a historical data collection job.

For ongoing data collection, choose one of the following methods to collect indicator scores and snapshots based on the frequency and integrity of your data.

- If you need to measure an indicator once a month, quarter, or year, enter scores manually or import scores.
- If you need to measure indicators more frequently, or you want to eliminate any human involvement, use a scheduled data collection job.

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Note:
Performance Analytics snapshots are the lists of records (sys_ids) that are collected at the time that the scores for those records are collected. A snapshot is made only for automated indicators with **Collect records** selected.

Performance Analytics data collection jobs do not collect scores older than specified in the property *com.snc.pa.dc.keep_snapshots_for*. Scores or snapshots older than this value are not collected during data collection.

Collect historical data

Run a historical data collection job to collect scores and snapshots for existing records. When collecting data for the first time, such as for a new indicator, run historical data collection once to generate scores and snapshots for existing records.

Before you begin
Role required: pa_data_collector or admin

About this task
Performance Analytics regularly collects scores from your data on an ongoing basis. When you first set up Performance Analytics for an application, or when you create new indicators or indicator sources, run historical data collection to collect scores on your existing data. Historical data collection enables you to analyze data that existed prior to setting up Performance Analytics.

Warning:
- Avoid running a historical collection job more than once. If for example you create a new indicator, consider creating a new data collection job for that indicator instead of adding it to an existing job.
- A historical data collection job deletes any previously collected data for the periods and the indicators that the job covers. It does not delete data from outside that date range or for other indicators.

Historical jobs also collect snapshots of the existing data. Performance Analytics snapshots are the lists of records (sys_ids) that are collected at the time that the scores for those records are collected. A snapshot is made only for automated indicators with **Collect records** selected.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Jobs**.
2. Select a historical data collection job, such as [PA Change] Historic Data Collection, or create a new historic data collection job.
3. If you are creating or editing the historic data collection job, follow the procedure in Create or schedule a data collection job.

   Important:
   For a historical data collection job, set **Run** to On demand. Do not run historical data collection jobs on a fixed schedule.

4. In the job indicators, exclude any breakdowns that are based on fields whose value is likely to change during the historical collection period, as described in Configure a job indicator.
   For example, in the provided [PA Incident SLA] Historic Data Collection job, the job indicator 'Number of open and overdue incidents' excludes the Assignment Group and the State

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breakdowns. The value of both of these breakdowns could change over the data collection period, making the results meaningless.

5. Click **Execute Now**.

What to do next

After collecting historical data, use a scheduled data collection job to collect new scores regularly.

Create or schedule a data collection job

Schedule a data collection job to regularly collect Performance Analytics indicator scores and snapshots.

Before you begin

Before defining data collection jobs, make sure that indicator sources, breakdown sources, and indicators have been defined. Otherwise, jobs cannot return any results.

Roles required: pa_data_collector or admin

About this task

The important items to know when you configure a data collection job are:

- Collection period
- Collection timezone
- Collected scores domain, if domains are used.
- The collection job runs without any restrictions. It does not use the permissions of the user who runs it.

Data collection jobs run different steps to collect scores and to collect text analytics data. By default, jobs collect both types of data. To improve performance, you can instead schedule separate jobs for scores and for text analytics data.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Jobs** and click **New**.
   You can instead edit an existing data collection job, for example to change the schedule of when the job runs. In this case, navigate to **Performance Analytics** > **Data Collector** > **Jobs** and click the job name.
2. In the **Name** field, give the job a meaningful name.
   Follow a standard format for naming data collector jobs, such as [PA Indicator] Daily Data Collection, [PA Indicator] Historic Data Collection...
3. In the **Operator** field, select whether to collect data for an absolute or a relative time period.
4. If you selected **Fixed** as the operator, select the **Fixed start** date and the **Fixed end** date.
5. If you selected **Relative** as the operator, specify the intervals prior to the run time to collect data from.

   a. In the fields **Relative start** and **Relative start interval**, set the number and the length, respectively, of time periods in the past to begin to collect data from.

   b. In the fields **Relative end** and **Relative end interval**, set the number and the length, respectively, of the last period in the past to collect data from.

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Tip:

- Most indicators, and therefore most data collection jobs, run Daily. Daily scheduled jobs normally should collect for the most recently completed day. Therefore, they should have both a relative start and relative end of one day ago. Run historical data collection jobs, which have longer collection periods, only once.
- If you plan to use this job with indicators that use business calendars, consider the **periods ago** interval. This interval is based on the periods that are defined for a business calendar.

Example
For example, you want to collect scores for a set of several new indicators with a daily frequency, all using the same indicator source. First you create a historical data collection job that collects data from two months ago up to the day before yesterday. For this job, enter **60** in **Relative start** and **days ago** in **Relative start interval**. Enter **2** in **Relative end** and **days ago** in **Relative end interval**. Set the **Run** field to **On Demand**. Click **Execute now** and run this job once, to collect the initial scores.

Create a second job with relative start and end of 1 day ago and set the **Run** field to **Daily**. Activate this job to collect the scores for yesterday and all future scores for the day before the job is run.

6. Fill in the **Job parameters**, as appropriate.

Job parameter	Description
Run as	For domain separated instances, select the user that runs this job. The job collects scores from facts table and Performance Analytics records that have either the Global domain or are in the domain of this user. The data collection job follows only the domain, not the permissions of this user. ACLs and business rules do not apply to data collection jobs. Any user can run the job. **Important:** If you select a domain configuration for this job, it overrides the **Run as** user. See Step 9 in this topic.
Run as tz	Select the time zone that the queries use when they are executed from the job. Use the reporting time zone of your company if one exists. By default the System time zone is used. This time zone determines what day is "Today" for conditions like [[Opened][on][Today]].
Active	If selected, as it is by default, the data collection occurs at the scheduled date and time.
Run	Select the schedule for collecting the data. Choices are: ○ Daily ○ Weekly ○ Monthly ○ Periodically

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Job parameter	Description
	○ Once ○ On demand If you are using business calendars, you also have these options, for the start and end of the business calendar period (See Define business calendar entries ↗): ○ Business calendar: Entry start ○ Business calendar: Entry end If you are creating a historical data collection job, schedule the job to run On demand.
Day	○ If **Run** is **Weekly**, specify the day of the week. ○ If **Run** is **Monthly**, specify the day of the month. To collect at the end of the month, set for day 1 and set **Time** to soon after midnight. This setting collects data for a completed month regardless of the length of the month.
Repeat Interval	If **Run** is **Periodically**, specify the amount of time between scheduled data collections, in days and hour.
Starting	If **Run** is **Periodically** or **Once**, specify the date and time of the first scheduled data collection.
Time	Time that the job runs, on 24 hour clock. Field appears after **Active** is selected. ○ Time based on the time zone for your user session, not the **Run as tz** time zone. ○ Generally set for an hour between midnight and 6 am at your company, to collect the last complete period. For example, if you are in New York and want to collect data at 5 am for your company that is on Los Angeles time, set the time to 08:00:00.
Collect	Data collection jobs have separate steps for collecting scores and for collecting text analytics. Select one of: ○ Scores only ○ Text index only ○ Both scores and text index (default) For more information, see Set up text analytics.
Conditional	If checked, the data collection occurs only if certain conditions are met.
Conditions	Conditional script that determines if a scheduled job should run. The last expression of the script should evaluate to a Boolean (true/false) value. This text box appears only if you select **Use conditions**.

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Job parameter	Description
	Warning: Conditional scripts for Performance Analytics data collection jobs are executed in the sandbox. Therefore, function definitions are not allowed. Some API calls and keywords are also not allowed. For more information, see Script sandbox property. After upgrade, jobs with conditional scripts that contain these disallowed API components will conclude with "Collected with errors." These jobs do not collect scores. The `com.snc.pa.dc.script.use.sandbox` system property controls whether data collection scripts use the sandbox. Only users with the security_admin role can modify this property. Exercise caution when turning off this property. When set to false, unauthorized users may be able to execute malicious actions on your instance.

7. Right-click the form header and select **Save**.
8. In the **Indicators** related list, click **Edit** and select the indicators that this job collects data for.

Important:

- Include at least one indicator for the job. Otherwise, the job cannot return any results.
- To help keep jobs maintainable, try not to associate an indicator with more than one active collection job unless you have a clear use case. If you are trying to get real-time data, consider using a real-time indicator.
- The data collection job produces one database query for each indicator source for the associated indicators. Thus the data for all indicators that share an indicator source represent the same point in time.

9. If you have enabled domain configurations, you can select a domain configuration to associate with this job in the **Domain configurations** related list.
Domain configurations are grouping of domains based on their visibility to a user group or other condition. These groupings can include parent-child relationships. If you select a domain configuration for a job, the job collects scores for records in the domains of the configuration, including the global domain. Domain configurations override the **Run as** user. For more information, see Grouping domains in Performance Analytics domain configurations.
10. Click **Submit**.

What to do next

- By default, for each job indicator, data is collected for all breakdowns and the indicator itself. To change this configuration for an indicator, see Configure a job indicator.
- If you have enabled domain support, you have a related list named **Domain configuration**. In this tab, click **Edit** to relate an existing domain configuration with this job or click **New** to create a new domain configuration. For more information, see Create a domain configuration.

Configure a job indicator

Increase the efficiency of data collection by configuring job indicators to collect only necessary and sensible data.

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Before you begin
Role required: admin, pa_admin

About this task
By default, a job indicator collects data for the indicator itself and for all breakdowns that are associated with that indicator. However, not all breakdown data might make sense for a particular data collection job. For example, breakdowns that are based on fields that are likely to change over a collection period, such as Assignment Group and State, are usually excluded from historical jobs. Often, the job collects the value of Assignment Group and of State only at the time the job is run. A six-month-old incident, hopefully completed, can end up with a State of Complete for its entire six-month history. Such values are misleading.

Alternatively, you might need to collect only breakdown data and not to calculate the indicator scores. You can configure a job indicator not to collect unnecessary or meaningless data, thus reducing the resource consumption of the job.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Jobs**.
2. Open the job for which you want to configure a job indicator.
   Job indicators are specific to the job that uses them.
3. In the **Indicators** tab, click the name of the job indicator that you want to configure.
4. Fill in the fields, as appropriate.

Field	Description
Job	Is automatically copied from the job name.
Indicator	The associated automated indicator. When you add a job indicator with the **Edit** button on the Scheduled Data Collection record, you select the automated indicator.
Collect	Choose to collect **All breakdowns** or **No breakdowns**, or to exclude specific breakdowns.
Collect indicator	Select the check box to collect data for the indicator itself (the default). Clear this check box if you want to collect data for breakdowns alone. **Tip:** When you have added a breakdown to existing indicators, consider running a one-time historical collection job on these indicators to get scores for that breakdown. Collect only on the added breakdown and not for the indicators themselves.

5. If in the **Collect** field you chose to **Exclude these breakdowns**, select breakdowns to exclude.
   a. Open the context menu and click **Save**.
      A related list of excluded breakdowns appears.
   b. Click **Edit** in the **Excluded breakdowns** list and add or remove breakdowns to exclude.

Cancel a data collection job
Cancel an active data collection job to stop the job from collecting scores.

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Before you begin
Role required: pa_data_collector and schedule_admin, or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Jobs**.
2. Select the job you want to cancel.
3. Click **Cancel Job**.

Add or edit indicator scores manually

You can manually enter score data for automated and manual indicators. Exercise care when editing scores for automated indicators.

Before you begin
Role required: pa_contributor, pa_admin, pa_power_user, or admin

About this task
You typically add scores manually for indicators that require an update only once a month or less often. In addition, if data cannot be collected automatically for some entities, like customers, you can manually enter or import data.

You can manually overwrite data that a job collected. However, the next time that a job is run that collects this data, the manually entered data is overwritten in turn.

Note:

- Auditing does not track manual changes to the scoresheet. Manual inserts, updates, and deletions are not audited, even when auditing is enabled at the Dictionary level for all pa_scores tables.
- You cannot edit scores manually for formula indicators.

Procedure

1. Navigate to **Performance Analytics** > **Scoresheet** > .
2. Select the indicator for which you want to enter manual scores.
3. **Optional:** Change the selected date by clicking the left or right arrows around the date range, or click the date range to select a new range.
4. Fill in the main scores for the indicator in the **Indicator Scores** row.
   Alternatively, if an indicator contains breakdowns, fill in the indicator scores per breakdown element.

   Note:
   A percentage bar above each column of scores indicates the percentage of breakdown elements that contain scores. A value of 0 counts as a score; only the absence of any value counts as empty.

   a. Click **Aggregate scores**.

   b. Choose whether you want to use the **Sum** or the **Average** of a specific breakdown to calculate the main scores for the indicator.

   c. Select the breakdown to aggregate, such as **Priority**, and click **Apply**.

   All scores for that breakdown are totaled or the average is calculated for them.

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For automated indicators that collect a second-level breakdown and are based on two or more breakdown sources, multi-level breakdown scores can be entered in the scoresheet. For example, for Open incidents by workgroup by priority, you can enter both scores for the elements of workgroup (first level) and the elements of priority (second level). Aggregations for these indicators are calculated in the same way as other breakdowns.

Related topics

Manual indicators

Ranking records with Spotlight

Use Spotlight to identify and rank records of interest based on multiple weighted criteria.

Spotlight illuminates records that otherwise you might overlook. You can define weighted criteria to identify and rank records that require attention, such as when triaging incidents or performing lead scoring. You can rank records based on multiple dimensions, instead of by a single field value such as priority. While most organizations address high-priority items in a timely manner, lower priority items sometimes are not addressed for an extended period of time. Spotlight helps you focus on items based on business need.

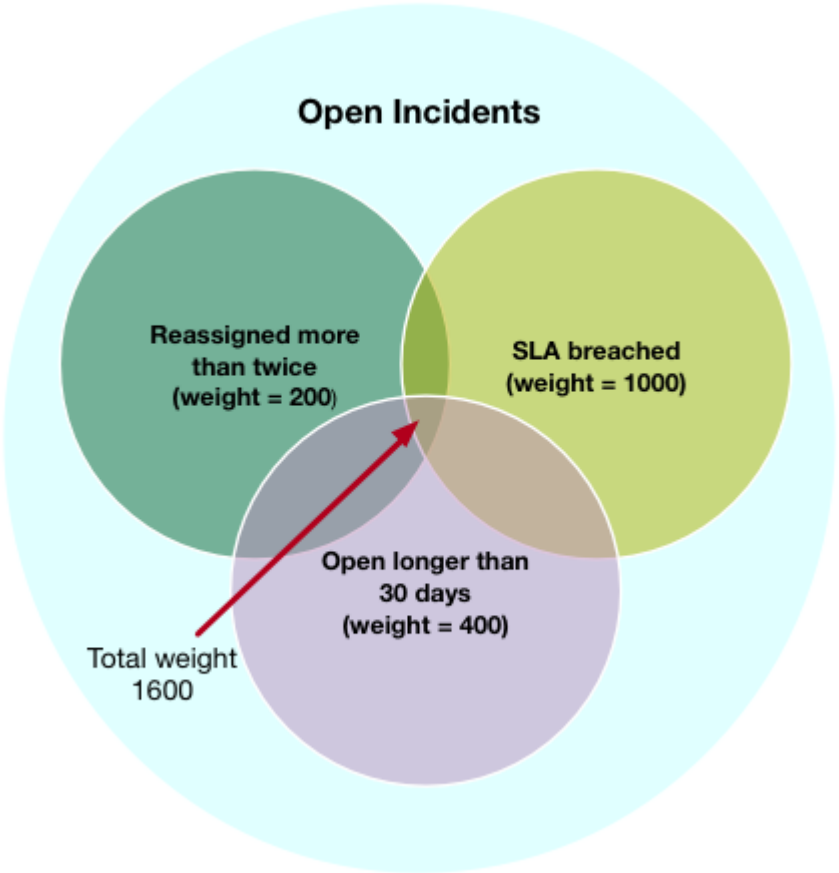
For example, you might want to have incidents brought to your attention if they have been open for a long time, or been reassigned multiple times, even if these incidents are low priority. Among those incidents, you might want one that has been open a long time and been assigned multiple times to be ranked above one that has only been open a long time.

Spotlight uses scheduled jobs that run to evaluate the records. The results of these jobs can be viewed in Spotlight interactive analyses. To share Spotlight results, share the URL of the analysis with any user who has the pa_spotlight_viewer role.

The following diagram demonstrates scoring in Spotlight. The large circle represents the set of all open incidents. Each of the smaller circles represents a weighted Spotlight criteria that applies to a subset of the open incidents.

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Spotlight diagram



Note:
To use Spotlight, an administrator must activate the Spotlight plugin.

Setting up Spotlight

Set up Spotlight for each set of table records that you want to evaluate and rank by importance. The records must be associated with an indicator.

Specify the records you want to evaluate by creating a Spotlight group. Create multiple Spotlight criteria and associate them with the group to define how to weight records. In the Spotlight group, you set the sum of the weights of criteria that a record must meet to trigger the creation of a Spotlight.

Note:
Before you start to work with Spotlight, an administrator must activate a Spotlight plugin.

After creating the Spotlight group and multiple Spotlight criteria, activate the Spotlight group. After the Group is activated, Spotlight scores are collected automatically according to the Spotlight group job schedule. You can also collect Spotlight scores manually at any time for an active group. A Spotlight is automatically created for any records with Spotlight scores that exceed the Spotlight group threshold, allowing you to quickly identify the highest priority work.

Related topics

Performance Analytics concepts

Create a Spotlight group

Create a Spotlight group to define the records to evaluate. In the Spotlight group, you also set the threshold that the score of a record must exceed to trigger the creation of a Spotlight.

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Before you begin
An administrator must have activated the Spotlight plugin.

Role required: pa_spotlight or admin

About this task
Spotlight groups specify a set of records to evaluate and a threshold. If the score of a record in the data set exceeds the threshold, a spotlight is created for that record. The score of a record is the total weight from all applicable spotlight criteria in the spotlight group.

The set of records to evaluate must be associated with a Performance Analytics indicator. The Spotlight group specifies this indicator. A Spotlight group can reference only one facts table: both the main indicator and all Spotlight criteria for the group must refer to the same table.

Note:
You can change the main indicator of an existing Spotlight group. However, after you select criteria for the group, you can change the main indicator only to another indicator that uses the same facts table.

If you have domain separation enabled, you create the Spotlight group in whichever domain you are logged in to when you create it. After you configure the Spotlight group, you can copy it to multiple domains, as described in Copy a Spotlight group to domains.

Warning:
If you create a Spotlight group in the Global domain, every domain has access to the group.

Procedure
1. Navigate to **All** > **Spotlight** > **Spotlight Groups** and click **New**.
2. Fill in the fields:

Spotlight Group form

Field	Description
Threshold	The sum of the weights of the Spotlight criteria that a record must meet to trigger the creation of a Spotlight. Consider revisiting this value when you assign weights to Spotlight criteria.
Main Indicator	The indicator that collects the records that you want this Spotlight group to evaluate. The main indicator must meet the following requirements: ○ It must be an automated indicator. ○ The collect_records property of the indicator must be set to true. This property is set in the Source tab of the indicator form. ○ The indicator source for the indicator must refer to an actual table, not a database view.

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Field	Description
	All criteria for evaluating this Spotlight group use the same facts table as the indicator source of the main indicator.

3. **Optional:** To filter the records to evaluate, select a **Breakdown** and an **Element**.

   Important:
   Spotlight group creation respects the Access Control List (ACL) on the breakdown source table. Therefore, depending on the ACL, you may not see all existing elements of a breakdown, even with an admin role.

   After you complete the Spotlight group, you can copy the completed Spotlight group to other elements in the same breakdown. Click **Copy Spotlight group for breakdown**. For more information, see Copy a Spotlight group to breakdown elements.

4. In the **Evaluate scores from** field, select whether the Spotlight job evaluates scores from a snapshot or from the platform.
   For more information, see Evaluating a snapshot or platform data.

5. In the context menu, select **Save**.

Result

You have created a Spotlight group with an indicator and a threshold, and you have defined whether to collect scores based on a snapshot or on platform data.

What to do next

- Create Spotlight criteria for the Spotlight group and set the schedule for collecting Spotlight scores. See Create Spotlight criteria.
- If you are using domain separation, the Spotlight group is created in the domain that you are in when you create the group. After you complete configuring the Spotlight group, including criteria and scheduling, you can copy the Spotlight group to another domain by clicking **Copy to domain**.
- If you have specified a breakdown and element for the main indicator, you can copy the Spotlight group to other elements in the same breakdown. To do so, click **Copy Spotlight group for breakdown**. First complete the Spotlight group, including criteria and scheduling.

Note:
If you copy a Spotlight group to other domains or other breakdown elements, no Spotlight job results that were already generated for the original Spotlight group are copied.

Related topics

Domain separation with Spotlight

Spotlight interactive analysis

Performance Analytics indicators

Collecting indicator scores

Evaluating a snapshot or platform data

When a Spotlight job runs, it either evaluates a snapshot of collected records or it collects and evaluates data directly from the platform.

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Note:
New Spotlight scores overwrite previous scores, regardless of whether the scores are from a snapshot or from platform data.

Evaluating snapshot records

By default, a new Spotlight group uses a snapshot of records. Snapshots are the lists of records (sys_ids) that are collected at the time that the scores for those records are collected. A snapshot is made only for automated indicators with **Collect records** selected. The Performance Analytics data collection jobs for the main indicator and the criteria indicators of the Spotlight group create the snapshots. These jobs must run, collecting records, before the Spotlight evaluation job runs.

For a Spotlight group to use snapshot records, the data collection and Spotlight evaluation jobs must meet the following conditions:

- The main indicator and all the indicators used in the criteria of the Spotlight group have record collection enabled.

  Note:
  The **Collect Records** option on the Indicator form enables record collection, as described in Create an automated indicator.

- The main indicator and all the indicators used in the criteria of the Spotlight group have the same data collection frequency.
- The data collection jobs for all the Spotlight group indicators run as closely together as possible, to keep the data synchronized. The snapshots of the criteria indicators must have the same date as the last score date of the main indicator. Ideally, the main indicator and all the criteria indicators are in the same data collection job.
- The Spotlight score collection job runs at the same frequency as the data collection jobs, and as soon as possible after those jobs complete. Scheduling Spotlight score collection in this way ensures that the results are up-to-date and meaningful.

Note:
Only indicator-based Spotlight criteria evaluate snapshot records. Query-based criteria always evaluate platform data, even if you set the group to evaluate data from a snapshot.

Evaluating platform data

Spotlight can collect and evaluate records directly from the platform at the time that the Spotlight job runs. The resulting Spotlight scores reflect the state of the platform at the time of the latest Spotlight job.

Spotlight scores based on platform data are not truly in "real time." A record may change in the platform, but the Spotlight score of the record will not reflect this change until the next time a Spotlight job runs.

Evaluating platform data requires more system resources to query the indicator data than evaluating records from a snapshot does.

Also, indicator-based criteria cannot be used to evaluate platform data when scripted breakdowns are applied. The specific restrictions are:

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- If the indicator of a criterion uses a breakdown that is based on a script, this specific criterion cannot be used. Either collect snapshot instead of platform data or create query-based criteria in place of indicator-based criteria.
- If the main indicator of the Spotlight group uses a breakdown that is based on a script, you cannot evaluate platform data. Configure the Spotlight group to collect data based on snapshots only.

Create Spotlight criteria

Create Spotlight criteria to define when to weight a record, and the weight to assign.

Before you begin

Create a Spotlight group

Role required: pa_spotlight or admin

About this task

Spotlight criteria define how to weight records based on specific attributes. Each Spotlight criterion is associated with a Spotlight Group.

Spotlight criteria can refer to an indicator or can use a direct query to the facts table. The former criteria are called indicator-based criteria and the latter are called query-based criteria. The indicator for an indicator-based criterion must meet the following requirements:

- It must be an automatic indicator.
- It must be set to collect records.
- It must be based on the same table that the indicator source of the main indicator is based on. This table cannot be a database view.
- If the Spotlight group evaluates platform data, the indicator cannot use a scripted breakdown.

A query-based criterion queries the same table that the indicator source of the main indicator is based on. The suitability of indicator-based and query-based criteria depends also on whether the Spotlight group evaluates platform data or snapshots of records. For more information, see Evaluating a snapshot or platform data.

Some criteria may be more important than others and have a higher weight. Weight from multiple criteria is cumulative within a Spotlight Group. The score of a record is the total weight from all applicable Spotlight criteria in the Spotlight Group.

If you have domain separation enabled:

- When you create Spotlight criteria for a global Spotlight group, the criteria are created in the domain of the logged-in user.
- When you create Spotlight criteria for a Spotlight group that is in a specific domain, the Spotlight criteria are created in that domain.

Messages appear to inform you of the domain situation when you create Spotlight criteria. For more information, see Domain separation with Spotlight.

Procedure

1. In a Spotlight group record, locate the **Spotlight Criteria** related list and click **New**.
2. Enter the **Weight** you want to assign to records that meet this criterion.
   Consider revisiting the **Threshold** value that is set in the associated Spotlight group. Optimize the weights of the Spotlight criteria of the group and the group threshold against each other.
3. Select the **Criteria Type** to determine which records are assigned the specified weight.

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Option	Description
Indicator	Select an **Indicator** to assign the weight to all records included in that indicator. Optionally, select one or two breakdowns and elements to limit the records to only those records with the specified breakdown element values.
Query	Set **Filter conditions**. The specified weight is assigned to all records from the facts ta ble that match the filter conditions. The facts table of the main indicator of the Spotlight group is automatically selected.

4. Click **Submit**.

Result
You have a criterion for a Spotlight group.

Example: Spotlight group with three criteria

Consider a Spotlight Group with the following three criteria, all referring to indicators:

- Open incidents not updated in 30 days, with a weight of 1000.
- Reassignment > 3 times, with a weight of 800
- Description is Empty, with a weight of 300

In this example, an open incident that has been reassigned 4 times and has an empty Description field has a total score of 1100. This incident is prioritized above an incident that has not been updated in 30 days, which has a total score of 1000.

What to do next
Repeat the procedure to create as many criteria as are necessary. Then collect scores. See Collect Spotlight scores.

Collect Spotlight scores

To collect Spotlight scores, schedule score collection and activate the Spotlight group. You can also collect scores manually for an active Spotlight group.

Before you begin

1. Create a Spotlight group
2. Create Spotlight criteria

Role required: pa_spotlight or admin

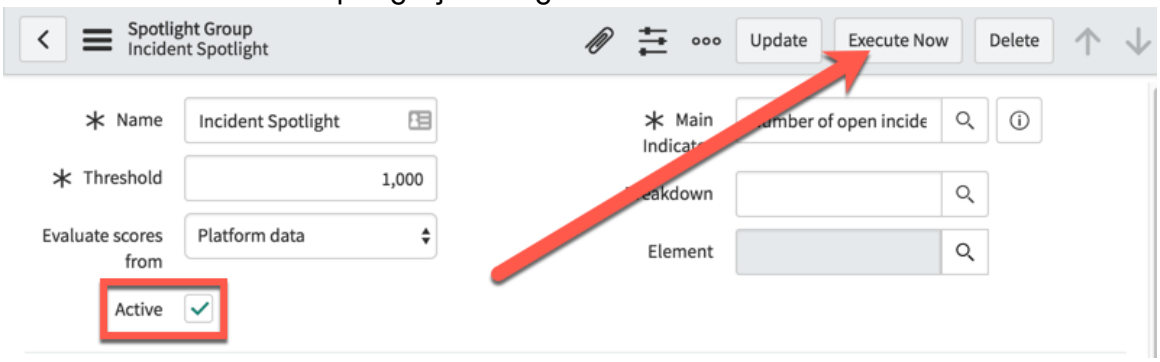
About this task
When Spotlight collects scores, Spotlight also deletes all older Spotlight records for the associated Spotlight group, without exception.

Procedure

1. Open the Spotlight group that you want to collect scores for.
2. If it is not already selected, select **Active** in the check box and save the Spotlight group form. New Spotlight groups are active by default.

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You can now execute the Spotlight job using the **Execute Now** button.



3. To collect scores immediately, click **Execute Now**.
4. Go to the **Schedule** section and in the **Run** field, select the frequency at which to collect Spotlight scores.
5. Fill in any specific information about when the Spotlight scores will be collected.
   The required information depends on the period you choose in the **Run** field. For example, if you choose to run **Daily**, you have to fill in the time of day to run. If you choose **Monthly**, you have to fill in the day of the month and the time of day to run.
6. If you are using domain separation, specify a user in the **Run as** field.

   If you do not specify a **Run As** user, scores are evaluated for the Global domain. In this case, Spotlight scoring is performed for all matching records in all domains.

   For more information, see Domain separation with Spotlight.

Result

Spotlight starts collecting scores according to the schedule you set. You can also collect scores manually at any time by clicking **Execute Now**. Administrators who need to troubleshoot scheduling can read Schedule Item [sys_trigger] records for Spotlight.

What to do next

You can see the details of the criteria that contribute to a Spotlight score. For more information, read See Spotlight score details. You can also see and share an interactive analysis of the results.

See Spotlight score details

To see the criteria whose weights contributed to a Spotlight score, view the details of the Spotlight record.

Before you begin

Role required: pa_spotlight or admin

Procedure

1. Navigate to **All** > **Spotlight** > **Spotlight** or view the **Spotlights** related list in a Spotlight Group record.
2. Locate the Spotlight that interests you and click the information icon .
3. Click **Open Record**

Result

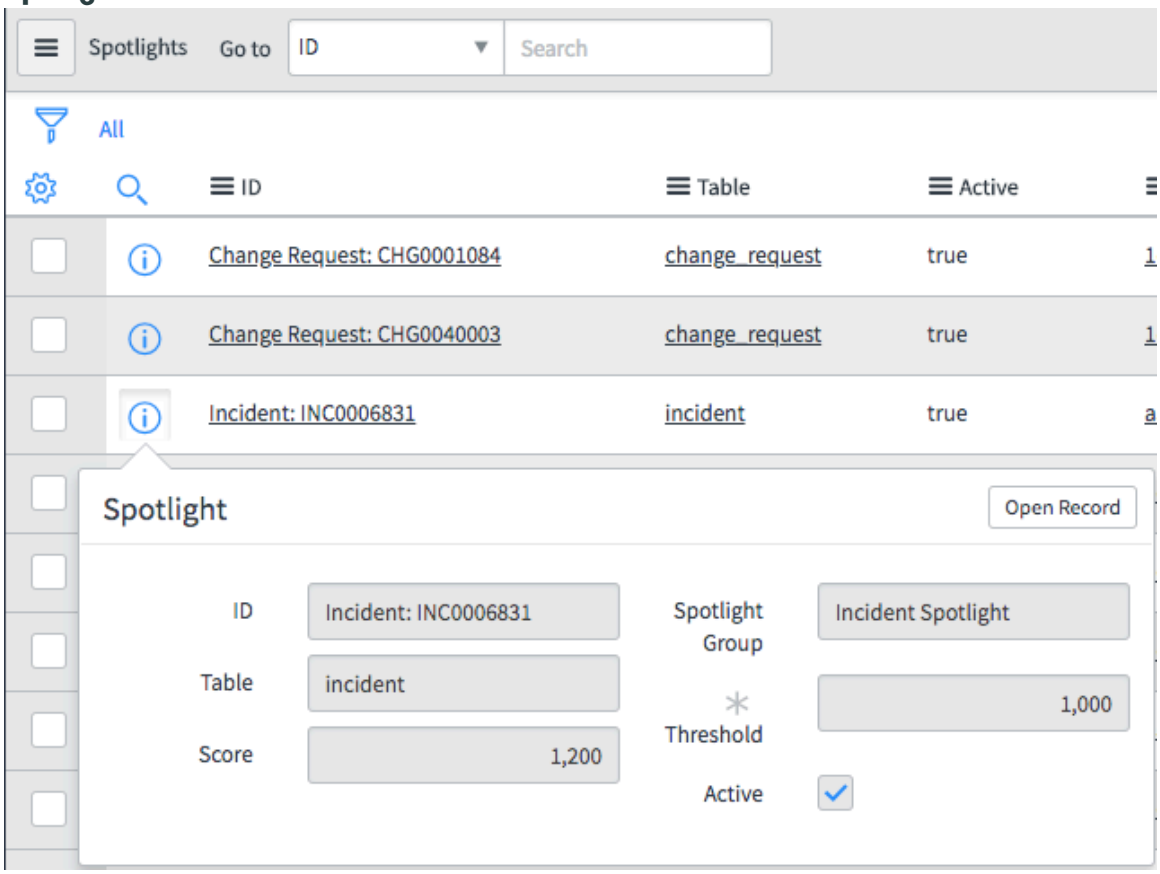
The Spotlight record opens. In the Spotlight Audits related list, you can see which Spotlight criteria the record met and the contribution of each criterion to the total score.

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Example: Spotlight criteria contributing to total score

Consider the Spotlight record for Incident INC0006831, which had a Spotlight score of 1,200 against a threshold of 1,000.

Spotlights list with selected record



Opening the Spotlight record, you see that the following criteria weights contributed to the total score:

Criteria	Weight
Open incidents not updated 30 days	1,000
Incidents older than 28 days	25
Incidents older than 7 days	25
Open incidents not updated 5 days	100
Incidents older than 14 days	25
Incidents older than 90 days	25
TOTAL SCORE:	1,200

Spotlight interactive analysis

Spotlight interactive analysis shows the key results of a Spotlight job. Access the analysis from a Spotlight Group record.

To open the Spotlight interactive analysis, open the Spotlight Group record for the group of interest and click the **Launch Interactive Analysis** related link. The pa_spotlight or admin role is necessary.

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Note:
Interactive analysis uses the Spotlight database view. Spotlight creates the database view for each Spotlight group when you create the group. If the database view is missing, a warning appears. If you have the pa_spotlight or admin roles, a link also appears for generating a database view. For more information, see Spotlight database views.

Using interactive analysis with any table other than incident requires fully enabled, subscription version of Performance Analytics. See Activating your Performance Analytics subscription.

Interactive Analysis contains the following information:

- The number of Spotlight records. This value is also the number of corresponding fact table records that exceeded the Spotlight Group threshold.
- The number of unassigned facts table records that exceeded the Spotlight threshold. These records have no value in the Assigned To column.
- The database view that joins the Spotlight table with the facts table of the main indicator. Each row of this view shows the columns from a Spotlight record and the corresponding facts table record.

Note:

- If a user cannot see the values in this table, ensure that they have the itil role.
- If domain separation is enabled, a user can only see Spotlights records for corresponding fact table records that are included in their domains.
- You can create reports by using this database view as a data source. You can include these reports in dashboards. Each of the Analytics and Reporting Spotlight Solutions includes such a dashboard and reports.

For more information, see Spotlight database views.

You can apply interactive filters to the analysis. The following filters are available, for facts tables with the matching columns:

- The **Priority** of the facts table record (tasks only)
- When the record was **Opened**
- The **Age** of the record
- The **Assignment Group** (tasks only)
- The **State** that the record is in

For information about adding or removing any of these filters, see Add a filter to Interactive Analysis and Remove a filter from Interactive Analysis.

Note:
If you create an interactive filter for a Spotlight interactive analysis, the filter must be created on top of the relevant Spotlight database view. The admin role is necessary to access the database view. If you do not have this role, contact your system administrator.

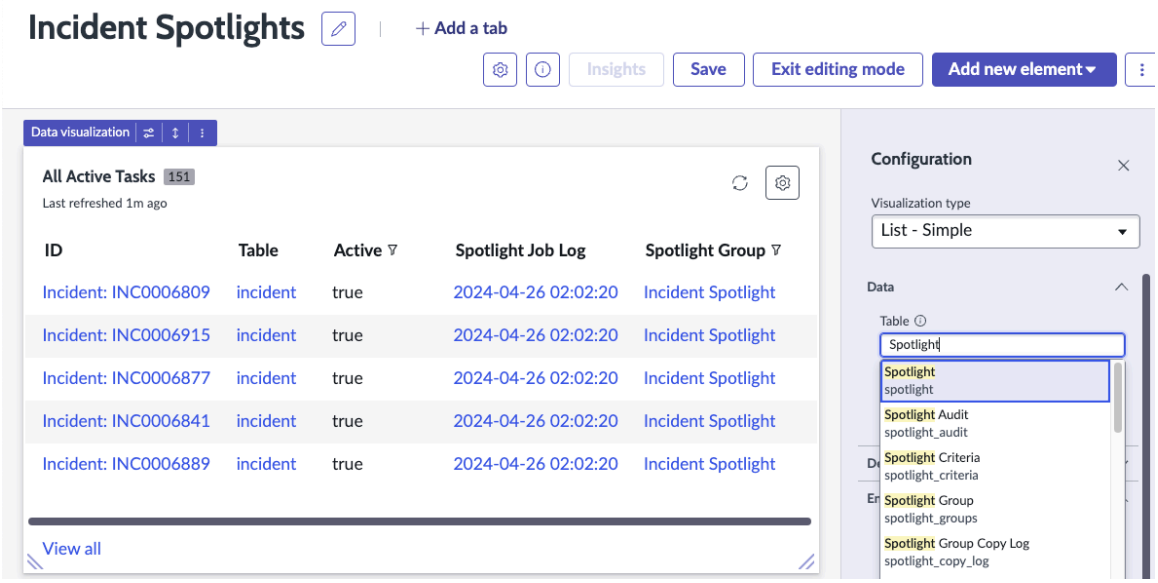
To share the interactive analysis, share the URL from the Filter Info. The user with whom you share the interactive analysis must have the pa_spotlight_viewer role. For more information about the Filter Info, see Interactive Analysis information panel.

Spotlights on Platform Analytics dashboards

You can list Spotlights and show them in a dashboard on a configurable workspace.

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To show Spotlight in Platform Analytics, create a dashboard in the inline editor. Add a List to that dashboard that shows records from the Spotlight [spotlight] table. You can filter on the Spotlight Group, such as Incident Spotlight.



Related topics

- Dashboards in Platform Analytics
- Create a simple list visualization in the Visualization Designer

Spotlight job logs

The steps of Spotlight jobs are recorded in logs. Use these logs to debug any issues.

Users with the pa_spotlight or admin roles can read and delete Spotlight job logs.

The logs are listed at the following locations:

- At **Spotlight** > **Spotlight Logs**.
- As the Spotlight Job Logs related list on the relevant Spotlight Group record.

The same Spotlight Job Logs list opens in both places, but in the Spotlight Group form, the list is filtered by that Spotlight group.

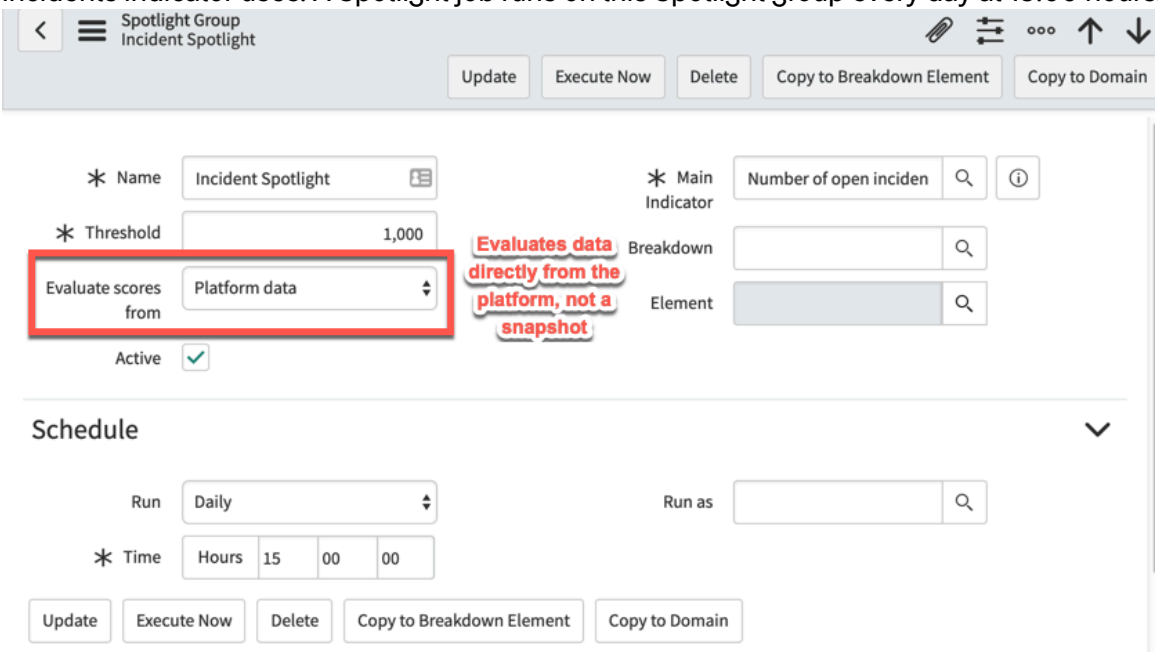
To debug a Spotlight job, open the job log from the list and examine the job log row fields.

Example: Debugging Spotlight jobs

Consider the Incident Spotlight group, which evaluates real-time data from the Incident [incident] table. This table is the table that the indicator source of the Number of open

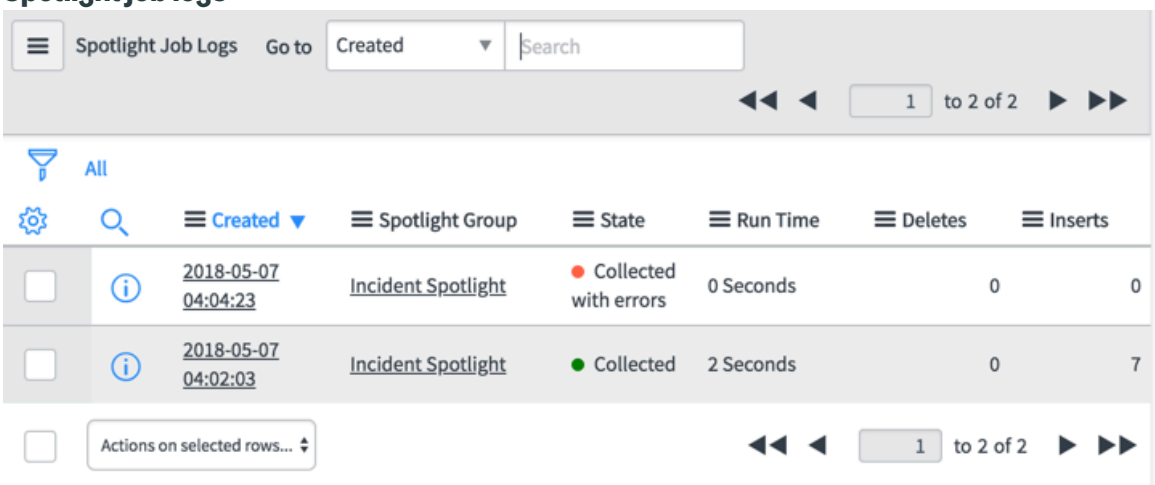
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incidents indicator uses. A Spotlight job runs on this Spotlight group every day at 15:00 hours.



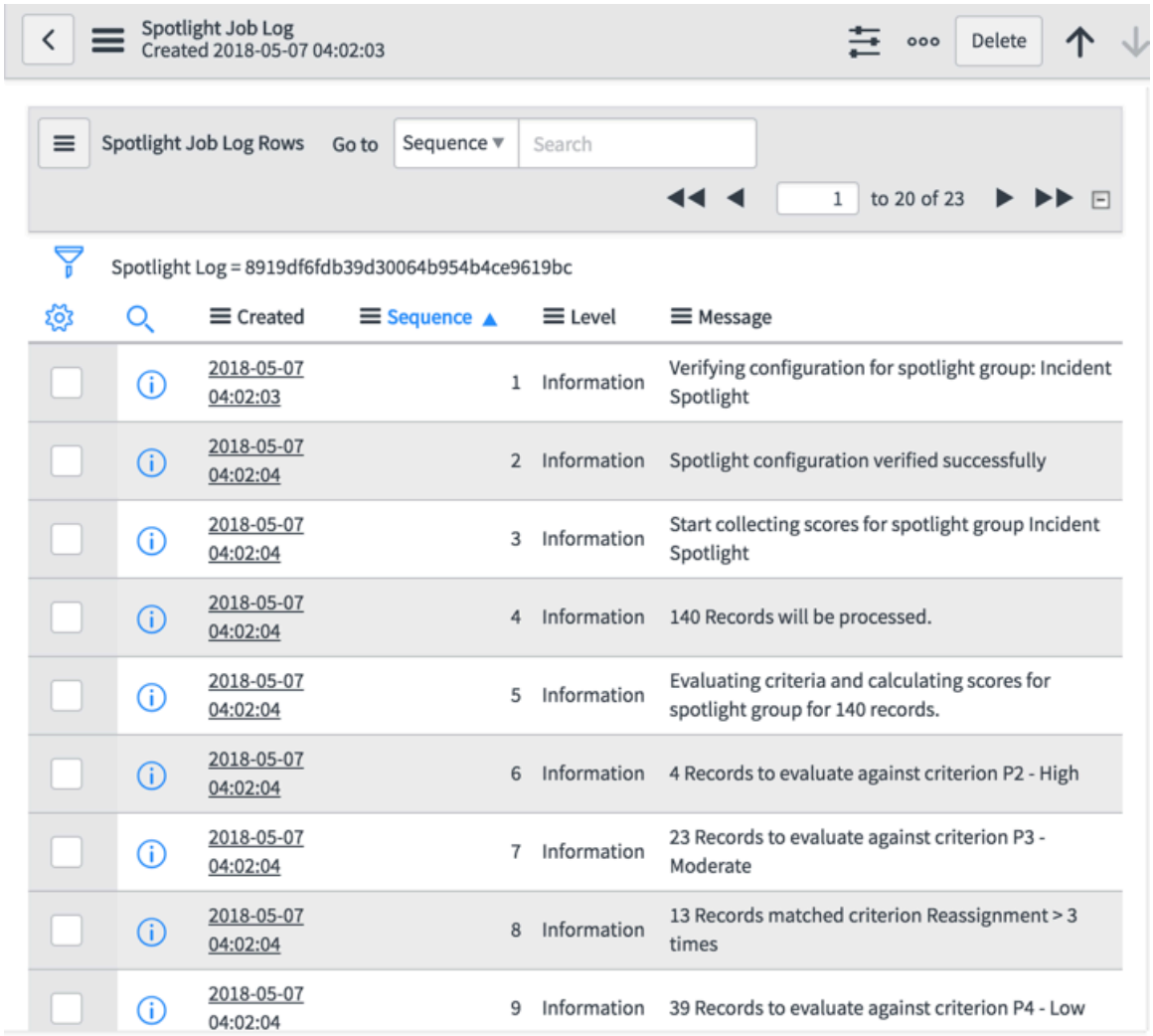
The Spotlight jobs for this group generate the following list of Spotlight job logs, where the most recent job completed with errors:

Spotlight job logs

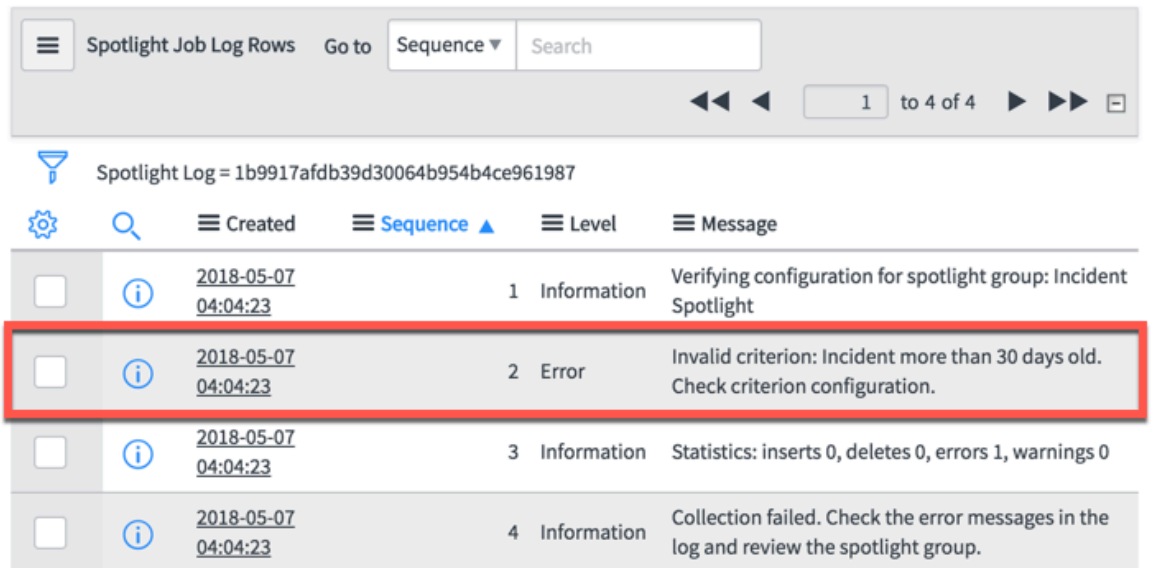


Clicking the timestamp of the 04:02:03 job shows a successful job with only informational messages.

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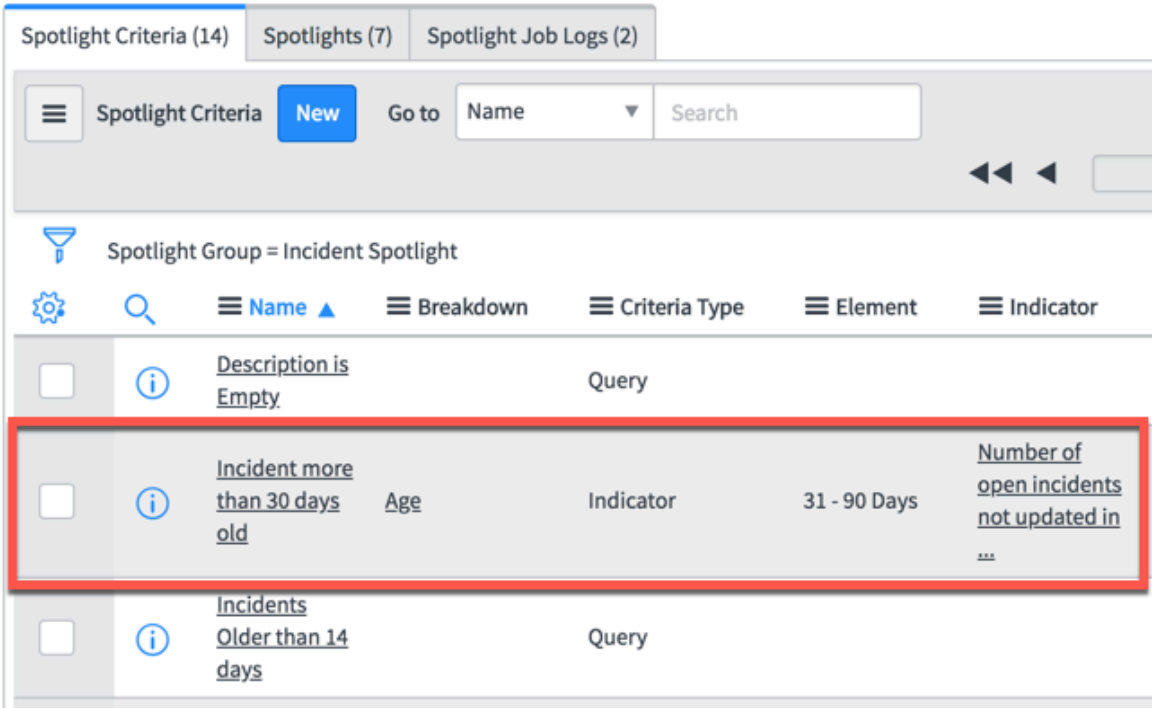


Returning to the list and opening the log for the job that had errors, you see that the Spotlight criterion **Incident more than 30 days old** is invalid.

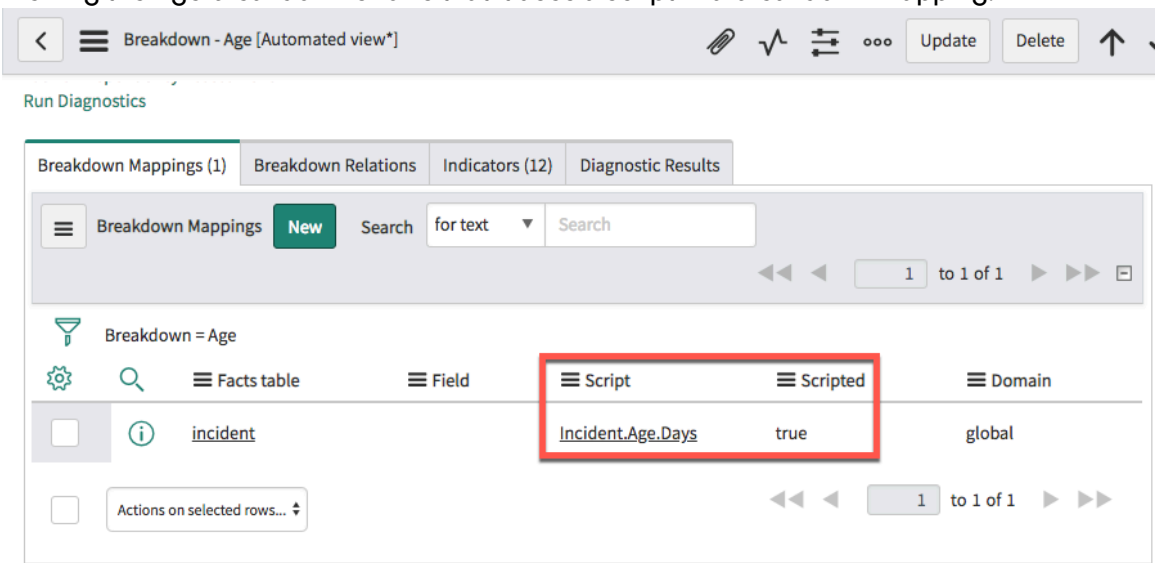


Navigating to the Spotlight criteria, you see that **Incident more than 30 days old** is an indicator-based criterion that uses the Age breakdown.

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Viewing the Age breakdown shows that it uses a script in a breakdown mapping.



As shown at the top, the Incident Spotlight group evaluates real-time data. Therefore, the group cannot support criteria that use scripted breakdowns. For the job to run without errors, replace this criterion with a criterion that uses a query instead of an indicator and a breakdown. For example, create a criterion that queries the Incident [incident] table with the following conditions:

- [[Opened][relative][on or before][30][Days][ago]]
- [[Opened][relative][on or after][90][Days][ago]]

For more information, see Create Spotlight criteria.

Domain separation with Spotlight

If you have domain separation enabled, Spotlight applies it during Spotlight jobs.

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Domain of the Spotlight group

When you create a Spotlight group, you create it in the domain of the user that you are logged in as when you create the group. For example, if you are a user in the ACME Products domain and you create a Spotlight group, that group is created in the ACME Products domain. If you create a Spotlight group as a user who is not a member of any domain, that Spotlight group is in the Global domain.

You can copy a Spotlight group to other domains, as defined in ServiceNow AI Platform® domain separation.

Session domain and Spotlight group domain

If you are logged into a different domain than the domain of a Spotlight group, you cannot edit that Spotlight group record. In this case, you can only copy the Spotlight group to another domain.

Spotlight criteria domains

- When you create Spotlight criteria for a global Spotlight group, the criteria are created in the domain of the logged-in user.
- When you create Spotlight criteria for a Spotlight group that is in a specific domain, the Spotlight criteria are created in that domain.

Messages inform you of the domain situation when you create Spotlight criteria.

Evaluating scores with domain separation

If the Spotlight group evaluates platform data, the main indicator and all criteria are queried according to the domain and domain visibility of the **Run As** user. If the Spotlight group evaluates records from a snapshot, the main indicator and indicator-based criteria use the Performance Analytics snapshot that is collected specifically for the **Run As** user domain. The domain visibility of the **Run As** user does not apply to indicators in this case. (Query-based criteria always evaluate platform data, even when the Spotlight group is configured to evaluate snapshots. Therefore, query-based criteria always follow both the domain and the domain visibility of the **Run As** user.)

Note:
The snapshot of each indicator can differ depending on the domain configuration of the Performance Analytics data collection job that creates the snapshot.

Related topics

Create a Spotlight group

Evaluating a snapshot or platform data

Copy a Spotlight group to domains

Domain separation and Performance Analytics

Copy a Spotlight group to domains

You can copy a Spotlight group to other domains, saving the effort of reproducing the group manually for each domain.

Before you begin
Finish configuring the Spotlight group that you want to copy.
Role required: admin, pa_spotlight_copy_domain

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About this task

When you first create a Spotlight group, it is created in the domain that you are logged in to. To create identical Spotlight groups in other domains, use the copying function. The copying function follows the ServiceNow AI Platform® domain separation.

Procedure

1. Locate and open the Spotlight group record from the **Spotlight Groups** list.
2. Click **Copy to Domain**.
3. In the Copy Spotlight Group dialog, select a value for **Name Preference**.
4. Fill out the remaining fields of the **Copy Spotlight Group** dialog as follows:

Field	Description
New Name	Editable field showing the name of the Spotlight group copies you are creating. This field appears if you select any value for **Name Preference** other than **Do not change the name**. All copies have the same name unless you select **Add domain name to new name as prefix** or **Add domain name to new name as suffix**. The domain name prefixes or suffixes do not appear in this field.
Domain	Select any number of domains. The choices include the parent domain and all subdomains. A copy of the Spotlight group is made for each selected domain.

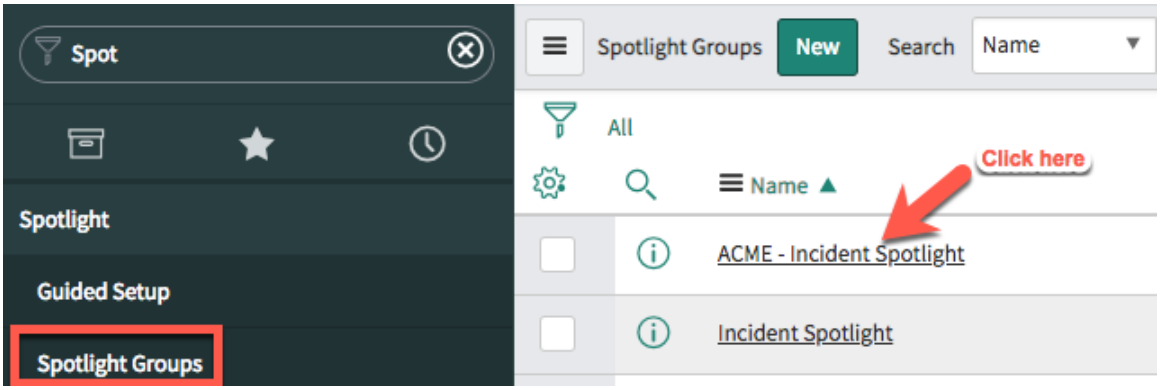
5. Click **OK**.
   The Spotlight group is copied. If copying is successful, a list of the Spotlight groups that you have just created opens. If any error messages or warnings appeared during the copying process, read the Spotlight group copy logs.
6. Open each of the Spotlight groups you have just created and perform the following steps:
   a. Verify that the **Run as** user has access to the domain of the Spotlight group and change this user if necessary.
   b. Review the Spotlight job schedule and adjust as necessary.
   c. Activate the Spotlight group.

Example: Copying a Spotlight group to multiple domains

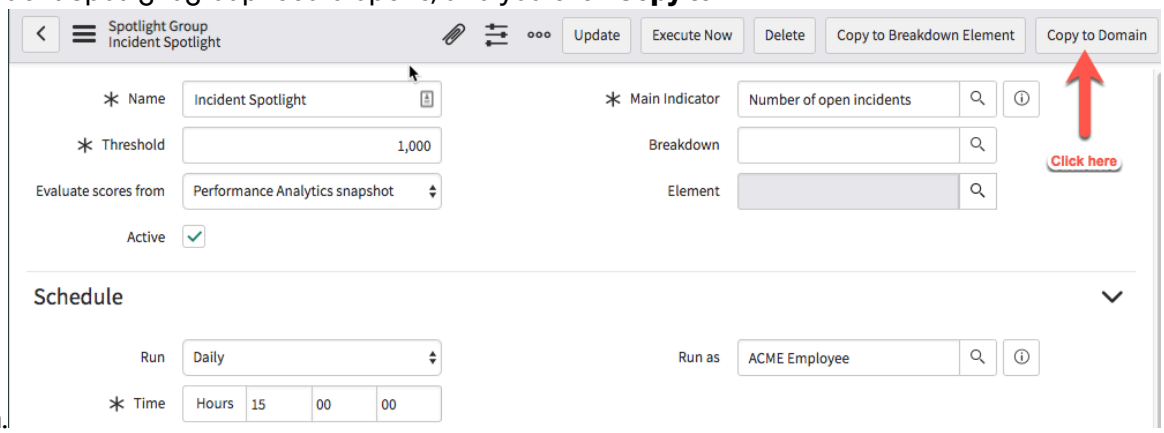
In this example, the ACME - Incident Spotlight group, which was created in the ACME domain, is copied to the subdomains for the ACME company product divisions.

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1. Open the Spotlight Groups list and click **ACME - Incident Spotlight.**.



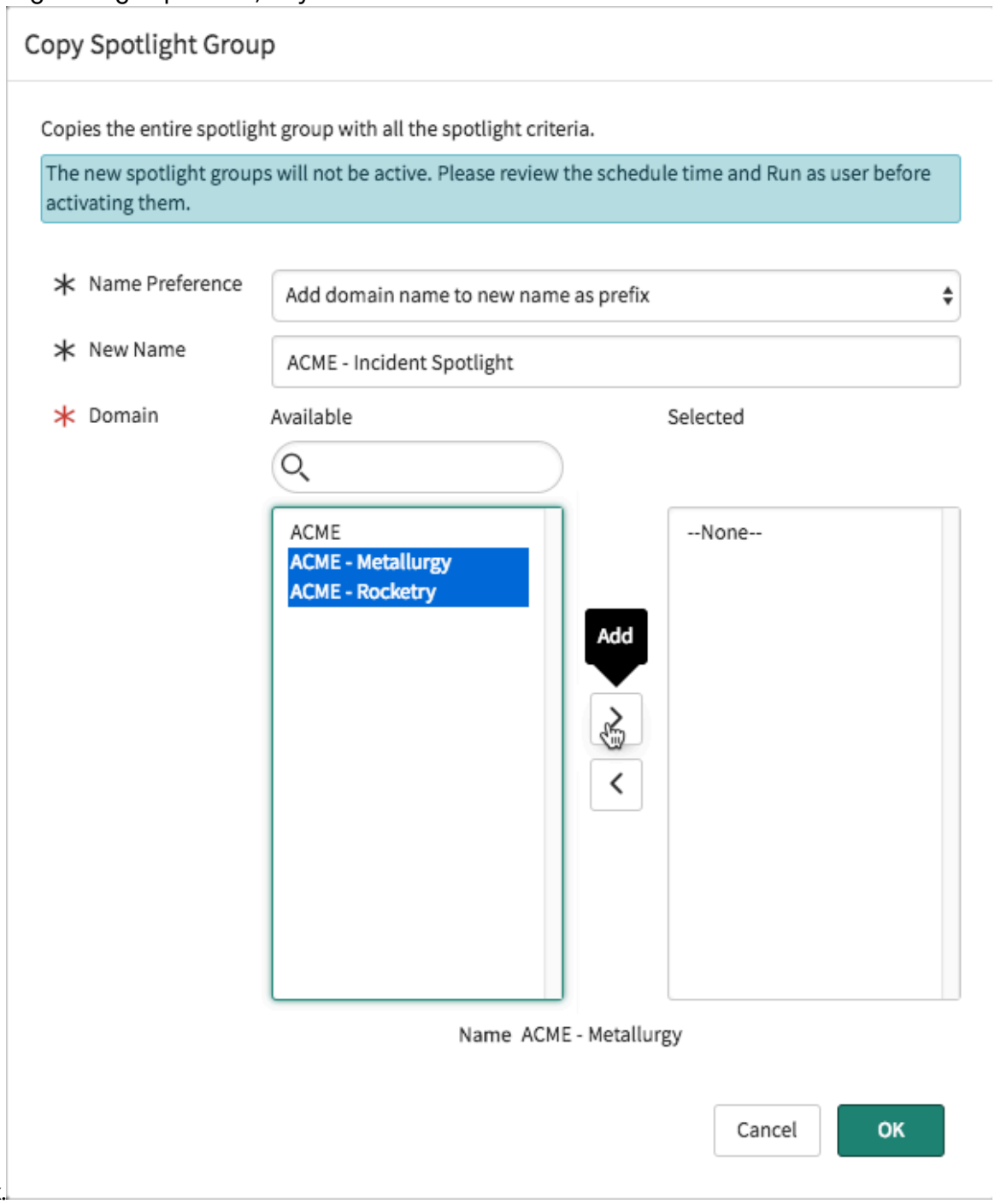
2. The Incident Spotlight group record opens, and you click **Copy to domain**.



3. In the **Copy Spotlight Group** dialog, you select the ACME - Metallurgy and ACME - Rocketry subdomains. Only ACME and ACME subdomains are available because the original Spotlight group was created in the ACME domain. You want the domain names to appear at the

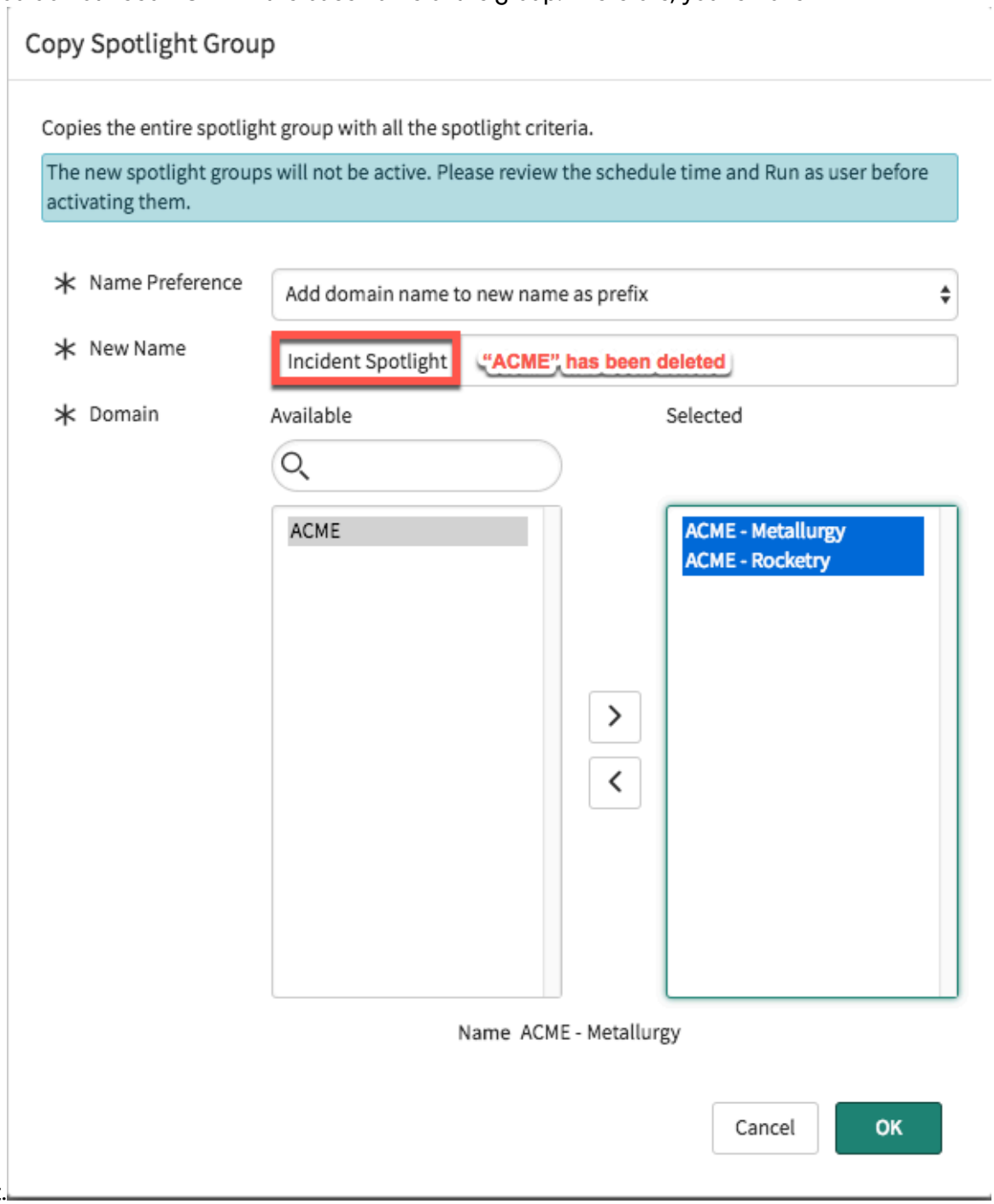
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beginning of the group names, so you also select **Add domain name to new name as prefix**.



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4. Because the domain names that will be added as prefixes begin with ACME, you do not need ACME in the base name of the group. Therefore, you remove

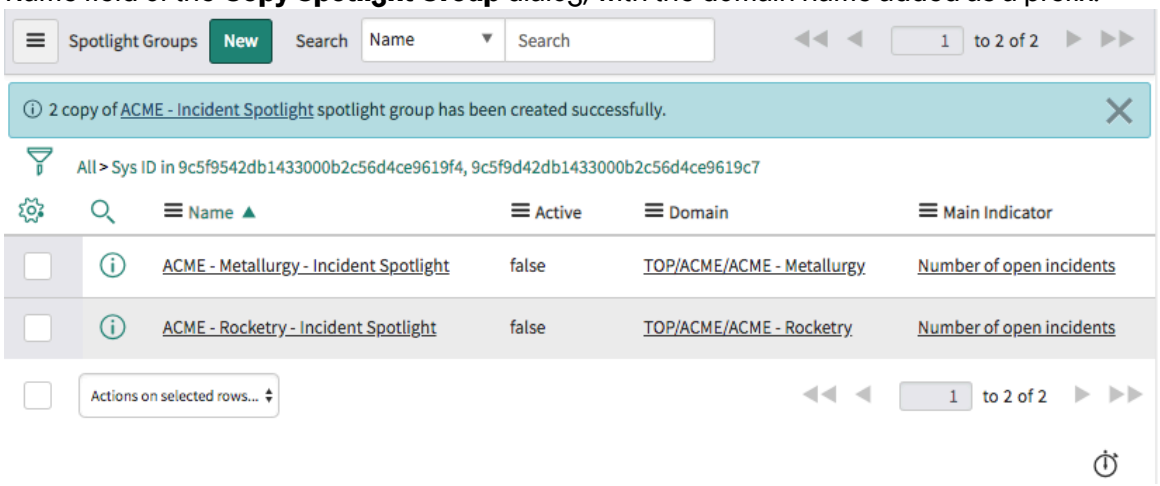


it.

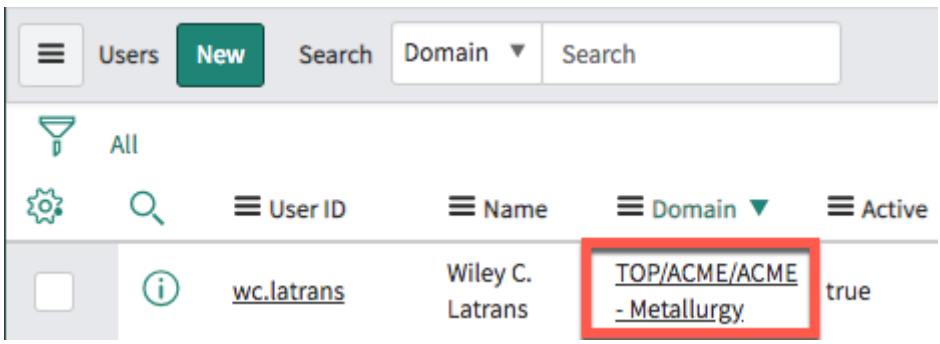
5. You click **OK**, and you are taken to a list showing you the Spotlight groups that you have just created. Note that both have the base name Incident Spotlight, as shown in the New

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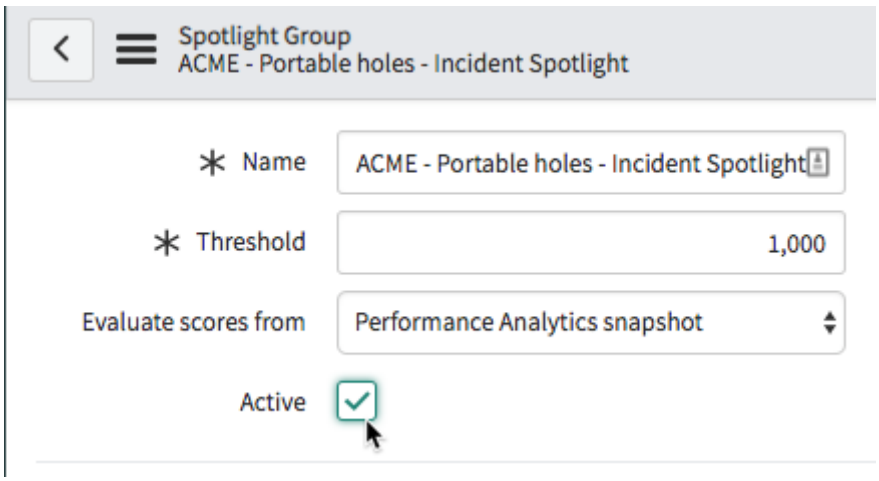
Name field of the **Copy Spotlight Group** dialog, with the domain name added as a prefix.



6. In the **Run as** field, you browse for a user in the ACME - Metallurgy domain and select Wiley C. Latrans. Only global users and users in the domain of the Spotlight group are available. Spotlight jobs run more efficiently with a **Run as** user in the same domain as the Spotlight group, because only the records visible to this domain are evaluated.



7. Review the Spotlight job run schedule, and activate the Spotlight group.



8. You verify the schedule for the ACME - Rocketry - Incident Spotlight group and activate the group.

What to do next

If any error messages or warnings appeared during the copying process, read the Spotlight group copy logs.

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Copy a Spotlight group to breakdown elements

You can copy a Spotlight group across multiple elements of a single breakdown.

Before you begin

Finish configuring the Spotlight group that you want to copy.
Role required: admin, pa_spotlight, pa_spotlight_copy_breakdown

About this task

When you first create a Spotlight group, you can associate it with at most one element of one breakdown. To create identical Spotlight groups for multiple elements of a breakdown, use the copying function. For example, if you want to use the same Spotlight group configuration for multiple elements of the **Countries** breakdown, create a Spotlight group for one country and copy it to the other countries.

Procedure

1. Locate and open the Spotlight group record from the **Spotlight Groups** list.
2. Click **Copy to breakdown element**.
3. In the Copy Spotlight Group dialog, select a value for **Name Preference**.
4. Fill out the remaining fields of the **Copy Spotlight Group** dialog:

Field	Description
New Name	Editable field showing the name of the Spotlight group copies you are creating. This field appears if you select any value for **Name Preference** other than **Do not change the name**. All copies have the same name unless you select **Add element name to new name as prefix** or **Add element name to new name as suffix**. The element name prefixes or suffixes do not appear in this field.
Breakdown	If you specified a breakdown when you created the original Spotlight group, the breakdown name appears in this field. Otherwise, select a breakdown. Only the breakdowns that are associated with the main indicator are available.
Element	Select any number of elements for the specified breakdown. A copy of the Spotlight group is made for each selected element.

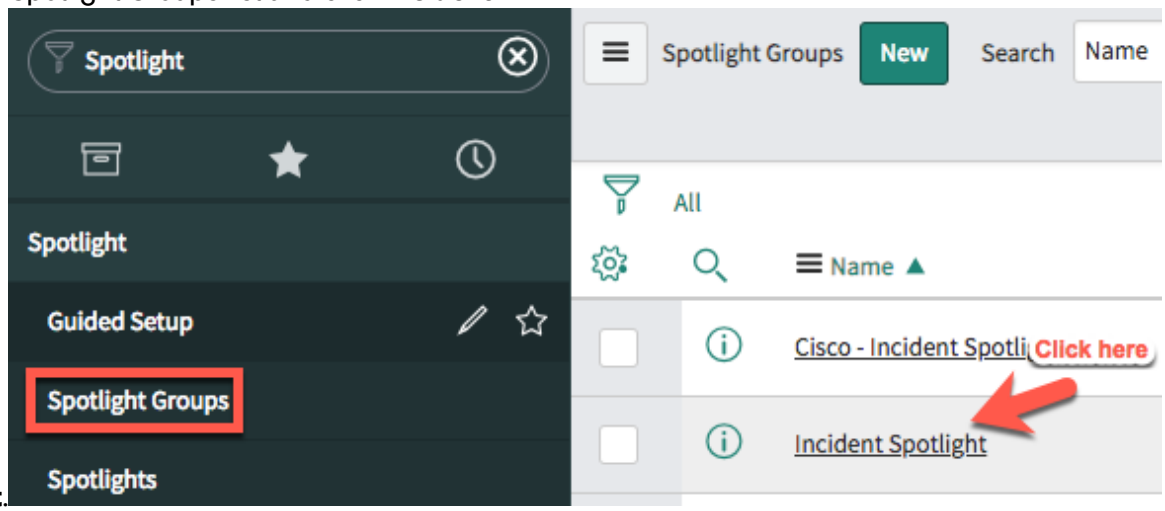
5. Click **OK**.
   The Spotlight group is copied. If copying is successful, a list of the new Spotlight groups that you have created opens. If any error messages or warnings appeared during the copying process, read the Spotlight group copy logs.
6. Open each of the Spotlight groups you have created and perform the following steps:
   a. Review the Spotlight job schedule and adjust as necessary.
   b. Activate the Spotlight group.

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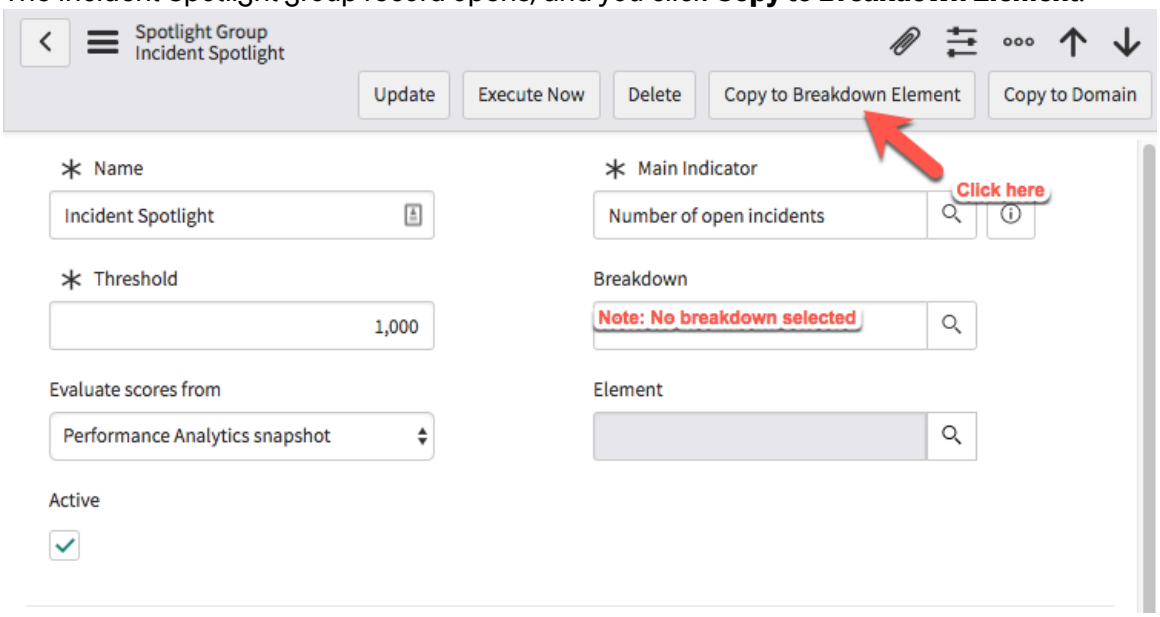
Example: Copying a Spotlight group for multiple breakdown elements

In this example, you copy the Incident Spotlight group for the breakdown elements Category: Hardware and Category: Software.

1. Open the Spotlight Groups list and click **Incident Spotlight**.



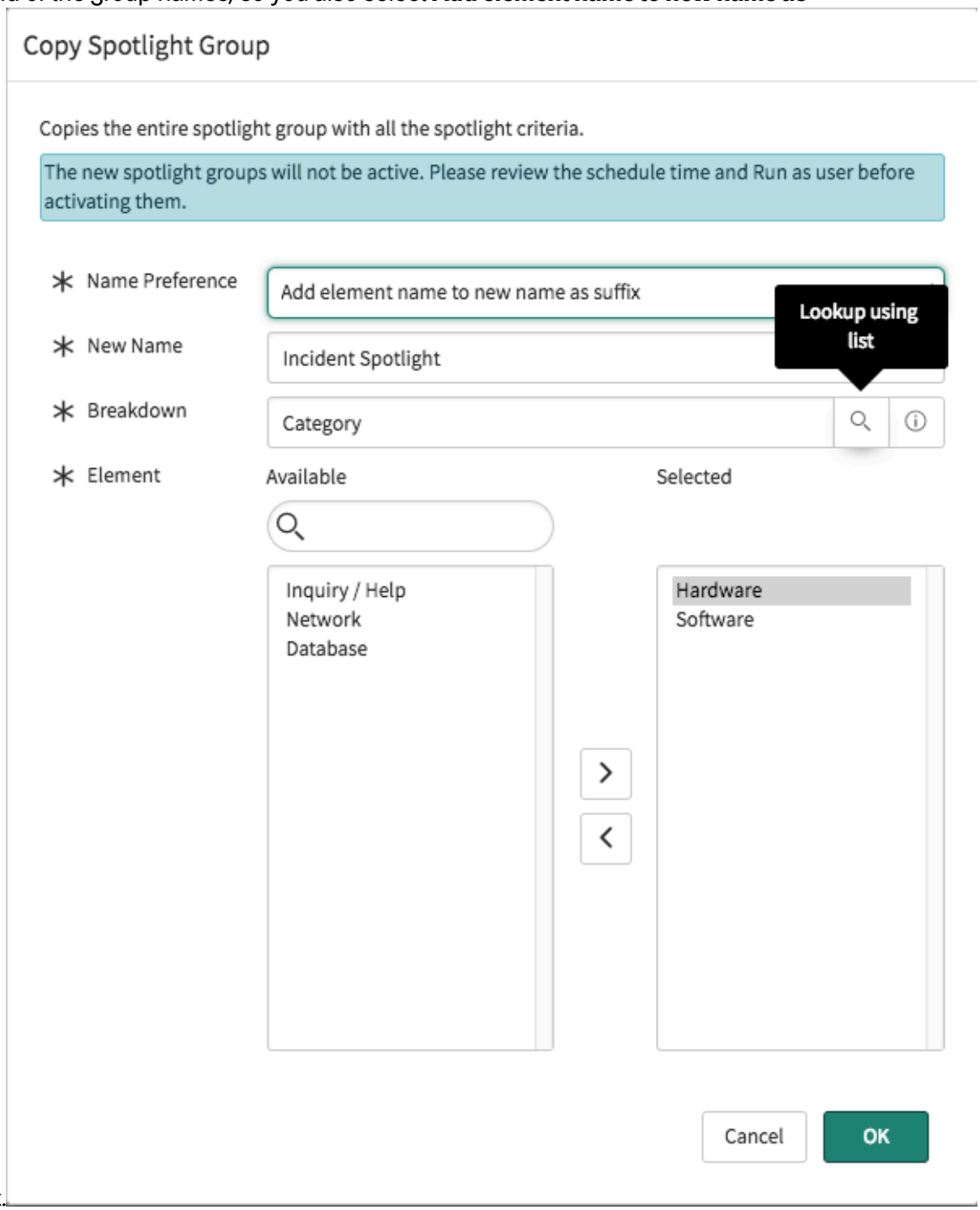
2. The Incident Spotlight group record opens, and you click **Copy to Breakdown Element**.



3. In the **Copy Spotlight Group** dialog, you specify the Category breakdown and select the Hardware and Software elements. You want the element names to appear at

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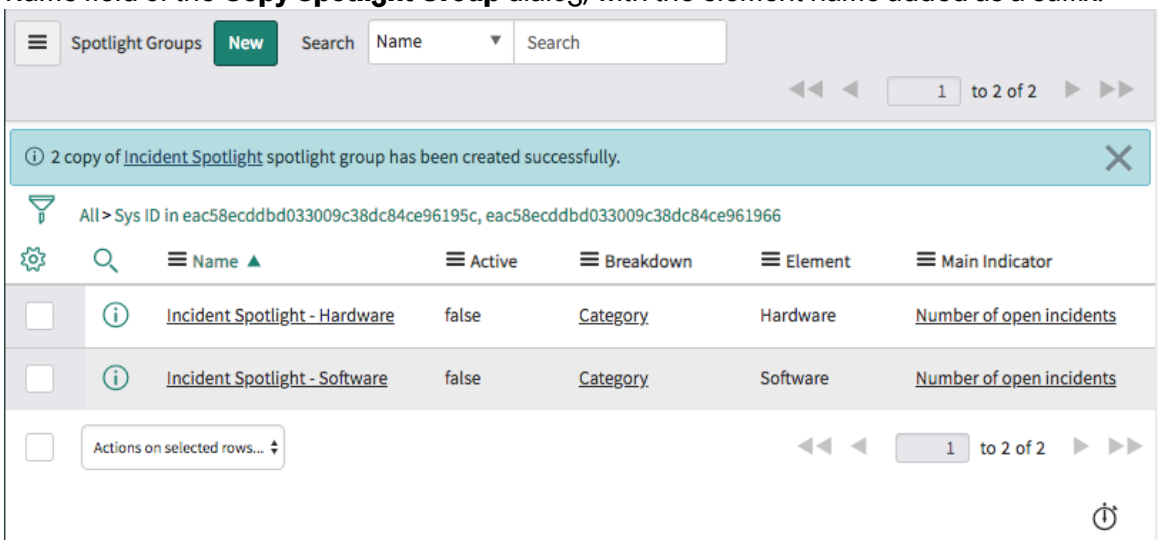
the end of the group names, so you also select **Add element name to new name as suffix**.



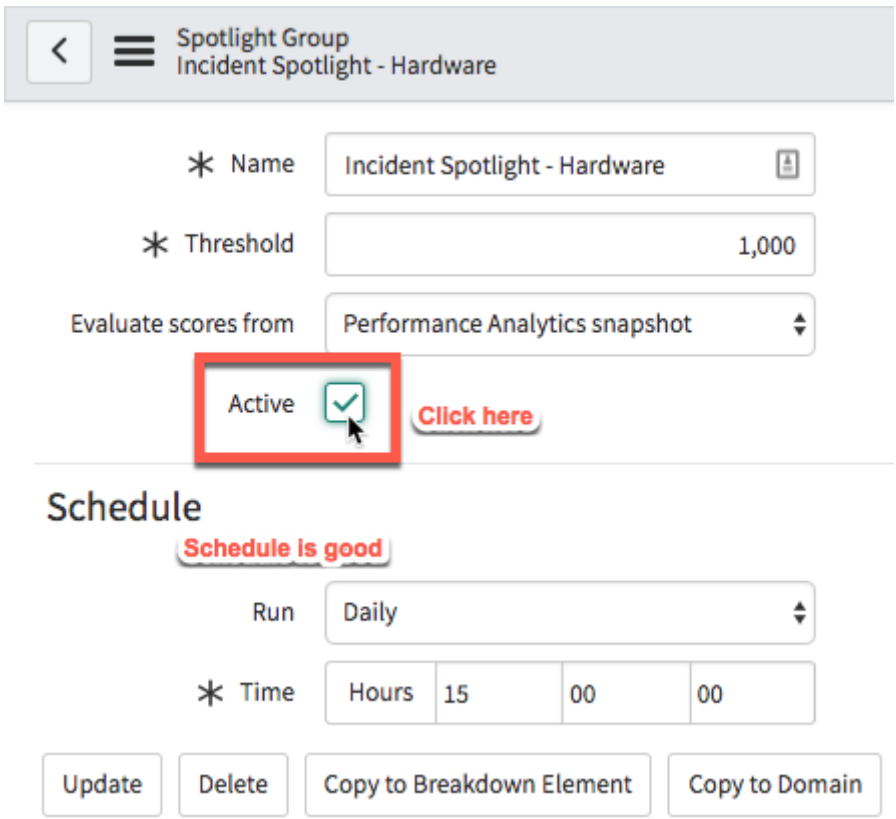
4. You click **OK**, and you go to a list showing you the Spotlight groups that you have created. Both Spotlight groups have the base name Incident Spotlight, as shown in the New

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Name field of the **Copy Spotlight Group** dialog, with the element name added as a suffix.



5. Open the Incident Spotlight - Hardware group. Here you verify that the Spotlight job schedule is appropriate, and you activate the group.



6. You verify the schedule for the Incident Spotlight - Software group and activate the group.

What to do next

If any error messages or warnings appeared during the copying process, read the Spotlight group copy logs.

Spotlight group copy logs

When a Spotlight group is copied, the steps of the copying process are recorded in logs. Use these logs to debug any issues.

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Users with the pa_spotlight or admin roles can read and delete Spotlight job logs.

The logs are listed at the following locations:

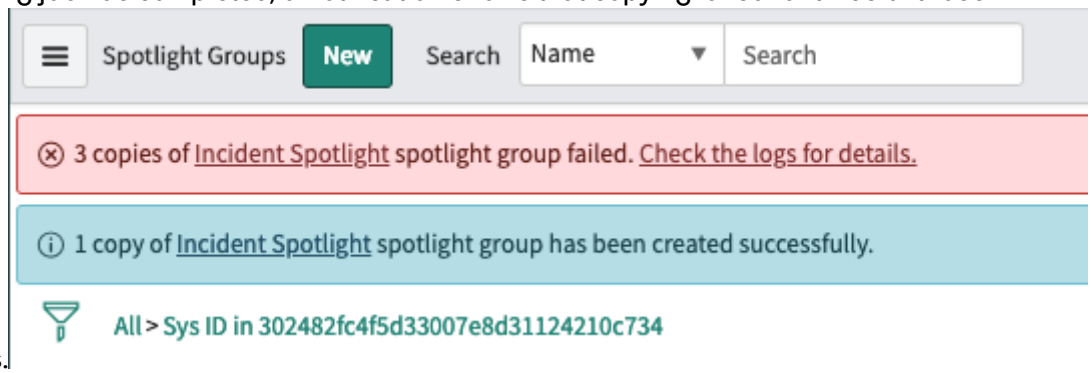
- At **Spotlight** > **Spotlight Group Copy Logs**.
- As the Spotlight Group Copy Logs related list on the relevant Spotlight Group record.

The same Spotlight Group Copy Logs list opens in both places, but in the Spotlight Group form, the list is filtered by that Spotlight group.

To debug a Spotlight group copying job, open the group copy log from the list and examine the log row fields. You can also open a group copy log from the notifications that appear at the end of a copying job.

Example: Group copy log with errors

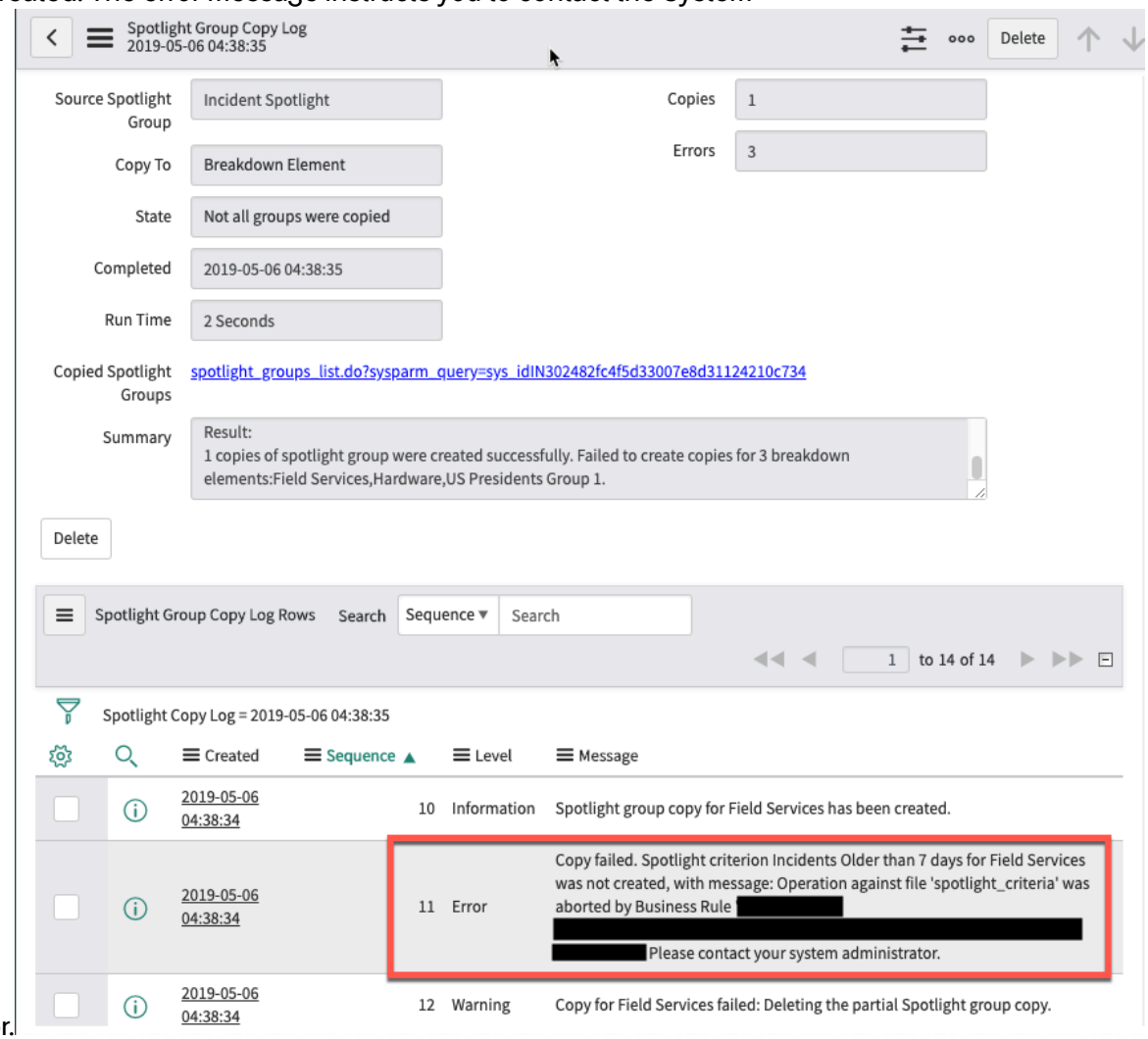
In this example, the Incident Spotlight group was copied for the Assignment Group breakdown elements Database, Field Services, Hardware, and US Presidents Group 1. However, after the copying job has completed, a notification shows that copying failed for three of those elements.



Clicking **Check the logs for details** opens the Spotlight group copy log for this copying job. In this log, you can find the errors that caused each failure. In the following example, a business rule violation prevented the copy

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from being created. The error message instructs you to contact the System Administrator.



Administering Spotlight

Users with the admin role can access lower-level components of Spotlight.

Spotlight database views

Spotlight ensures that a database view joins the Spotlight [spotlight] table and the facts table whose records the Spotlight group evaluates. You need this database view to use Spotlight interactive analysis. Administrators can access this database view to create reports or to diagnose problems.

After creating the database view, Spotlight adds a reference to it in the related Spotlight Group record on the Spotlight Group [spotlight_groups] table. The reference consists of the primary key field value of the database view, which is in the database_view column of the record.

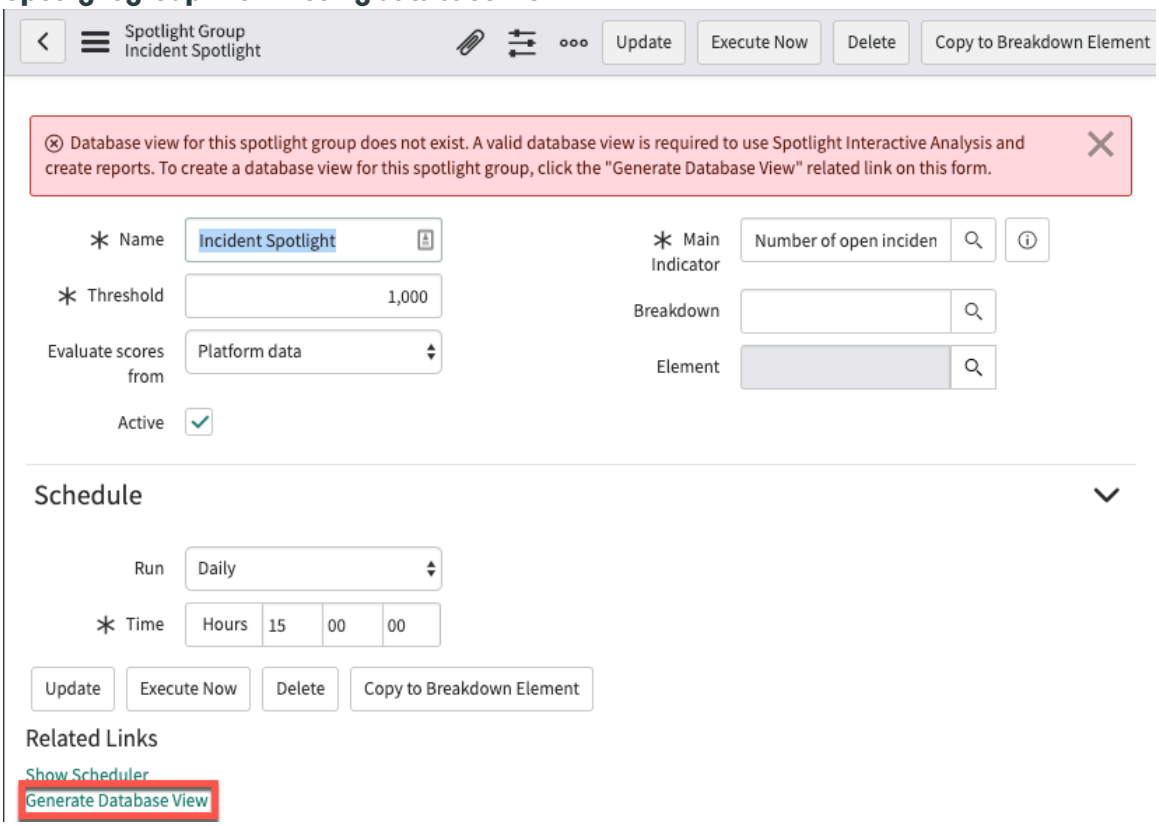
Note:
If you upgrade from an earlier version than London, you start with an empty database_view value in the database_view column of your spotlight_groups records. This empty column has no impact. The column populates as users modify the records in the spotlight_groups table.

If you are an administrator, you can access the database view directly. To see the database view for a Spotlight Group, click the **Show Database View** related link on the Spotlight Group form. You can also add a **Database View** column to the Spotlight Groups list.

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If the database view is missing or invalid, an error message appears on the Spotlight Group record. In this case, you can click the **Generate Database View** related link, which becomes available. A message appears afterwards to inform you whether database generation succeeded.

Spotlight group with missing database view



If you delete a Spotlight group, Spotlight deletes the database view associated with that group if it is safe to do so. To determine whether it is safe to delete the database view, Spotlight checks for the following conditions:

- Do any other Spotlight groups have a reference to that database view?
- Are any other Spotlight groups defined with a main indicator that uses the same facts table as the main indicator of the group that you are deleting?

If neither condition is true, Spotlight deletes the database view.

When creating, modifying, or deleting database views, Spotlight runs these business rules:

- Update Database View
- Delete Database View
- Set DB View on Insert

Related topics

Database views

Schedule Item [sys_trigger] records for Spotlight

Setting a Spotlight group to Active creates a Schedule Item [sys_trigger] record. As an administrator, access this record to troubleshoot scheduling. This record contains the scheduling information that is set on the Spotlight group.

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Editing the schedule in the Spotlight group record replaces the Schedule Item [sys_trigger] record with a new one. Deactivating or deleting the Spotlight group deletes the Schedule Item record. If you reactivate the Spotlight group, you create a new Schedule Item record.

Note:
As an administrator, you can access the Schedule Item [sys_trigger] record for a Spotlight group by clicking **Show Scheduler** on the Spotlight Group form.

The process of creating, editing, and deleting Schedule Item [sys_trigger] records uses business rules as follows:

Spotlight group activation, business rules, and scheduling

Action	Business rule	Effect on Schedule Item record
Activating a Spotlight group	Create Schedule Item [sys_trigger] record	A new Schedule Item [sys_trigger] record is created with the scheduling information.
Editing a schedule in a Spotlight group record	Create Schedule Item [sys_trigger] record	The existing Schedule Item [sys_trigger] record is replaced with a new record, with the new scheduling information.
Deactivating a Spotlight group	Delete Schedule Item [sys_trigger] record	The existing Schedule Item [sys_trigger] record associated with that Spotlight group is deleted.
Reactivating a Spotlight group	Create Schedule Item [sys_trigger] record	A new Schedule Item [sys_trigger] record is created with the scheduling information.
Deleting a Spotlight group	Delete Schedule Item [sys_trigger] record	The existing Schedule Item [sys_trigger] record associated with that Spotlight group is deleted.

Data collection process and logging

Performance Analytics data collection jobs collect indicator scores. To debug data collection, it is helpful to understand the data collection process and how it is reflected in the job logs.

As an administrator, sometimes you have to debug a data collection job. Each job generates a log, but to understand the entries in this log, you must know which step in the data collection process produced the entries. Performance Analytics provides three levels of log:

- Job events, which show which jobs have been executed.
- Job logs, which provide an overview of each executed job.
- Job log details, which describe what happened in each step of an executed job.

The Admin Console also provides daily, weekly, and monthly overviews of data collection jobs.

Optimizing data collection

The optimized Performance Analytics data collector reduces the time, memory, and CPU usage for processing large data sets.

The optimized data collector is active by default on all instances starting in Tokyo. It is activated upon upgrading. To deactivate the optimized collector, create the system property `com.snc.pa.dc.hsql` and set it to `false`. For more information, see Add a system property.

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Important:
Oracle databases are not supported. Other instances that still use the Performance Analytics Scores [pa_scores] table are also not supported. The optimized data collector supports only instances where the indicator scores are on the two tables Scores Level 1 [pa_scores_l1] and Scores Level 2 [pa_scores_l2]. For more information, see Migrating indicator scores.

The optimized data collector supports the following capabilities:

- Ability to handle over 10 million records without adverse impact to performance.
- Support for at least 10 breakdowns with breakdown matrix enabled. Breakdown support includes:
  - Dot-walked conditions
  - Two large breakdowns, with up to 1 million records
  - Breakdown relations
- Support for additional conditions on indicators and breakdowns.
- Optimizations for Count Distinct aggregation.

Note:
The default maximum number of records allowed per indicator source for data collection has been increased for optimized data collection. For more information, see the *com.snc.pa.dc.hsql.max_row_count_indicator_source* property in Performance Analytics properties.

The optimizations stem from the use of an embedded database. A standard data collection job stores all scores in the node memory during the job. However, an optimized data collection job moves packets of scores to temporary storage on disk. At the end of the job, the scores are written to the scores tables and the temporary database is cleared.

Note:
Memory optimization using lazy loading has been implemented to eliminate out-of-memory errors. However, this memory optimization could increase CPU usage and lengthen processing time for large jobs. For more information, contact Customer Service and Support.

View a data collection job event

Job events show which jobs have been executed for Performance Analytics and which actions have been triggered in your ServiceNow instance, such as notifications or business rules.

Before you begin
Role required: pa_data_collector or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Job Events**.
2. Click **Created** to view the details of a specific job event.
   Additional information on the job event is displayed.

Related topics

View the data collection job logs

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View the data collection job logs

Job logs display information about the data collection jobs that have run for Performance Analytics. You can view job logs, create events, and view and edit the event registry. The list view displays all log entries, unless filtered.

Before you begin

Role required: pa_data_collector or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Job Logs**.
   The log provides the following information for all occurrences.

Data Collection Job Log

Field	Description
Created	Date and time the data collection job started.
State	One of the following values: **Collecting**, **Collected**, or **Collected with errors**.
Name	Name of the job.
Completed	Date and time the data collection job ended.
Inserts	The number of new records that have been inserted.
Updates	The number of existing records that have been updated.
Warnings	The number of warnings that occurred during the data collection process.
Errors	The number of errors that occurred during the data collection process.
Run time	Duration of the job.

2. Click **Created** to view the details of a specific job.
   Additional information on the job settings and sequence steps is displayed. If notifications are enabled, you can send emails about the data collection results to users.

What to do next

Click on a job in the list to see a detailed log of the job. For information about the contents of individual job logs, see Log details for classic data collector .

Note:
If the logs return the following error, `java.lang.IllegalStateException: Sparse storage format has one field, sys_id`, see KB0550063.

Related topics

View a data collection job event

Log details for optimized data collector

Starting with the Tokyo release, a new, optimized data collector is available. The log details for this data collector differ from the log details of the classic data collector.

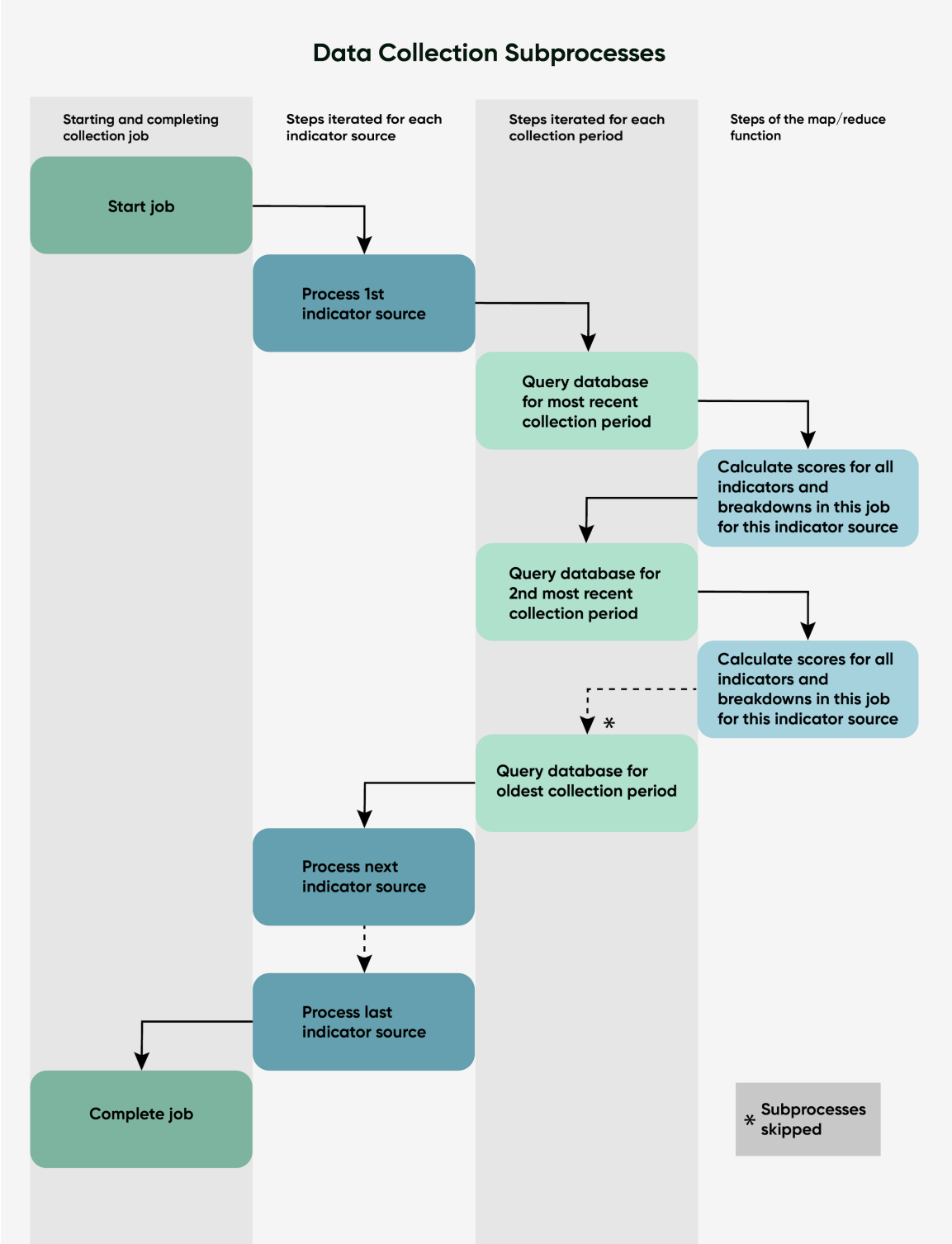
Collection overview

The data collection job involves executing an SQL query for each indicator source that uses the data collector. The query repeats for every collection time from the start date to the stop date.

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Then queries run for the next indicator source. Each step of executing a query is documented in the data collection job log.

High-level view of data collection job



Starting and completing collection job

Follow the data collection process as revealed in log messages. The log messages in each subprocess have been separated into their own tables.

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Note:
This log is for the optimized HSQL data collector as described in Optimizing data collection. If `com.snc.pa.dc.hsql` is "false," you are using the classic data collector. Otherwise, you are using the optimized data collector. For more information about that log, see Log details for classic data collector.

Collection job step	Example of resulting log entry
Shows the domain of the collection job Run As user.	User <admin> belongs to domain global
Collection starts. Job start specifies whether scores, text index, or both are being collected. Messages also specify that the optimized HSQL data collector is in use and whether debug logs are enabled. Only Customer Service and Support can enable debug logs.	Starting collection of Both scores and text index. Value of properties in system - Using HSQL data collector: true Debug logs enabled: true Node Name : vsr007
Shows the domains for which scores are collected. Also shows other relevant details about the domains.	DomainConfig: Testing Domain Config Collection logs - 3d359877b77000106886e664de11a97c, Type: conditions, RollUpType: roll_up_children, collectAggregate? Yes, collectChildren?: Yes, AggregateDomain: Name: 3d359877b77000106886e664de11a97c - SysID: d1659c77b77000106886e664de11a91e, Domains: Default,MSP,ACME,Cisco,Initech,Oceanic Airlines
Lists indicator sources that the job collects data for, including their unique IDs.	Indicator Sources to collect: Incidents.New: b54f2c23d7030100b96d45a3ce61032f, Incidents.Open: b5cf2c23d7030100b96d45a3ce6103cc, Incidents.Closed: 2ac8dd31ff2302001e68ffffffffff3d, Incidents.Resolved: 4c207c23d7030100b96d45a3ce610308
Lists each indicator associated with the job and the indicator properties that are related to data collection: • Are records collected in a snapshot? • Are any breakdowns excluded? • Are the collection periods in the indicator source overridden? • Is the breakdown matrix collected? • If the breakdown matrix is collected, are any breakdown combinations excluded?	JobIndicator: Number of open incidents - de537dc3d7131100b96d45a3ce610305 Job Indicator Properties: collectIndicator?: Yes, BreakdownCollectionType: WITH_EXCLUDE Excluded Breakdowns: Assignment Group, State Indicator Properties => CollectingRecords: Yes, Overridden Collection Periods: No, Scripted?: No, Breakdown Combinations?: Yes, Excluded Breakdown Combinations: No combination is excluded.
Iterate steps for each indicator source	See table Steps iterated for each indicator source.

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Collection job step	Example of resulting log entry
Show statistics for the data collection job	Statistics: inserts 184, updates 0, deletes 92, errors 0, warnings 0
Complete job	Collection ended

Steps iterated for each indicator source

Collection job step	Example of resulting log entry
Retrieve indicator source.	Processing indicator source Incidents.Open
Repeat that optimized HSQL data collector is in use.	
List indicators that have additional conditions, beyond the conditions inherited from the indicator source.	Indicator: Admin Logins - [sys_id of indicator], Additional Conditions: ref_isc_login_event.login_type=login_admin, Is Collect Records: true
Iterate steps for each collection period.	See table Steps iterated for each collection period
Retrieve next indicator source.	Processing indicator source Incidents.New

Steps iterated for each collection period

Collection job step	Example of resulting log entry
Start date of collection job.	Collecting for 20191103 on Indicator Source Incidents.Open
Fetch the following fields: • The unique fields of the breakdown sources (typically sys_id) • The indicator fields used in breakdown mappings • The table fields used in scripted breakdown mappings • The indicator source fields used in text analytics, if the text index is collected (typically includes short_description)	Fetching "short_description,sys_id, opened_at, assignment_group, description, priority, category" from "incident"
Generate SQL based on the conditions that are specified in the indicator source.	SELECT task0.`sys_id` FROM task task0 WHERE task0.`sys_class_name` = 'incident' AND (task0.`opened_at` >= '2019-10-28

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Collection job step	Example of resulting log entry
Note: If the indicator source specifies Today in one of the conditions, Today is considered relative to the period for which the data collection job is executed. For example, the Incidents.New indicator source includes the condition **[Opened] [on][Today]**. With days defined to start at 07:00:00, when data is collected for 2019-10-28, the job produces the SQL script on the right.	07:00:00' AND task0.`opened_at` <= '2019-10-29 06:59:59')
Display the number of records fetched by the SQL.	Fetched 150 rows from Indicator Source Incidents.Open (facts table: incident)
Delete previous results.	Deleted previous results 1 for Indicator: Impersonations
Run the map/reduce function to calculate indicator scores.	See the table Steps of the map/reduce function
If text indexing is active and has been configured for the indicator source, the data collector stores the resulting text index.	Storing Text Index for indicator source Incidents.Open
	Bytes used by text index: 41,984 for: Incidents.Open
Objects are offloaded to the HSQL database whenever one of the following thresholds is exceeded: • Number of scores • Number of snapshots • Total number of Count Distinct values Log number of times the offload limit was exceeded for each category of object. Each time the offload limit is exceeded in one category, all objects are moved to HSQL temporary database storage. At the end of the map/reduce function, any remaining records are offloaded. The number of remaining records is usually less than the threshold, and this offloading is also logged.	Number of times offload limit crossed threshold for scores: 275 Number of times offload limit crossed threshold for snapshots: 0 Number of times offload limit crossed threshold for distinct values: 0 Offload batch of records which didn't cross threshold: 1
Begin storing newly collected results for the indicator source.	Storing collected results for indicator source Incidents.Resolved
Any indicator with a null value is logged.	Stored 'Value when nil': 0.0 as score for indicator: Number of incidents deflected by knowledge
Finish storing results.	Stored collected results
Specify which indicators the data collector does not collect scores for.	Not collecting for Indicator: Summed age of open incidents with excluded Breakdown: Assignment Group

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Collection job step	Example of resulting log entry
Finish collecting data for that indicator source for that period.	Collection for 20200519 on Indicator Source Incidents.Open finished
Display the average amount of time spent on a record to process additional conditions that were set on indicators.	Average time taken to process additional indicator condition for each record: 138 ms

Steps of the map/reduce function

Collection job step	Example of resulting log entry
The map/reduce function runs.	Applying map/reduce function for indicator source Incidents.Open
Warning if text indexing is active for the job but cannot run because of a missing or invalid text index configuration.	Skipping text index collection as there is missing or invalid text index configuration
Process each record on the indicator source to calculate scores. Log messages track running total of processed records. Each time the number of resulting scores or snapshots exceeds a limit, all objects are offloaded to the HSQL database. The offloading is logged after the map/reduce function completes. Processing for each record involves: • Execute or evaluate any scripts. • Validate indicator conditions. • Calculate the indicator score. • For each breakdown: 1. Calculate the breakdown score or execute the breakdown script. 2. Retrieve all breakdown unique values. 3. Create or update the array for scores or snapshots. The array is: `Indicator, Breakdown 1, Artifact 1, Breakdown 2, Artifact 2, Domain, Value, Array of [sys_id]`	Processed 15.8% (3) records
	Processed 31.6% (6) records
	Processed 47.4% (9) records
	Processed 63.2% (12) records
	Processed 78.9% (15) records
	Processed 94.7% (18) records
	Processed 100% (4) records, Result Object size: 20 MB
The map/reduce function completes.	Applied map/reduce function

Related topics

Optimizing data collection

View the data collection job logs

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Log details for classic data collector

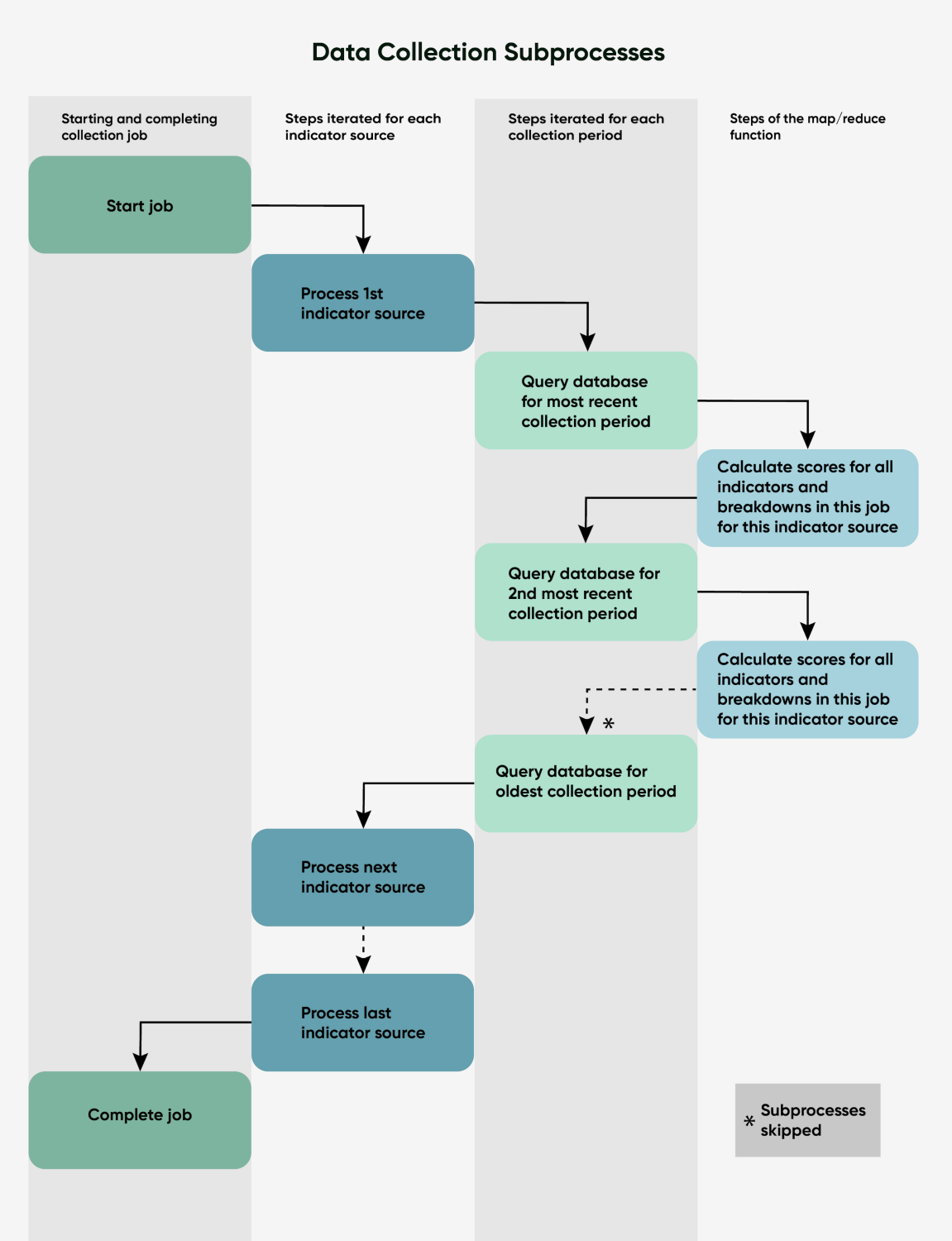
Performance Analytics score collection follows the process described here. To aid troubleshooting, a mapping between job steps and log entries is provided.

Collection overview

The data collection job involves executing an SQL query for each indicator source that uses the data collector. The query repeats for every collection time from the start date to the stop date. Then queries run for the next indicator source. Each step of executing a query is documented in the data collection job log.

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High-level view of data collection job



Optimization properties shown in log

The data collector has several optimizations that can be turned on or off in the System Properties. The beginning of the job log includes the state of these properties.

Note:
Do not confuse these optimization properties with the new, optimized data collector. These properties apply only to the classic data collector. The new data collector is optimized at a more fundamental level.

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Data collection optimization properties

Optimization	Description	System property
Nested collection	Replaces flat mapping, to reduce redundant objects. For example, instead of creating identical indicator objects for every breakdown and element on that indicator, only one object is created for the indicator.	*com.snc.pa.dc.nested_collec* Default: true
Flush snapshots	The ServiceNow AI Platform stores a maximum number of Performance Analytics snapshots in memory before offloading them to the database.	*com.snc.pa.dc.flush_snapsho* Default: 1000
Use hashcode for count distinct	Stores count distinct aggregations as a hashcode instead of as separate values.	*com.snc.pa.dc.use_hashcode_* Default: true

Starting and completing collection job

Follow the data collection process as revealed in log messages. The log messages in each subprocess have been separated into their own tables.

Note:
This log is for the original data collector. If your instance uses this data collector, the system parameter *com.snc.pa.dc.hsql* exists and is "false." Otherwise, you are using the optimized data collector as described in Optimizing data collection. For more information about that log, see Log details for optimized data collector.

Collection job step	Example of resulting log entry
Shows the domain of the collection job Run As user.	User <admin> belongs to domain global
Collection starts. Job start specifies whether scores, text index, or both are being collected. Messages also specify the settings of the data collection optimization properties.	Starting collection of Both scores and text index. Value of properties in system - Flush Snapshot Count: 1,000 Is nested collection: true Using hashcode for count distinct: true
Shows the domains for which scores are collected. Also shows other relevant details about the domains.	DomainConfig: Testing Domain Config Collection logs - 3d359877b77000106886e664de11a97c, Type: conditions, RollUpType: roll_up_children, collectAggregate? Yes, collectChildren?: Yes, AggregateDomain: Name: 3d359877b77000106886e664de11a97c - SysID: d1659c77b77000106886e664de11a91e, Domains: Default,MSP,ACME,Cisco,Initech,Oceanic Airlines

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Collection job step	Example of resulting log entry
Lists indicator sources that the job collects data for, including their unique IDs.	Indicator Sources to collect: Incidents.New: b54f2c23d7030100b96d45a3ce61032f, Incidents.Open: b5cf2c23d7030100b96d45a3ce6103cc, Incidents.Closed: 2ac8dd31ff2302001e68ffffffffff3d, Incidents.Resolved: 4c207c23d7030100b96d45a3ce610308
Lists each indicator associated with the job and the indicator properties that are related to data collection: • Are records collected in a snapshot? • Are any breakdowns excluded? • Are the collection periods in the indicator source overridden? • Is the breakdown matrix collected? • If the breakdown matrix is collected, are any breakdown combinations excluded?	JobIndicator: Number of open incidents - de537dc3d7131100b96d45a3ce610305 Job Indicator Properties: collectIndicator?: Yes, BreakdownCollectionType: WITH_EXCLUDE Excluded Breakdowns: Assignment Group, State Indicator Properties => CollectingRecords: Yes, Overridden Collection Periods: No, Scripted?: No, Breakdown Combinations?: Yes, Excluded Breakdown Combinations: No combination is excluded.
Iterate steps for each indicator source	See table Steps iterated for each indicator source.
Show statistics for the data collection job	Statistics: inserts 184, updates 0, deletes 92, errors 0, warnings 0
Complete job	Collection ended

Steps iterated for each indicator source

Collection job step	Example of resulting log entry
Retrieve indicator source.	Processing indicator source Incidents.Open
List indicators that have additional conditions, beyond the conditions inherited from the indicator source.	Indicator: Number of reassigned open incidents - ffb59561ff2302001e68ffffffffff33, Additional Conditions: reassignment_count>0
Indicates whether score collection is following the nested data structure instead of using flat mapping. Nested collection creates fewer redundant objects in memory. Non-nested collection supports batching of scores.	Using nested collection. Note - Batch inserts of scores are not supported with nested collection.
Iterate steps for each collection period.	See table Steps iterated for each collection period
Retrieve next indicator source.	Processing indicator source Incidents.New

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Steps iterated for each collection period

Collection job step	Example of resulting log entry
Start date of collection job.	Collecting for 20191103 on Indicator Source Incidents.Open
Fetch the following fields: • The unique fields of the breakdown sources (typically sys_id) • The indicator fields used in breakdown mappings • The table fields used in scripted breakdown mappings • The indicator source fields used in text analytics, if the text index is collected (typically includes short_description)	Fetching "short_description,sys_id, opened_at, assignment_group, description, priority, category" from "incident"
Generate SQL based on the conditions that are specified in the indicator source. **Note:** If the indicator source specifies Today in one of the conditions, Today is considered relative to the period for which the data collection job is executed. For example, the Incidents.New indicator source includes the condition **[Opened][on][Today]**. With days defined to start at 07:00:00, when data is collected for 2019-10-28, the job produces the SQL script on the right.	SELECT task0.`sys_id` FROM task task0 WHERE task0.`sys_class_name` = 'incident' AND (task0.`opened_at` >= '2019-10-28 07:00:00' AND task0.`opened_at` <= '2019-10-29 06:59:59')
Display the number of records fetched by the SQL.	Fetched 150 rows from Indicator Source Incidents.Open (facts table: incident)
Run the map/reduce function to calculate indicator scores.	See the table Steps of the map/reduce function
If text indexing is active and has been configured for the indicator source, the data collector stores the resulting text index.	Storing Text Index for indicator source Incidents.Open
	Bytes used by text index: 41,984 for: Incidents.Open
Begin storing newly collected results for the indicator source.	Scores to be stored: 374,842 (excluding lazily evaluated level 2 count distinct scores for indicators - ID - All Incidents with All 3 Breakdowns)
Any indicator with a null value is logged.	Stored 'Value when nil': 0.0 as score for indicator: Number of incidents deflected by knowledge
Finish storing results.	Scores stored: 1,125,057

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Collection job step	Example of resulting log entry
	Stored collected results
Specify which indicators the data collector does not collect scores for.	Not collecting for Indicator: Summed age of open incidents with excluded Breakdown: Assignment Group
Finish collecting data for that indicator source for that period.	Collection for 20200519 on Indicator Source Incidents.Open finished
Display the average amount of time spent on a record to process additional conditions that were set on indicators.	Average time taken to process additional indicator condition for each record: 138 ms

Steps of the map/reduce function

Collection job step	Example of resulting log entry
The map/reduce function runs.	Applying map/reduce function for indicator source Incidents.Open
Warning if text indexing is active for the job but cannot run because of a missing or invalid text index configuration.	Skipping text index collection as there is missing or invalid text index configuration
Delete previous scores for the indicators and breakdowns that use the indicator source.	Deleting previous results for indicator source Incidents.Open
	Deleted previous results 38 for indicator: External Logins
	Deleted previous results 21 for indicator: Failed Logins
Process each record on the indicator source to calculate scores. Log messages track running total of processed records and memory usage. Processing for each record involves: • Execute or evaluate any scripts. • Validate indicator conditions. • Calculate the indicator score. • For each breakdown: 1. Calculate the breakdown score or execute the breakdown script. 2. Retrieve all breakdown unique values. 3. Create or update the array for scores or snapshots. The array is: `Indicator, Breakdown 1, Artifact 1, Breakdown 2, Artifact 2, Domain, Value, Array of [sys_id]`	Processed 18%% (1) records, Result Object size: 5 MB
	Processed 42% (2) records, Result Object size: 9 MB
	Processed 76% (3) records, Result Object size: 14 MB
	Processed 100% (4) records, Result Object size: 20 MB
The map/reduce function completes.	Applied map/reduce function

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View data collection usage

To view statistics about data collection jobs, click **Data Collection Overview** in the Usage tile on the Performance Analytics Admin Console.

Before you begin
Role required: pa_admin, admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Admin Console**.
2. In the Usage tile, click **Data Collection Overview**.

Result
The following widgets are displayed:

- The net new scores, average run time, and number of errors for the day
- The weekly net new scores and average run time
- The number of data collection job inserts and deletes over time

What to do next
By default, weekly statistics are shown in an Analytics Hub, broken down by data collector. You can select different visualizations and breakdowns in the widget.

Performance Analytics diagnostics

Identify and diagnose configuration issues using predefined scripts that examine the database for invalid records and provide suggestions to resolve issues.

Each diagnostic consists of a script or database query with a severity code, message text, and suggested solution. Diagnostics are read-only. You cannot create or edit diagnostics.

You can run one or all diagnostics against all applicable records, or you can run all applicable diagnostics against one record.

> **⚠ Warning:**
> Performance Analytics diagnostics do not apply to Platform Analytics artifacts. For example, an indicator that is not used in any widgets might still be used in a Platform Analytics data visualization, but the diagnostics are not able to recognize that use.

Execute diagnostics for all records

To determine if any configuration issues could impact your Performance Analytics implementation, run diagnostics. You can select whether to run one diagnostic or all diagnostics. The diagnostics examine the subset of Performance Analytics records to which they logically apply.

Before you begin
Role required: sn_pa_diagnostics.pa_diagnostic

Procedure

1. Navigate to **All** > **Performance Analytics** > **Diagnostics**.
2. Select the diagnostic you want to run.
   To run all active diagnostics, click **Execute All** from the list.
3. Click **Execute Diagnostic**.

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The diagnostics script is canceled automatically if it takes longer than 2 minutes to run.

4. After the diagnostic completes, click **View Result**.

What to do next

If a diagnostic returns a warning or error, review the provided solution and take steps to resolve the issue.

Run all active diagnostics for one record

To determine if any of the configuration details of a record could impact your Performance Analytics implementation, run the set of all applicable diagnostics on that record.

Before you begin

Role required: sn_pa_diagnostics.pa_diagnostic

Procedure

1. Navigate to **Performance Analytics** and open a list of any components: indicators, indicator sources, breakdowns, breakdown sources, widgets, or others.
2. Locate and open the record of interest.
3. Click the link **Run diagnostics**.
   A dialog opens to show the progress of the diagnostics.
4. When the diagnostic run is complete, click **View Result** in the progress dialog.

What to do next

If a diagnostic returns a warning or error, review the provided solution and take steps to resolve the issue.

Dependency Assessment

Dependency Assessment enables you to view, analyze, and edit your performance analytics components including widgets, indicators, and breakdowns, from a single view. By viewing the hierarchy of components and the relationships between them, you can see immediately who is impacted by a change and what the effects of your changes are.

Important:
Dependency Assessment does not support Platform Analytics artifacts. It analyzes information only for Core UI Performance Analytics widgets but not Platform Analytics data visualizations. Also, you can launch Dependency Assessment from a Core UI responsive dashboard but not from a Platform Analytics dashboard.

Dependency Assessment consists of several components:

Top-down tree view

The top-down tree view shows the components of a performance analytics entity in a hierarchical view. If you launch dependency assessment on a dashboard, for example, the top-down tree view shows nodes for each of the dashboard tabs. When you select a dashboard tab, the tree view expands to show nodes that represent each of the widgets on the dashboard.

Bottom-up tree view

The bottom-up tree view shows where a performance analytics entity is used in your instance. If you select **Show Used By** from the context menu of a tree view component, the tree view shows all the places where that entity is used. Click the reset icon ( ) to return to the top-down tree view.

Component summaries

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Click the info icon (ⓘ) to see a summary of the component.

Other actions

Click the context menu icon (☰) in any component to view the actions available for that component. These include editing the component, viewing the schema map of the component, and previewing a widget.

Note:
The tree view is persistent. When you return to Dependency Assessment, the tree view shows the same configuration as on the last visit.

Launch Dependency Assessment

Use the Dependency Assessment tree view to view and edit Performance Analytics components including widgets, indicators, and breakdowns, from a single view. You can see the effects of your changes immediately.

Before you begin

Role required: pa_admin.

Important:
Dependency Assessment does not support Platform Analytics artifacts. It analyzes information only for Core UI Performance Analytics widgets but not Platform Analytics data visualizations. Also, you can launch Dependency Assessment from a Core UI responsive dashboard but not from a Platform Analytics dashboard.

About this task

The Dependency Assessment tree view opens in the same browser window from which you launched it. Edit windows open in pop-ups so that you do not have to navigate between browser windows or lose context. This task describes how to launch Dependency Assessment from the Dashboards list. You can also navigate to any of the following locations, select an item from the list, and click **Launch Dependency Assessment** in the Related Links:

- **Performance Analytics** > **Widgets**
- **Performance Analytics** > **Scripts**
- **Performance Analytics** > **Indicators** > **Automated Indicators**
- **Performance Analytics** > **Indicators** > **Manual Indicators**
- **Performance Analytics** > **Sources** > **Indicator Sources**
- **Performance Analytics** > **Breakdowns** > **Automated Breakdowns**
- **Performance Analytics** > **Breakdowns** > **Manual Breakdowns**
- **Performance Analytics** > **Sources** > **Breakdown Sources**
- **Performance Analytics** > **Scorecards**

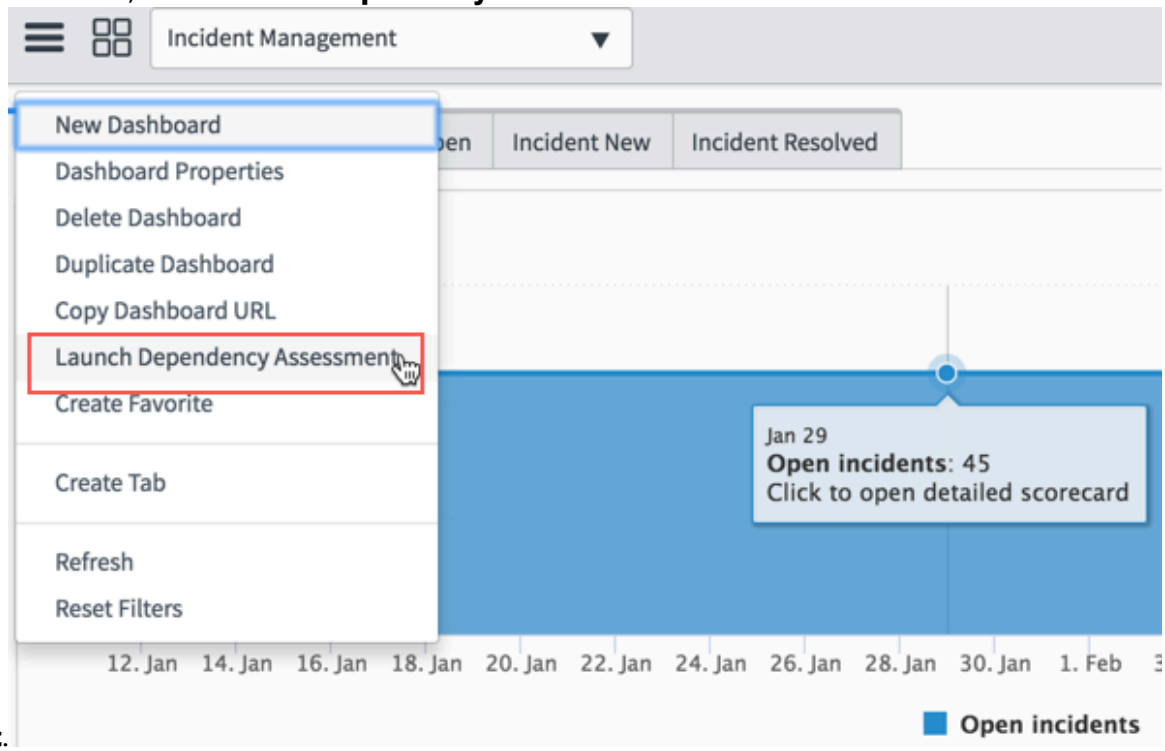
Note:
From an Analytics Hub , select the context menu and then select **Launch Dependency Assessment**.

Procedure

1. Navigate to **Performance Analytics** > **Dashboards** > or **Self-Service** > **Dashboards**.
2. Select the dashboard you want to analyze.

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3. From the context menu, select **Launch Dependency Assessment**.



You can also select **Dashboard Properties** and click **Launch Dependency Assessment** in the related links.

Result
The tree view of the selected dashboard opens.

Dependency Assessment tree view

The tree view enables admin users to see the relationships between PA entities and to know the impact of changes made to any node in the tree view hierarchy.

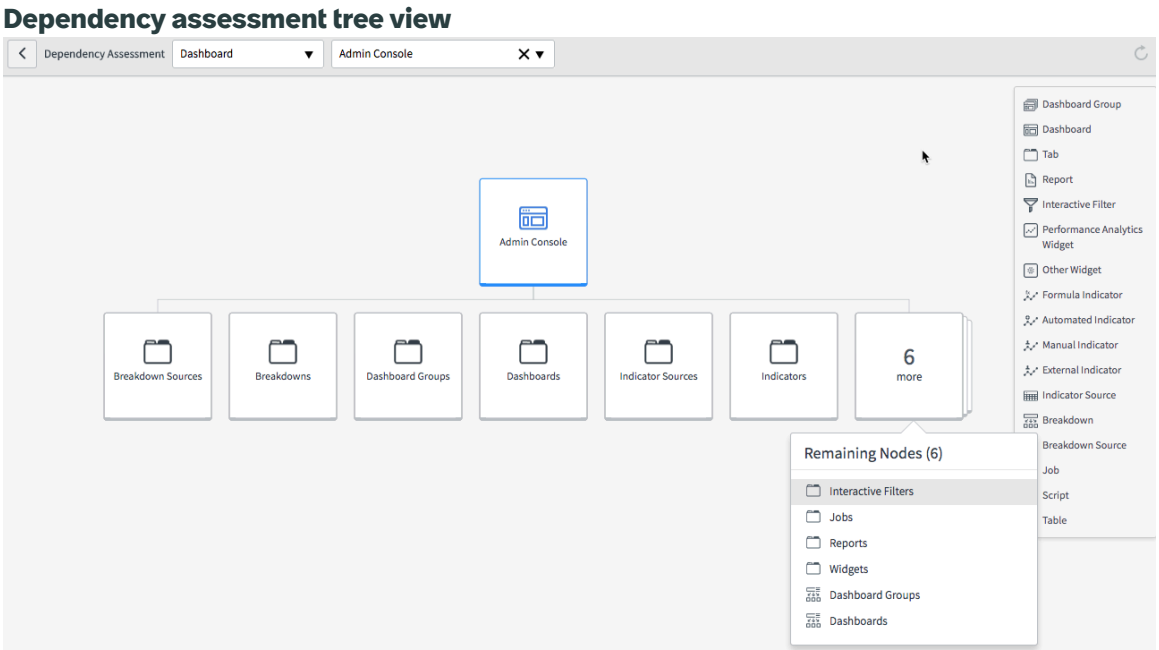
> **Important:**
> Dependency Assessment does not support Platform Analytics artifacts. It analyzes information only for Core UI Performance Analytics widgets but not Platform Analytics data visualizations. Also, you can launch Dependency Assessment from a Core UI responsive dashboard but not from a Platform Analytics dashboard.

The Dependency Assessment tree view consists of a variety of possible nodes and a legend. The nodes represent Performance Analytics entities. Point to a node and the node's type is highlighted in the legend. When you click on a node in the tree view, the child nodes open. If there are more than eight nodes in a level of the tree view, then six are shown and a seventh node indicates how many nodes are not shown. Click this node to view a list of the other nodes.

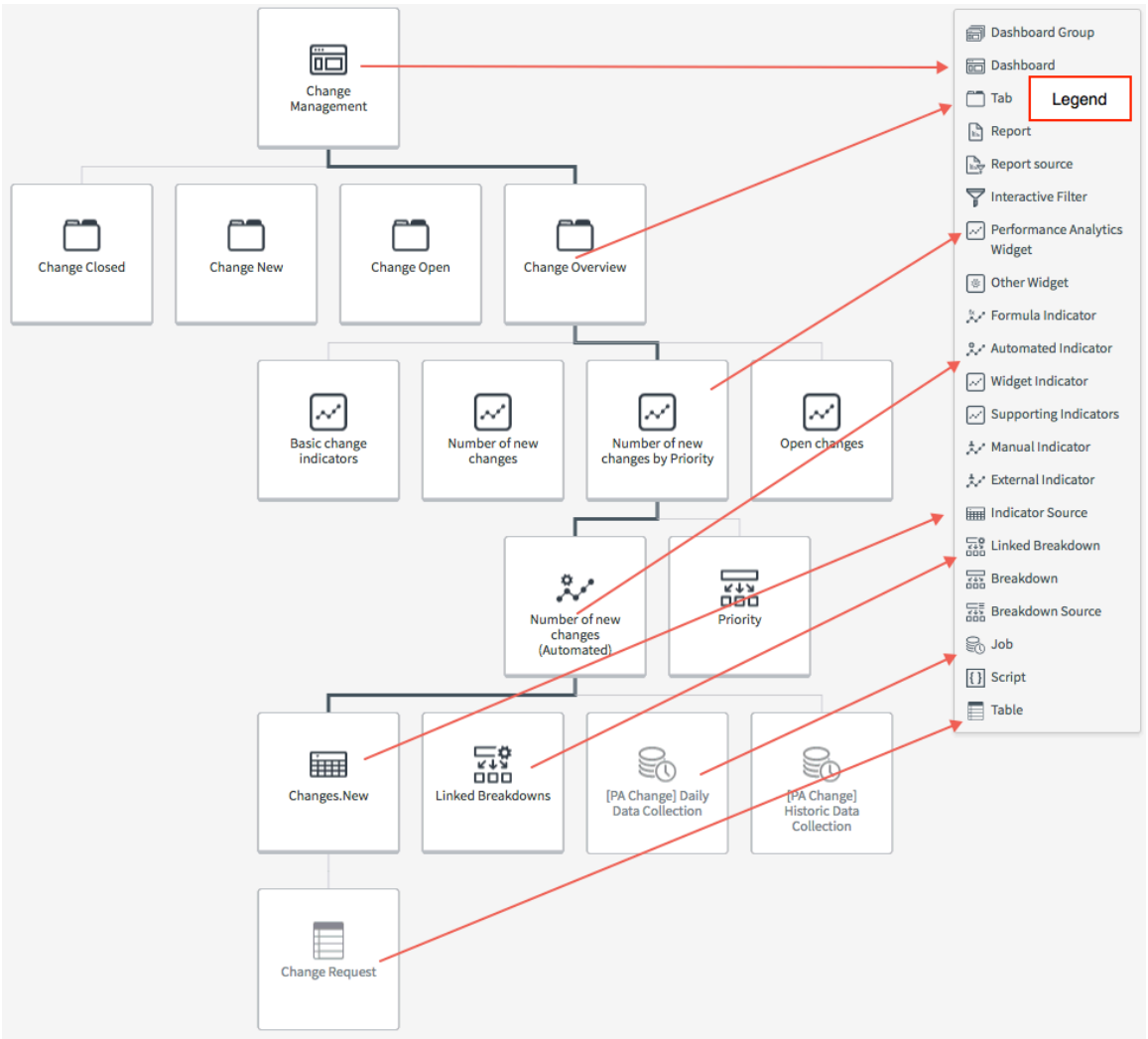
The tree view header contains choice lists for changing the PA entity type and a value. The tree view updates according to your choices. Click the reset button ( ) to return the tree view to the starting point with just the first level parent and its immediate child nodes.

Each node has a context menu ( ) where you can choose from a number of actions. Choose **Show Used By** to change the tree view to show where a node is used in your instance. See Bottom-up tree view for more information.

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The figure below gives an example of the top-down tree view, starting from a dashboard at the top level, its tabs on the second level, the widgets of one of the dashboard tabs on the third level, and so on. The tree view in the example shows all breakdowns and supporting indicators as they are defined in the Breakdown form.



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Related topics

Performance Analytics breakdowns

Bottom-up tree view

You can see where any element in the tree view is used. This is useful when you want to change an element such as an indicator or breakdown and see the effect of your change on other PA elements.

Before you begin

Role required: admin

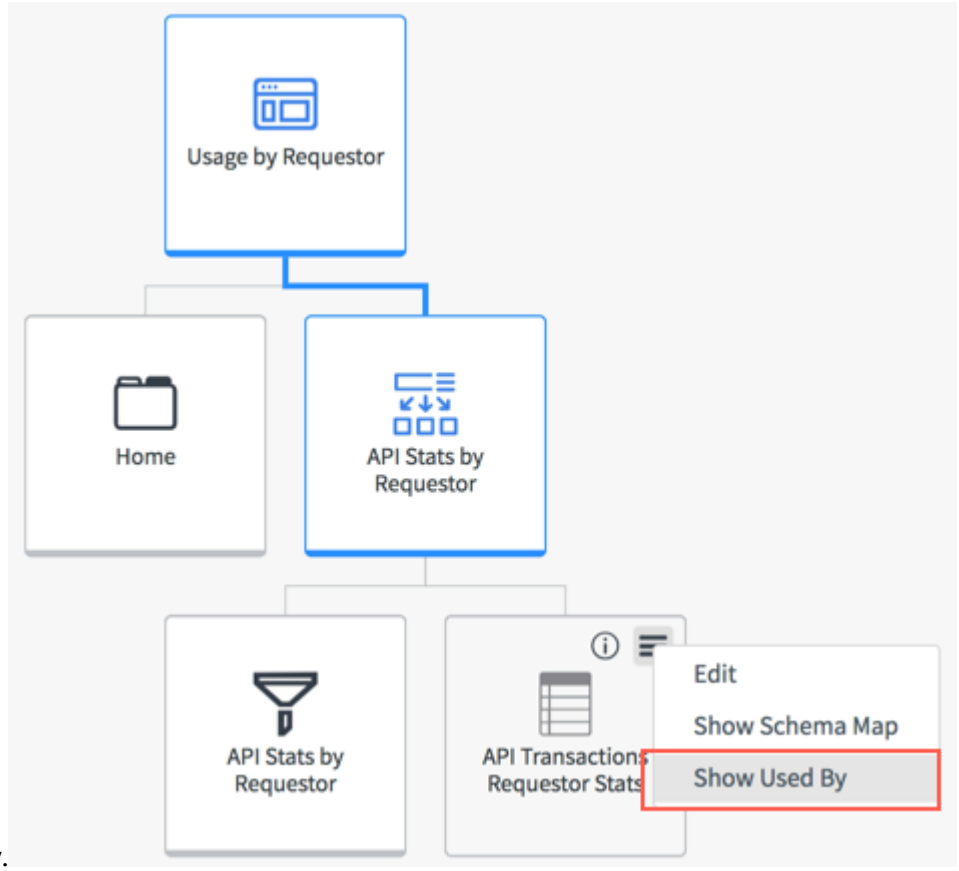
Important:
Dependency Assessment does not support Platform Analytics artifacts. It analyzes information only for Core UI Performance Analytics widgets but not Platform Analytics data visualizations. Also, you can launch Dependency Assessment from a Core UI responsive dashboard but not from a Platform Analytics dashboard.

Procedure

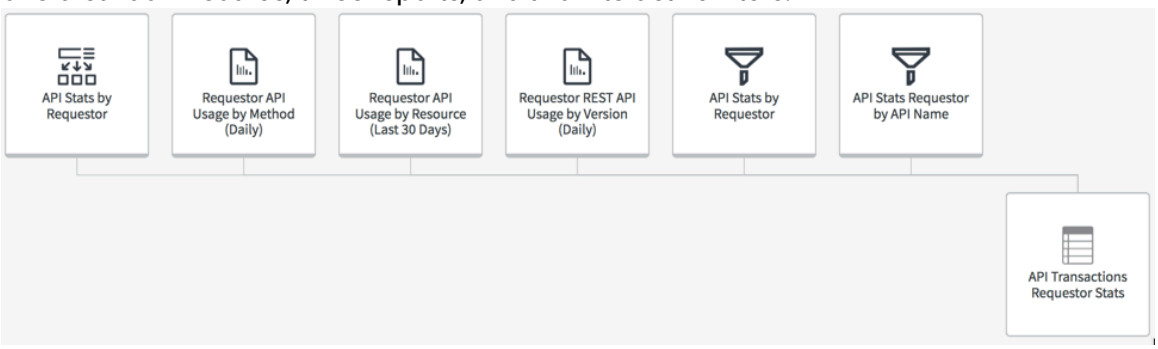
1. Launch Dependency Assessment on the Performance Analytics entity you want to investigate.
   a. Navigate to **Performance Analytics** > **Dashboards**.
   b. Select the dashboard you want to investigate or the dashboard that uses the entity you want to investigate.
   In this example, we start with the Usage by Requestor dashboard.
   c. From the context menu ( ), select **Launch Dependency Assessment**.
2. Expand the tree view to locate the entity you want to investigate.

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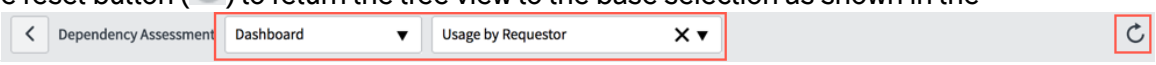
3. Click the context menu ( ) of the entity and select **Show Used By**.



4. The top-down tree view is replaced with a view which shows all of the entities which use the selected entity.
   In this case, the API Transactions Requestor Stats table is used by one breakdown source, three reports, and two interactive filters:



5. Click the reset button ( ) to return the tree view to the base selection as shown in the header.



Tree view navigation

To navigate the admin console tree view effectively, it's good to know what the various icons and other visual data in the tree view indicate.

Important:
Dependency Assessment does not support Platform Analytics artifacts. It analyzes information only for Core UI Performance Analytics widgets but not Platform Analytics data visualizations. Also, you can launch Dependency Assessment from a Core UI responsive dashboard but not from a Platform Analytics dashboard.

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Moving through the tree view

You can click and drag the tree view to show nodes that are outside of the screen. You can also use Ctrl+A and then use the arrow keys to move the tree view around. Use Tab to return to the first node in the tree.

Node types

The node types reflect the different features of Performance Analytics. When you click a node, it expands into its child features on the next level of the tree view.

Dashboard-related nodes

Dashboards group nodes expand into dashboards. Dashboards expand into dashboard tabs even if the dashboard has only one tab. Dashboard tabs expand into the contents of the tab.

Widgets

Widgets open nodes that show their component parts.

Indicators

All indicator nodes open into nodes for their component sources, breakdowns, jobs, and scripts. Indicator nodes include automated, formula, widget, manual, external and supporting indicators.

Reports

Reports open nodes that show their component tables.

Breakdowns

Breakdowns open nodes that show their sources.

Sources

All source nodes (breakdown, indicator, and report sources) open nodes that show their source tables.

When you click a text widget, the underlying file appears as a pop-up over the tree view. Choices from a context menu appear in a pop-up as well.

Icons

Icon	Function	Context menu actions
	Dashboard group	Edit
	Dashboard	• Edit • View Dashboard When you select View Dashboard, the dashboard is shown in a pop-up over the tree view. All the dashboard's features are available including sharing, layout configuration, and adding widgets. When you close the pop-up, the tree view is visible again.

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Icon	Function	Context menu actions
		• Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Dashboard tab	• Edit • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Report	• Edit Opens the report in the Report Designer in a pop-up window. When you close the pop-up, the tree view is visible again. • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Report source	• Edit • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Interactive Filter	• Edit • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Performance Analytics Widget	• Edit • Preview Widget Select **Preview Widget** to show the widget in a pop-up window.

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Icon	Function	Context menu actions
		• Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Other Widget	No context menu.
	Formula Indicator	• Edit • Show Analytics Hub • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Automated Indicator	• Edit • Show Analytics Hub • Show Scores • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Widget Indicator	• Edit • Preview Widget Select **Preview Widget** to show the widget in a pop-up window.
	Supporting Indicators	Edit
	Manual indicator	Edit
	External indicator	Edit
	Indicator source	• Edit • Show Schema Map

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Icon	Function	Context menu actions
		• Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Linked Breakdown	No context menu. Click the tile to reveal the associated breakdowns.
	Breakdown	• Edit • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Breakdown Source	• Edit • Show Schema Map • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Job	• Edit • Execute Now • View All Logs • View Last executed Log • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.
	Script	Edit
	Table	• Edit • Show Schema Map • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.

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Icon	Function	Context menu actions
	Filter widget	• Edit • Preview Widget Select **Preview Widget** to show the widget in a pop-up window. • Show Used By Launches the Bottom-up tree view which shows all entities that use this entity.

Other visual data

Each node has one or more of these icons. Point to the upper right corner of the node to show them.

Info button []

Click the info button to reveal further details about the node. A node's information panel shows different information depending on the type of node, but all information panels have an **Open Record** button. Click **Open Record** to open the record for editing.

Context menu []

Click the context menu icon to perform further actions on the node's source.

Error indicators []

Open the element the node refers to so that you can correct any issues.

Domain separation and Performance Analytics

Domain separation is supported for Performance Analytics. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data. Performance Analytics supports collecting scores from multiple domains and can be configured to enable domain-specific administration. Extended domain configuration functionality is available for customers with complex domains.

Support level: Enhanced

- Includes all aspects of **Basic** and **Standard** levels of support.
- Data-driven process enables service provider customers to modify business logic that is based on defined use cases. These configurations are UI-based and fail-safe so that configurations by one customer cannot affect another.
- Tenants of the instance must be able to configure minimum viable product (MVP) business logic and data parameters for themselves. This logic and parameters would be expected for the application's normal function.

Sample use case: Tenant-customers of a shared environment must be able to modify the impact, urgency, or priority matrix to set priority within their domain.

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For more information on support levels, see Application support for domain separation.

Requirements

- A fully enabled, subscription version of Performance Analytics. See Activating your Performance Analytics subscription.
- The Domain Support — Domain Extension Installer plugin.

Warning:
Instances with a large number of domains, as is typical for multiple service providers (MSPs), can experience performance degradation when retrieving Performance Analytics scores. For a potential solution, see KB1516963. Access to Now Support is required.

Approaches to domain separation

There are three approaches to domain separation in Performance Analytics:

Global

The Performance Analytics records, such as indicators and breakdowns, are all in the global domain. Data collection jobs respect the domains of facts table records, such as incidents, when they collect indicator scores. Users see scores only from domains they have visibility into. Platform Analytics Solutions use this approach. It is the most suitable approach in most cases.

Domain-specific

The Performance Analytics records themselves are domain-separated. Each domain has users with pa_admin and other roles for managing Performance Analytics.

Hybrid

Low-level Performance Analytics records, such as indicator sources, are global. High-level Performance Analytics records, such as widgets, are domain-separated. The pa_admin users manage the low-level, global records. Each domain has users with roles like pa_power_user to manage high-level records. This approach is advanced.

For more information, see:

- Approaches to Performance Analytics with domain separation
- Performance Analytics for Managed Service Providers
- SPM Project Portfolio Management, Domain Separation and Managed Service Providers

Extended functionality for complex domains

You can extend the domain separation support for Performance Analytics with the following features, designed especially for customers with complex domains to manage:

Hierarchical multi-domain configurations

Group domains together, based on their visibility to a user group or on other conditions. Collect scores on some, all, or none of the child domains of these domains. Decide whether to roll up child domain scores to the parent domain, and whether for all children or only those explicitly in the configuration.

Collect aggregate scores

Combine scores from the multiple domains in a domain configuration to create an aggregate score.

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Dashboard filtering by domain

Filter dashboards to show scores by domain or domain aggregate, as you would by breakdown.

The extended functionality is available in the Performance Analytics — Domain Separation Support plugin. The general requirements for domain separation in Performance Analytics also apply.

Extended functionality supports only the global approach to domain separation.

For more information about this extended functionality, see: Grouping domains in Performance Analytics domain configurations

Related topics

Domain separation for service providers

Approaches to Performance Analytics with domain separation

When using Performance Analytics with domain separation, you can collect domain-specific scores. You can use global or domain-specific Performance Analytics table records or even a combination of both.

Global approach and collecting domain-specific scores

You can keep all Performance Analytics records, such as indicators, breakdowns, and widgets, in the Global domain. In this case, you apply domain separation through domain-specific data collection jobs.

To configure a data collection job to be domain-specific, add a **Run as** user to the job. The **Run as** user determines the domain context of where the data collection job runs. For more information, see Create or schedule a data collection job.

You can also specify a domain configuration. Domain configurations are part of the Performance Analytics plugin for domain support, intended to help with complex domain management. For more information, see Associate a domain configuration with a data collection job.

The data collection job collects scores against facts table records in the Global domain. The job also collects scores against records in the domains of the **Run as** user. The job stores the scores in the domain it collected them from. In data visualizations, a user sees only scores from domains they have visibility into.

If you specify only a **Run as** user, scores from all child domains are rolled up to the parent. If you also specify a domain configuration, more options are available. For more information about options for collecting and rolling up child domain scores, see Grouping domains in Performance Analytics domain configurations.

Only users with the pa_admin role who are members of one of the domains that the job collects scores for can modify domain-separated data collection jobs. Global users with pa_admin can modify any job.

By default, Platform Analytics Solutions use the global approach.

Note:
Domain configurations require a global approach to domain separation. For more information, see Grouping domains in Performance Analytics domain configurations.

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Domain-specific approach

By using domain-specific Performance Analytics records, you can grant the pa_admin role to domain users to create their own domain-specific components. Users, including administrators, can create and edit Performance Analytics records only within their domain. Users in child domains can read but not edit Performance Analytics records in a parent domain.

You must create a domain-specific copy of a Performance Analytics record to use it in that domain. For example, to add a domain-specific condition to an indicator source, you must create a copy of the indicator and indicator source in that domain.

You can quickly copy an indicator or breakdown and related data from a different domain. Use the **Insert and Stay with Relations** UI action on the Indicator or Breakdown forms. Any breakdowns, breakdown exclusions, or time series exclusion relationships are also copied. Any associated scheduled jobs are copied only if the **Run as** user for that job is the current user.

To collect scores, create a new data collector job associated with the domain-specific indicators.

Note:
Domain users cannot set Performance Analytics properties that begin with `com.snc.pa`. Only users with the admin or pa_admin roles in the global domain can see or set these properties.

Hybrid approach

A hybrid approach keeps reusable, foundational Performance Analytics records such as indicator sources within the global domain or a parent domain. At the same time, administrators in other domains create domain-specific higher-level Performance Analytics records such as indicators and widgets.

Note:
The hybrid approach is an advanced option. Implement either the global or domain-specific approaches successfully before attempting to use a hybrid approach.

When using a hybrid approach, foundational records should be managed only within the global domain or a parent domain. All other Performance Analytics records, such as widgets and indicators, should be managed separately within each child domain. The following record types are considered foundational records:

- Bucket groups
- Buckets
- Scripts
- Breakdown sources
- Indicator sources
- Filters
- Breakdowns
- Managed sources
- Manual breakdowns
- Breakdown mappings
- Breakdown relations

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Copying Performance Analytics records between domains

You can reuse Performance Analytics records in multiple domains. The `PADomainUtils` API provides functionality that enables administrators to move or copy Performance Analytics records between domains.

Grouping domains in Performance Analytics domain configurations

Instead of configuring Performance Analytics for the domains of a specific user, create a reusable domain configuration. Select domains that are visible to a group of users, or filter domains directly. Domain configurations let you define hierarchical relationships and aggregate scores across multiple domains.

Note:
Performance Analytics domain configurations are enabled with the Performance Analytics – Domain Separation Support plugin. For more information about plugins, see Activate a Plugin.

Associate these domain configurations with specific data collection jobs and dashboards to provide relevant scores to users. At the same time, maintain your Performance Analytics records, such as indicators, breakdowns, and their sources, in the global domain.

Important:
Regardless of whether a domain configuration is used, the **Run as** user always determines the domain context of where the data collection Job runs.

Only Performance Analytics administrators with access to all the domains in a configuration can edit a data collection job that has a domain configuration applied to it.

Required approach

Only the Global approach to Performance Analytics with domain separation supports domain configurations. For more information, see Approaches to Performance Analytics with domain separation.

Data tables, process tables, and Run as user

The **Run as** user always determines the domain context of where the data collection Job runs. If you are collecting scores only on data tables such as Incident [incident], set an administrator from the global domain as the **Run as** user. This user, and the data collector running under them, has full visibility of all data table records.

A different approach is needed if you are collecting scores on a process domain. It is common practice to define process records such as business rules and SLAs on a process domain. In this case, a **Run as** user who is a global administrator has visibility only to global domain records of these tables. This limitation also impacts scores collected through database views, for example if a join is made to an SLA table like contract_sla. In such cases, set a user with explicit visibility into the relevant process domains as the **Run as** user.

Collection, roll-up, and aggregation options

The Domain Configuration record provides flexibility in the way domain records contribute to scores. Prior to the availability of the Domain Support plugin, records in child domains would “roll up” and contribute to the score of a parent domain. The Domain Support plugin provides additional options for how records in child domains should be handled:

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- Select whether to collect scores from individual child domains.
- Select whether to roll up scores from child domains into the parent domain score. You can roll up child domain scores with or without also collecting the individual scores.
- If you roll scores from child domains up to the parent domain, select whether to roll up all child domains or only the ones that the domain configuration explicitly includes.
- Select whether to sum all collected individual domain scores into an aggregate score. This score is stored in a separate domain.

The following table shows the scores that are collected for different configurations with a parent domain and three child customer domains. The table also shows aggregate values.

Example of domain configurations for a single parent domain with three children

Configuration	Parent Domain: MSP					
	Child domains: Customers			MSP contains customers		
	A	B	C	MSP	Customers	Aggregate
Data						
New incident records	30	100	50	20	0	-
Results						
No aggregate options	-	-	-	20	-	-
No aggregate options + Aggregate	-	-	-	20	-	20
Collect Children	30	100	50	20	0	-
Collect children + Aggregate	30	100	50	20	0	200
Collect Children + Roll up only selected domains (A and C)	30	100	50	100	80	-
Collect children + Roll up only selected domains (A and C) + Aggregate	30	100	50	100	80	200
Collect Children	30	100	50	200	180	-

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Example of domain configurations for a single parent domain with three children (continued)

Configuration	Parent Domain: MSP					
	Child domains: Customers			MSP contains customers		
	A	B	C	MSP	Customers	Aggregate
+ Roll up all child domains						
Collect Children + Roll up all child domains + Aggregate	30	100	50	200	180	380
Roll up only selected domains (A and C)	-	-	-	100	-	-
Roll up only selected domains (A and C) + Aggregate	-	-	-	100	-	100
Roll up all child domains	-	-	-	200	-	-
Roll up all child domains + Aggregate	-	-	-	200	-	200

Domain configuration records

The Performance Analytics – Domain Separation Support plugin adds the Domain Configurations [pa_domain_configurations] table to your instance. The details of each domain configuration are stored in one of these records.

Transferring records between instances

Use update sets to transfer domain configurations between instances. If the domain configuration has **Collect aggregate** enabled, also transfer the aggregation domain separately. For more information, see Transfer domain configuration with score aggregation.

Create a domain configuration

Create a domain configuration to define which domains to collect scores from and how to store scores within the domain hierarchy.

Before you begin

Role required: pa_admin or admin

The Performance Analytics - Domain Support plugin (com.snc.pa.domain_support) must be activated.

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Procedure

Navigate to **All** > **Performance Analytics** > **Domain Configuration** and create a new record.

Field	Description
Configuration type	Specify how you want to determine which domains to include in this configuration. Select **Visibility group** to include all domains visible to a specific group, based on existing visibility domains associated with that group. Select **Conditions** to specify the domains directly, using conditions.
Visibility group	When **Configuration type** is **Visibility group**, select or create a Group [sys_user_group] that has at least one visibility domain. All visibility domains available to this group are included in this domain configuration. For more information about visibility domains, see Visibility domains and Contains domains.
Conditions	When **Configuration type** is **Conditions**, specify conditions to determine which domains are included in this configuration. The conditions you select apply to the Domain [domain] table. For example, select [[Type][is][MSP]] to select all managed service provider domains.
Collect aggregate	Aggregate scores from the specified domain hierarchy. Aggregate scores are stored in a separate domain that exists outside of the domain hierarchy and contains only scores. One aggregate domain is created for each domain configuration where **Collect aggregate** is selected. The name of this domain is displayed in the read-only **Aggregate domain** field. Aggregate domains are stored as children of the Performance Analytics Aggregation Container domain.
Collect children	Select this option to collect scores from children of the specified domains. Scores are collected from all child domains, not only those domains that are direct children of the specified domains. Scores collected from a child domain are stored in that domain.
Roll up	Select this option to roll collected scores of child domains up to the top-level parent domain in the hierarchy.
Roll up type	Select **All child domains** to roll up scores from the specified domains and all of their child domains. Select **Only selected domains** to roll up scores only from the child domains that are explicitly included in the domain configuration. For a visibility group, a domain configuration explicitly includes a child domain if it and its parent domain are in a visibility domain of the group. For conditions, a domain configuration explicitly includes a child domain if the conditions select that domain and its parent domain.

Related topics

Domain separation setup and administration

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Associate a domain configuration with a data collection job

To collect Performance Analytics indicator scores from the domains specified in a domain configuration, associate that domain configuration with a collection job.

Before you begin

Role required: pa_data_collector or admin
The Performance Analytics - Domain Support plugin (com.snc.pa.domain_support) must be activated.

About this task

Important:
Regardless of whether a domain configuration is used, the **Run as** user always determines the domain context of where the data collection job runs.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Jobs**.
2. Select a data collection job.
3. In the **Domain Configurations** related list, click **Edit**.
4. Select the domain configurations you want to associate with this job.
   A separate data collection job runs for each domain included in the configuration.
5. Click **Save**.
6. **Optional:** Modify the **Order** of the domain configuration.
   If multiple domain configurations are associated with a collection job, any overlap in the included domains may cause scores to be collected incorrectly. Only the scores collected for the domain configuration with the highest **Order** value are preserved for the overlapping domains.

   Tip:
   When using multiple domain configurations with a single job, ensure each domain configuration specifies a unique set of domains.

Associate a domain configuration with a dashboard

Display a domain picker on a dashboard to enable users of that dashboard to view scores from specific domains.

Before you begin

Role required: pa_power_user or admin
The Performance Analytics - Domain Support plugin (com.snc.pa.domain_support) must be activated.

About this task

A user must have visibility into all domains in the domain configuration to view domain-specific scores on a dashboard.

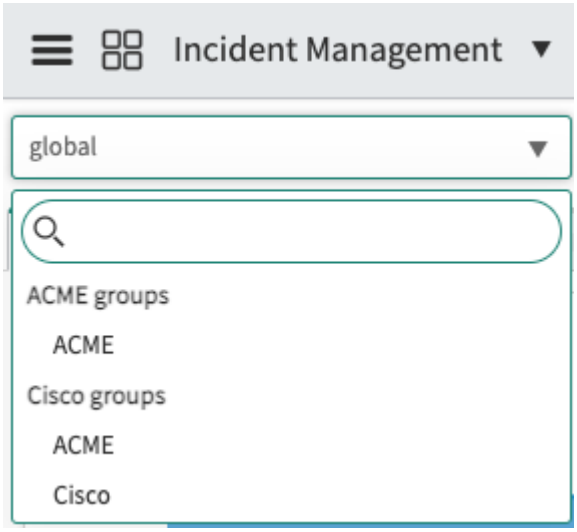
Procedure

1. Navigate to **All** > **Performance Analytics** > **Dashboard Administration**.
2. Select a dashboard.
3. In the **Domain Configurations** related list click **Edit**.
4. Select the domain configurations you want to associate with this dashboard.
5. Click **Save**.

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Result

A user who has visibility to all the domains in the domain configuration, such as an admin, can select a domain. The reports and widgets on the dashboard show only scores and values from that domain.



What to do next

If you open the Analytics Hub from a dashboard with a domain picker, you see only the scores collected for the selected domain. Any target, threshold, or comment you add is automatically associated with the current domain. The **Edit scores** option is not available.

Transfer domain configuration with score aggregation

To transfer between instances a Performance Analytics domain configuration that is set to aggregate scores, transfer both the configuration and the aggregation domain.

Before you begin

Transfer the domain configuration with an update set. For more information about using update sets to transfer configurations between instances, see System update sets.

Role required: admin

Procedure

1. Log in as admin to the source instance from which you transferred the domain configuration.
2. Navigate to **Data Collector** > **Domain Configurations**.
3. Open the domain configuration record that you transferred in the update set.
4. Right-click on the header of the form and select **Show XML**.
5. Copy the sys_id, which is the value of the `aggregate_domain` element.

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This XML file does not appear to have any style information associated with it. The document tree is shown below.


```
▼<xml>
  ▼<pa_domain_configurations>
    <aggregate_domain
    display_value="OpCos">676a49440fa8060094a9716ce1050e14</aggregate_domain>
    <aggregate_domain_parent display_value="PA aggregation
    container">a42da8e7d70022006ecfa3b20e61037f</aggregate_domain_parent>
    <collect_aggregate>true</collect_aggregate>
    <collect_children>true</collect_children>
    <conditions table="domain"/>
    <domain_table>domain</domain_table>
    <name>SILVA PA OPCOS</name>
    <roll_up>true</roll_up>
    <roll_up_type>roll_up_children</roll_up_type>
    <sys_class_name>pa_domain_configurations</sys_class_name>
    <sys_created_by>laetitia.dano@servicenow.com</sys_created_by>
    <sys_created_on>2018-02-15 12:11:40</sys_created_on>
    <sys_customer_update>true</sys_customer_update>
    <sys_id>1b30e2e94f589300a02a4c318110c7f7</sys_id>
    <sys_mod_count>4</sys_mod_count>
    <sys_name>SILVA PA OPCOS</sys_name>
    <sys_package display_value="Global" source="global">global</sys_package>
    <sys_policy/>
    <sys_replace_on_upgrade>false</sys_replace_on_upgrade>
    <sys_scope display_value="Global">global</sys_scope>
  ▼<sys_update_name>
      pa_domain_configurations_1b30e2e94f589300a02a4c318110c7f7
    </sys_update_name>
    <sys_updated_by>laetitia.dano@servicenow.com</sys_updated_by>
    <sys_updated_on>2018-06-05 15:11:06</sys_updated_on>
    <type>visibility_group</type>
    <visibility_group display_value="SILVA PA OPCOS" name="SILVA PA
    OPCOS">e3bf9aa54f589300a02a4c318110c75d</visibility_group>
  </pa_domain_configurations>
</xml>
```


6. Navigate to **Domain Admin** > **Domains**.
7. Filter the list of domains by the sys_id that you copied from the transferred domain configuration.
8. Open the filtered domain and from the context menu, export the domain record to XML.
9. Log in as admin to the target instance.
10. Navigate to **Domain Admin** > **Domains**.
11. From the context menu, import the XML file of the domain record from the source instance.

Result
You can execute data collection jobs for the transferred domain.

PADomainUtils - Global

The *PADomainUtils* API enables you to copy Performance Analytics records between different domains on the same instance.

Use this API in server scripts to copy Performance Analytics records such as indicators, breakdowns, and dashboards, to different domains. This API enables you to create a Performance Analytics record in one domain and copy that record to any number of additional domains.

Note:
This API cannot copy records into the Global domain.

Warning:
When configuration records are moved to another domain, scores will not be accessible.

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To use *PADomainUtils*, you must satisfy these requirements:

- Performance Analytics must be enabled.
- The user running the script must have the admin role.
- The instance must use domain separation.
- The script must be run from the global domain.
- When moving or copying records, the source and target domains must be different.

PADomainUtils - PADomainUtils()

Instantiates a new PADomainUtils object to move or copy Performance Analytics records from the global domain.

Use the *PADomainUtils(String domainFrom)* constructor instead when moving or copying records from a domain other than the global domain.

Parameters

Name	Type	Description
None		

```
// PADomainUtils initialized with the global domain
var globalUtils = new SNC.PADomainUtils();
```

PADomainUtils - PADomainUtils(String domainFrom)

Instantiates a new PADomainUtils object to move or copy Performance Analytics records from the specified domain.

Use the *PADomainUtils()* constructor instead when moving or copying from the global domain.

Parameters

Name	Type	Description
domainFrom	String	The domain to copy records from.

```
// c90d4b084a362312013398f051272c0d is the sys id of the ACME
 domain
var acmeUtils = new
 SNC.PADomainUtils('c90d4b084a362312013398f051272c0d');
```

PADomainUtils - setFoundation(Boolean foundation)

Use this method to move or copy only foundational records in a hybrid domain configuration.

You can implement a hybrid approach by maintaining some types of record in a parent domain and some types in child domains. Generally, the parent domain contains foundational records and the child domain contains higher-level records, such as widgets. The following types of record are considered foundational records.

- Bucket groups
- Buckets
- Scripts

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- Breakdown sources
- Indicator sources
- Filters
- Breakdowns
- Managed sources
- Manual breakdowns
- Breakdown mappings
- Breakdown relations

Other Performance Analytics records such as widgets and indicators are not foundational records. Set this method to false to move or copy these additional records as well.

Parameters

Name	Type	Description
foundation	Boolean	Indicates if only foundational records should be copied or moved by this PADomainUtils object.

Returns

Type	Description
PADomainUtils	The object calling this function.

```
var pa = new SNC.PADomainUtils().setFoundation(true);
pa.copy('bb6b58b01f1310005a3637b8ec8b70dd');
```

PADomainUtils - setOverrides(Boolean overrides)

Use this method before copying records to set the sys_override value of the new record to the original parent record.

Using this method enables you to automatically override records in a parent domain. By overriding the parent records, the parent records do not impact the child domain. If the source domain is not the parent of the target domain when copying records, setting the sys_override value will not have any impact on behavior. You can specify an override only when copying records, not when moving records.

Parameters

Name	Type	Description
overrides	Boolean	Indicates that copied records in a child domain should override the source record in the parent domain. This value is true by default.

Returns

Type	Description
PADomainUtils	The object calling this function.

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```
var pa = new
 SNC.PADomainUtils('c90d4b084a362312013398f051272c0d');
pa.setOverrides(false);
pa.copy('bb6b58b01f1310005a3637b8ec8b70dd');
```

PADomainUtils - copy(String runAs)

Copies Performance Analytics records to a different domain.

To copy dashboards or scheduled jobs, see copyDashboard and copyJob.

Parameters

Name	Type	Description
runAs	String	User whose domain you want to copy records to.

Returns

Type	Description
void	

```
// copy all the Performance Analytics records from global to
 user's domain
var pa = new SNC.PADomainUtils();
pa.copy('09ff3d105f231000b12e3572f2b4775d');
```

PADomainUtils - copyJob(String paJob, String runAs)

Copies a Performance Analytics scheduled data collection job record to another domain.

Parameters

Name	Type	Description
paJob	String	Sys_id of a Performance Analytics scheduled data collection job [sysauto_pa] record.
runAs	String	User whose domain you want to copy the job to.

Returns

Type	Description
String	Error message if an error occurs, or an empty string if there is no error.

```
// No source domain needs to be set
var pa = new SNC.PADomainUtils();
// copy the '[PA Incident] Daily Data Collection job'
// set the 'run as' of the new record to be the 'acme.itil' user
// first argument is the sys_id of the sysauto_pa record
// the second is the sys_id of the acme.itil user record
pa.copyJob('82ba2023d7101100b96d45a3ce6103cd','797d14341f1310005
a3637b8ec8b7010');
```

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PADomainUtils - copyDashboard(String dashboardId, String runAs)

Copy a dashboard to another domain.

Parameters

Name	Type	Description
dashboardId	String	Sys_id of the dashboard to copy.
runAs	String	User whose domain you want to copy the dashboard to.

Returns

Type	Description
void	

```
//Copy Incident Management dashboard from global to user's
 domain
var pa = new SNC.PADomainUtils();
pa.copyDashboard('a64b7031d7201100b96d45a3ce610335','09ff3d105f2
31000b12e3572f2b4775d');
```

PADomainUtils - move(String runAs)

Moves Performance Analytics records to a different domain.

Parameters

Name	Type	Description
runAs	String	The user whose domain you want to copy records to.

Returns

Type	Description
void	

```
// move all the Performance Analytics records from the global to
 the customers domain
var pa = new SNC.PADomainUtils();
pa.move('774190f01f1310005a3637b8ec8b70ef')
```

PADomainUtils - isWriteable(String table, String id)

Evaluate if you can write to a specific record identified by table and sys_id.

Parameters

Name	Type	Description
table	String	The name of the table containing the record to query, such as pa_indicators.
id	String	The sys_id of the record to query.

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Returns

Type	Description
Boolean	Indicates that you can write to the specified record. Returns true if the record exists within the domain of the current user. Returns false if the record does not exist, or is in a different domain.

```
var pa = new SNC.PADomainUtils();
pa.isWriteable('pa_incidents','cd8125b5140012007665a83e633b028d
');
```

Integrate Performance Analytics

Integrate Performance Analytics with an external system to collect scores based on remote data or to expose Analytics Hub information.

REST and Javascript APIs are available for you to create your queries.

Performance Analytics API examples

These examples demonstrate how to perform a REST query using cURL commands, and show the data returned for each command. Each example builds upon the last, with later examples using the data returned by earlier examples.

Return all indicators that are displayed in the Analytics Hub

You can request a list of all indicators that are displayed in the Analytics Hub, including their unique record identifiers.

Note:
These examples use the macOS syntax for curl commands. The Windows syntax can differ.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards"
```

The following response is truncated to show only the Number of open incidents indicator, which is used in the other examples on this page:

```
//{
  "result" : [
...

    {
      "change_formatted" : "",
      "key" : false,
      "value_unit" : "",
      "value_formatted" : "",
      "period_title" : null,
      "gapperc" : null,
      "gap" : null,
      "target" : null,
      "period" : null,
      "target_formatted" : "",
      "favorite" : false,
      "direction_label" : "Minimize",
```

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```
      "uuid" : "fb007202d7130100b96d45a3ce6103b4",
      "name" : "Number of open incidents",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "change" : null,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "value" : null,
      "unit" : {
        "display_value" : "#",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_units/17b
365e2d7320100ba986f14ce6103ad",
        "value" : "17b365e2d7320100ba986f14ce6103ad"
      },
      "changeperc_formatted" : "",
      "direction" : 2,
      "frequency" : 10,
      "precision" : 0,
      "changeperc" : null,
      "indicator" : {
        "display_value" : "Number of open incidents",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_indicato
rs/fb007202d7130100b96d45a3ce6103b4",
        "value" : "fb007202d7130100b96d45a3ce6103b4"
      },
      "description" : "Number of incidents open based on
 resolved date is empty."
    },
...

  ]
}
```


Return indicator details

You can query the Analytics Hub for a particular indicator by providing the *sysparm_uuid* parameter with an indicator sys_id value. In this case, you use the sys ID for the Number of open incidents indicator, which you retrieved in the first example, when you got all the indicators in the Analytics Hub:


```
"uuid" : "fb007202d7130100b96d45a3ce6103b4",
"name" : "Number of open incidents",
```


Command:


```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards?sysp
arm_uuid=fb007202d7130100b96d45a3ce6103b4"
```


Response:


```
{
  "result" : [
    {
      "change_formatted" : "",
      "key" : false,
```


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```
      "value_unit" : "",
      "value_formatted" : "",
      "period_title" : null,
      "gapperc" : null,
      "gap" : null,
      "target" : null,
      "period" : null,
      "target_formatted" : "",
      "favorite" : false,
      "direction_label" : "Minimize",
      "uuid" : "fb007202d7130100b96d45a3ce6103b4",
      "name" : "Number of open incidents",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "change" : null,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "value" : null,
      "unit" : {
        "display_value" : "#",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_units/17b
365e2d7320100ba986f14ce6103ad",
        "value" : "17b365e2d7320100ba986f14ce6103ad"
      },
      "changeperc_formatted" : "",
      "direction" : 2,
      "frequency" : 10,
      "precision" : 0,
      "changeperc" : null,
      "indicator" : {
        "display_value" : "Number of open incidents",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_indicato
rs/fb007202d7130100b96d45a3ce6103b4",
        "value" : "fb007202d7130100b96d45a3ce6103b4"
      },
      "description" : "Number of incidents open based on
 resolved date is empty."
    }
  ]
}
```


Return all breakdowns and aggregates for an indicator

You can query a list of available breakdowns and aggregates for an indicator by setting the *sysparm_include_available_breakdowns* and *sysparm_include_available_aggregates* parameters to true.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards?sysp
arm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_include_availa
ble_breakdowns=true&sysparm_include_available_aggregates=true"
```

Response:

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```
{
  "result" : [
    {
      "key" : false,
      "change_formatted" : "",
      "aggregates" : [
        {
          "display_value" : "7d running SUM",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_aggregat
es/89ea4c11d7001100ba986f14ce6103dc",
          "value" : "89ea4c11d7001100ba986f14ce6103dc"
        },
        {
          "display_value" : "28d running SUM",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_aggregat
es/4dfa4c11d7001100ba986f14ce6103e2",
          "value" : "4dfa4c11d7001100ba986f14ce6103e2"
        },
        {
          "display_value" : "30d running SUM",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_aggregat
es/3e409011d7001100ba986f14ce610319",
          "value" : "3e409011d7001100ba986f14ce610319"
        },
        // Aggregates truncated for brevity

      ],
      "changeperc" : null,
      "value_formatted" : "",
      "period_title" : null,
      "gapperc" : null,
      "value_unit" : "",
      "target" : null,
      "period" : null,
      "target_formatted" : "",
      "favorite" : false,
      "gap" : null,
      "direction_label" : "Minimize",
      "uuid" : "fb007202d7130100b96d45a3ce6103b4",
      "name" : "Number of open incidents",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "change" : null,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "value" : null,
      "unit" : {
        "display_value" : "#",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_units/17b
365e2d7320100ba986f14ce6103ad",
        "value" : "17b365e2d7320100ba986f14ce6103ad"
      },
```


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```
      "breakdowns" : [
        {
          "display_value" : "Priority",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_breakdow
ns/0df47e02d7130100b96d45a3ce610399",
          "value" : "0df47e02d7130100b96d45a3ce610399"
        },
        {
          "display_value" : "Category",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_breakdow
ns/1f918835d7231100b96d45a3ce6103fe",
          "value" : "1f918835d7231100b96d45a3ce6103fe"
        },
        {
          "display_value" : "Assignment Group",
          "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_breakdow
ns/baec0752bf130100b96dac808c0739ed",
          "value" : "baec0752bf130100b96dac808c0739ed"
        },
        // Information for State and Age indicators truncated

      ],
      "changeperc_formatted" : "",
      "frequency" : 10,
      "precision" : 0,
      "direction" : 2,
      "indicator" : {
        "display_value" : "Number of open incidents",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_indicato
rs/fb007202d7130100b96d45a3ce6103b4",
        "value" : "fb007202d7130100b96d45a3ce6103b4"
      },
      "description" : "Number of incidents open based on
 resolved date is empty."
    }
  ]
}
```

Return a time series aggregation of indicator scores

You can apply the 7d running SUM aggregate to the Analytics Hub using the *sysparm_uuid* value with the sys_id of the aggregate.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards?sysp
arm_uuid=fb007202d7130100b96d45a3ce6103b4:89ea4c11d7001100ba986f
14ce6103dc"
```

Response:

```
{
  "result" : [
```

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```
    {
      "key" : false,
      "change_formatted" : "",
      "value_unit" : "",
      "value_formatted" : "",
      "period_title" : null,
      "aggregate" : {
        "display_value" : "7d running SUM",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_aggregat
es/89ea4c11d7001100ba986f14ce6103dc",
        "value" : "89ea4c11d7001100ba986f14ce6103dc"
      },
      "gapperc" : null,
      "target" : null,
      "period" : null,
      "target_formatted" : "",
      "favorite" : false,
      "gap" : null,
      "direction_label" : "Minimize",
      "uuid" :
 "fb007202d7130100b96d45a3ce6103b4:89ea4c11d7001100ba986f14ce610
3dc",
      "name" : "Number of open incidents / 7d running SUM",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "change" : null,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "value" : null,
      "unit" : {
        "display_value" : "#",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_units/17b
365e2d7320100ba986f14ce6103ad",
        "value" : "17b365e2d7320100ba986f14ce6103ad"
      },
      "changeperc_formatted" : "",
      "direction" : 2,
      "frequency" : 10,
      "precision" : 0,
      "changeperc" : null,
      "indicator" : {
        "display_value" : "Number of open incidents",
        "link" :
 "https://instance.service-now.com/api/now/v1/table/pa_indicato
rs/fb007202d7130100b96d45a3ce6103b4",
        "value" : "fb007202d7130100b96d45a3ce6103b4"
      },
      "description" : "Number of incidents open based on
 resolved date is empty."
    }
  ]
}
```


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Return the elements for a breakdown

To get the scores associated with each element of a breakdown, and to get the sys_ids of those elements, use the *sysparm_breakdown* parameter with the sys_id of the breakdown. In this example, you get the elements of the Assignment Group breakdown for the Number of open incidents indicator. From previous example, you have the sys_id of `fb007202d7130100b96d45a3ce6103b4` for the Number of open incidents indicator and the sys_id of `baec0752bf130100b96dac808c0739ed` for the Assignment Group breakdown.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=ba
ec0752bf130100b96dac808c0739ed"
```

The response consists of a set of `indicator` objects, each containing one `element` object. The `element` objects each contain the name and sys_id of an object. Because the information about the indicator is the same for each `indicator` object, in this example only the first `indicator` object is given in detail.

Response:

```
{
  "result":[
    {
      "indicator": {
        "display_value":"Number of open incidents",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_indicators/fb0072
02d7130100b96d45a3ce6103b4",
        "value":"fb007202d7130100b96d45a3ce6103b4"
      },
      "gap_formatted":"",
      "benchmarking":false,
      "frequency_label":"Daily",
      "changeperc_formatted":"0.0%",
      "direction_label":"Minimize",
      "precision":0,
      "breakdown": {
        "display_value":"Assignment Group",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_breakdowns/baec07
52bf130100b96dac808c0739ed",
        "value":"baec0752bf130100b96dac808c0739ed"
      },
      "personal_target":null,
      "description":"Number of incidents open based on resolved
 date is empty.",
      "value_color":"#455464",

 "uuid":"fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac
808c0739ed:unmatched",
      "frequency":10,
      "gap":null,
```

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```
      "value_unit":"14",
      "indicator_frequency":10,
      "value":14.0,
      "indicator_aggregate":1,
      "facts_table": {
        "name":"incident",
        "label":"Incidents"
      },
      "key":false,
      "indicator_frequency_label":"Daily",
      "direction":2,
      "element": {
        "display_value":"Unassigned",      //Element name

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/unmat
ched",
        "value":"unmatched"                //No sys_id for
 unmatched scores
      },
      "period_title":"Jul 22",
      "period":"Jul 22",
      "target_formatted":"",
      "change":0.0,
      "gapperc_formatted":"",

 "query":"opened_atONToday@javascript:gs.beginningOfToday()@java
script:gs.endOfToday()^ORopened_at<javascript:gs.beginningOfToda
y()^resolved_atISEMPTY^ORresolved_at>javascript:gs.endOfToday()^
state!=8",
      "realtime_enabled":true,
      "changeperc":0.0,
      "target":null,
      "unit": {
        "display_value":"#",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_units/17b365e2d73
20100ba986f14ce6103ad",
        "type":"formatted",
        "value":"17b365e2d7320100ba986f14ce6103ad"
      },
      "value_formatted":"14",             // Score where
 Assignment Group=Unassigned
      "name":"Number of open incidents > Assignment Group =
 Unassigned",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
    },
    {"indicator": {

      "element": {
        "display_value":"Software",

 "link":"https://
```


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```
<instance>.service-now.com/api/now/v1/table/sys_user_group/8a4dd
e73c6112278017a6a4baf547aa7",
        "value":"8a4dde73c6112278017a6a4baf547aa7"    // sys_id
 of element Software
      },
      ...

      "value_formatted":"6",                          // Score
 where Assignment Group: Software
      "name":"Number of open incidents > Assignment Group =
 Software",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
    },
    {"indicator": {
      ...

      "element": {
        "display_value":"Service Desk",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/d625d
ccec0a8016700a222a0f7900d06",
        "value":"d625dccec0a8016700a222a0f7900d06"   // sys_id
 of element Service Desk
      },

      ...

      "value_formatted":"5",                         // Score for
 Assignment Group: Service Desk
      "name":"Number of open incidents > Assignment Group =
 Service Desk",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
    },
    {"indicator": {

      ...

      "element": {
        "display_value":"Hardware",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/8a505
5c9c61122780043563ef53438e3",
        "value":"8a5055c9c61122780043563ef53438e3"   // sys_id
 for element Hardware
      },

      ...
```

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```
      "value_formatted":"3",                          // Score
 for Assignment Group: Hardware
      "name":"Number of open incidents > Assignment Group =
 Hardware",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
    },
    {"indicator": {

  ...

      "element": {
        "display_value":"Network",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/287eb
d7da9fe198100f92cc8d1d2154e",
        "value":"287ebd7da9fe198100f92cc8d1d2154e"},  // sys_id
 for element Network

...

      "value_formatted":"3",                          // Score
 for Assignment Group: Network
      "name":"Number of open incidents > Assignment Group =
 Network",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
    },
  ...
  ]
...
}
```

Return the indicator filtered by a breakdown and element

You can apply a breakdown by appending the breakdown and breakdown element sys_id values to the *sysparm_uuid* parameter. In this example, the data is broken down to show priority 1 incidents. The sys_id for the Priority breakdown is `0df47e02d7130100b96d45a3ce610399` and is in the example Return all breakdowns and aggregates for an indicator. You can get the sys_id for the 1 - Critical element by running the same command as in Return all elements for a breakdown, but with the Priority breakdown instead of Assignment Group. The sys_id for 1 - Critical is `5f012106db5123003ee8f93baf9619bd`.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards?sysp
arm_uuid=fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45
a3ce610399:5f012106db5123003ee8f93baf9619bd"
```

Response:

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```
{
// The request is made Dec 12. The
// score is 76, which is unchanged from
// Dec 11, and which exceeds the
// target of 70.
  "result": [
    {
      "indicator": {
        "display_value":"Number of open incidents",

 "link":"https://
instance.service-now.com/api/now/v1/table/pa_indicators/fb007202
d7130100b96d45a3ce6103b4",
        "value":"fb007202d7130100b96d45a3ce6103b4"
      },
      "gap_formatted":"-6",
      "benchmarking":false,
      "frequency_label":"Daily",
      "changeperc_formatted":"0.0%",
      "direction_label":"Minimize",
      "precision":0,
      "breakdown": {
        "display_value":"Priority",

 "link":"https://
instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02
d7130100b96d45a3ce610399",
        "value":"0df47e02d7130100b96d45a3ce610399"
      },
      "personal_target":null,
      "description":"Number of incidents open based on resolved
 date is empty.",
      "value_color":"#ff8c00",

 "uuid":"fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45
a3ce610399:5f012106db5123003ee8f93baf9619bd",
      "frequency":10,
      "gap":-6.0,
      "value_unit":"76",
      "indicator_frequency":10,
      "value":76.0,
      "indicator_aggregate":1,
      "facts_table": {
        "name":"incident",
        "label":"Incidents"
      },
      "key":false,
      "indicator_frequency_label":"Daily",
      "direction":2,
      "element": {
        "display_value":"1 - Critical",

 "link":"https://
instance.service-now.com/api/now/v1/table/sys_choice/5f012106db5
123003ee8f93baf9619bd",
        "value":"5f012106db5123003ee8f93baf9619bd"
```


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```
      },
      "period_title":"Dec 12",
      "period":"Dec 12",
      "target_formatted":"70",
      "change":0.0,
      "gapperc_formatted":"-8.6%",

 "query":"opened_atONToday@javascript:gs.beginningOfToday()@java
script:gs.endOfToday()^ORopened_at<javascript:gs.beginningOfToda
y()^resolved_atISEMPTY^ORresolved_at>javascript:gs.endOfToday()^
state!=8^priority=1^EQ",
      "realtime_enabled":true,
      "changeperc":0.0,
      "target":70.0,
      "unit": {
        "display_value":"#",

 "link":"https://
instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320
100ba986f14ce6103ad",

 "type":"formatted","value":"17b365e2d7320100ba986f14ce6103ad"
      },
      "value_formatted":"76",
      "name":"Number of open incidents > Priority = 1 -
 Critical",
      "gapperc":-0.08571428571428572,
      "change_formatted":"0",
      "favorite":true,
      "personal_target_formatted":""
    }
  ]
}
```


Return the indicator broken down by location

The Performance Analytics API returns geolocation data when available.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=65
6d5662eb23310065deac6aa206fee7"
```

Response:


```
{
  "result": [
    {
      ...
      "element": {
        "display_value": "San Diego",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/cmn_locati
on/108752c8c611227501d4ab0e392ba97f",
        "value": "108752c8c611227501d4ab0e392ba97f",
        "longitude": -117.15726,
```


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```
        "latitude": 32.71533
      },
      ...
    }
    {
      ...
      "element": {
        "display_value": "Florida",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/cmn_locati
on/8e3e85f037d0200044e0bfc8bcbe5d14",
        "value": "8e3e85f037d0200044e0bfc8bcbe5d14",
        "longitude": -95.71289,
        "latitude": 37.09024
      },
      ...
    }
  ]
}
```

Return first- and second-level breakdown scores

You can apply two levels of breakdown by appending two breakdown sys_ids to the *sysparm_uuid* parameter. In this example, the data is broken down by priority to show priority 1 incidents, and by category to show database incidents.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://instance.service-now.com/api/now/v1/pa/scorecards?sysp
arm_uuid=fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45
a3ce610399:e590014020033100766597829 9a805f3:1f918835d7231100b96d
45a3ce6103fe:9e418d4020033100766597829 9a805c1"
```

Response:

```
{
  "result": [
    {
      "value_formatted": "",
      "indicator": {
        "display_value": "Number of open incidents",
        "link":
 "http://instance.service-now.com/api/now/v1/table/pa_indicato
rs/fb007202d7130100b96d45a3ce6103b4",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },
      "gapperc": null,
      "change": null,
      "value_color": "#000000",
      "direction": 2,
      "target_formatted": "",
      "frequency": 10,
      "changeperc_formatted": "",
      "direction_label": "Minimize",
      "period_title": null,
      "description": "Number of incidents open based on resolved
 date is empty.",
```

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```
      "name": "Number of open incidents / Priority / 1 -
 Critical / Category / Database",
      "value": null,
      "key": false,
      "gap_formatted": "",
      "element": {
        "display_value": "1 - Critical",
        "link":
 "http://instance.service-now.com/api/now/v1/table/sys_choice/e5
900140200331007665978299a805f3",
        "value": "e5900140200331007665978299a805f3"
      },
      "precision": 0,
      "element_level2": {
        "display_value": "Database",
        "link":
 "http://instance.service-now.com/api/now/v1/table/sys_choice/9e
418d4020033100766597829 9a805c1",
        "value": "9e418d4020033100766597829 9a805c1"
      },
      "breakdown": {
        "display_value": "Priority",
        "link":
 "http://instance.service-now.com/api/now/v1/table/pa_breakdow
ns/0df47e02d7130100b96d45a3ce610399",
        "value": "0df47e02d7130100b96d45a3ce610399"
      },
      "period": null,
      "favorite": false,
      "change_formatted": "",
      "unit": {
        "display_value": "#",
        "link":
 "http://instance.service-now.com/api/now/v1/table/pa_units/17b3
65e2d7320100ba986f14ce6103ad",
        "value": "17b365e2d7320100ba986f14ce6103ad"
      },
      "frequency_label": "Daily",
      "breakdown_level2": {
        "display_value": "Category",
        "link":
 "http://instance.service-now.com/api/now/v1/table/pa_breakdow
ns/1f918835d7231100b96d45a3ce6103fe",
        "value": "1f918835d7231100b96d45a3ce6103fe"
      },
      "target": null,
      "changeperc": null,
      "uuid":
 "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610
399:e5900140200331007665978299a805f3:1f918835d7231100b96d45a3ce6
103fe:9e418d4020033100766597829 9a805c1",
      "gapperc_formatted": "",
      "value_unit": "",
      "gap": null
    }
```


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```
  ]
}
```

Return scores across a range of dates for two levels of breakdown

You can request a list of individual scores for all available dates by setting the *sysparm_include_scores* parameter to true. To specify the date range of scores, also use the *sysparm_from* and *sysparm_to* parameters. In this example, the level 1 breakdown and element are Assignment Group: Software (sys_id `baec0752bf130100b96dac808c0739ed` and `8a4dde73c6112278017a6a4baf547aa7`). The level 2 breakdown and element are Priority: 1 - Critical (sys_id `0df47e02d7130100b96d45a3ce610399` and `e59001402003310076659782 99a805f3`). Only scores on and after 30 November 2018 are returned.

Command:

```
curl -v -u "resttest:resttest" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96d
ac808c0739ed:8a4dde73c6112278017a6a4baf547aa7:0df47e02d7130100b9
6d45a3ce610399:e59001402003310076659782 99a805f3&sysparm_include_
scores=true&sysparm_from=2018-11-30"
```

Response:

```
{
  "result": [
    { "indicator": {
        "display_value":"Number of open incidents",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_indicators/fb0072
02d7130100b96d45a3ce6103b4",
        "value":"fb007202d7130100b96d45a3ce6103b4"
      },
      "gap_formatted":"",
      "benchmarking":false,
      "frequency_label":"Daily",
      "scores": [
        { "end_at":"2018-12-04",
          "period":"Dec 04",
          "value_formatted":"2",
          "start_at":"2018-12-04",
          "value":2.0
        },
        ...

        { "end_at":"2018-11-30",
          "period":"Nov 30",
          "value_formatted":"0",
          "start_at":"2018-11-30",
          "value":0.0
        }
      ],
      "changeperc_formatted":"",
      "direction_label":"Minimize",
      "precision":0,
```

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```
      "breakdown": {                      //First-level
 breakdown
        "display_value":"Assignment Group",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_breakdowns/baec07
52bf130100b96dac808c0739ed",
        "value":"baec0752bf130100b96dac808c0739ed"
      },
      "personal_target":null,
      "description":"Number of incidents open based on resolved
 date is empty.",
      "value_color":"#455464",

 "uuid":"fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac
808c0739ed:8a4dde73c6112278017a6a4baf547aa7:0df47e02d7130100b96d
45a3ce610399:e59001402003310076659782 99a805f3",
      "frequency":10,
      "gap":null,
      "value_unit":"2",
      "indicator_frequency":10,
      "value":2.0,
      "indicator_aggregate":1,
      "key":false,
      "indicator_frequency_label":"Daily",
      "direction":2,
      "element": {                        //First-level
 breakdown element
        "display_value":"Software",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/8a4dd
e73c6112278017a6a4baf547aa7",
        "value":"8a4dde73c6112278017a6a4baf547aa7"
      },
      "period_title":"Dec 04",
      "period":"Dec 04",
      "target_formatted":"",
      "change":2.0,
      "gapperc_formatted":"",
      "realtime_enabled":false,
      "changeperc":null,
      "target":null,
      "unit":{
        "display_value":"#",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_units/17b365e2d73
20100ba986f14ce6103ad",
        "type":"formatted",
        "value":"17b365e2d7320100ba986f14ce6103ad"
      },
      "value_formatted":"2",               //Second-level
 breakdown and element
      "name":"Number of open incidents > Assignment Group =
 Software > Priority = e59001402003310076659782 99a805f3",
      "gapperc":null,
```


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```
      "change_formatted":"2",
      "favorite":false,
      "breakdown_level2": {
        "display_value":"Priority",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_breakdowns/0df47e
02d7130100b96d45a3ce610399",
        "value":"0df47e02d7130100b96d45a3ce610399"
      },
      "personal_target_formatted":""
    }
  ]
}
```

Return breakdown relations for a breakdown and element

To obtain the sys_id values for all breakdown relations associated with an indicator, use the *sysparm_include_available_breakdowns* parameter. In the *sysparm_uuid* parameter, include the sys_ids of the first-level breakdown and element whose relations you want to find. In this example, the *sysparm_uuid* parameter includes the sys_id for the Assignment Group breakdown and the sys_id for the Software element. The sys_id of the Assignment Group was obtained in the example where all breakdowns and aggregates were returned. The sys_id of the Software element was obtained in the previous example, where all the elements of Assignment Group were returned. The sys_id of the Assignment Group breakdown is `baec0752bf130100b96dac808c0739ed` and of the Software element is `8a4dde73c6112278017a6a4baf547aa7`. The breakdown relation is obtained for the Number of open incidents indicator, whose sys_id is `fb007202d7130100b96d45a3ce6103b4`.

Note:
To find the breakdown relations for incidents that do not match any element value in a breakdown, such as in Assignment Group: Unassigned, use the string `unmatched` in place of the element sys_id. In this case, the parameter would be `sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c07`

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96d
ac808c0739ed:8a4dde73c6112278017a6a4baf547aa7&sysparm_include_av
ailable_breakdowns=true"
```

Response:

```
{
  "result": [
    {
      "value_formatted": "37",
      "indicator": {
        "display_value": "Number of open incidents",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_indicat
ors/fb007202d7130100b96d45a3ce6103b4",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },
      "gapperc": null,
```

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```
      "change": 9.0,
      "value_color": "#455464",
      "direction": 2,
      "target_formatted": "",
      "frequency": 10,
      "changeperc_formatted": "32.1%",
      "direction_label": "Minimize",
      "period_title": "Jul 22",
      "description": "Number of incidents open based on resolved
 date is empty.",
      "name": "Number of open incidents / Assignment Group /
 Software",
      "value": 37.0,
      "key": false,
      "gap_formatted": "",
      "element": {
        "display_value": "Software",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/sys_user_g
roup/287ee6fea9fe198100ada7950d0b1b73",
        "value": "8a4dde73c6112278017a6a4baf547aa7"
      },
      "precision": 0,
      "breakdowns": [
        // Information about each breakdown

      ],
      "breakdown_relations": [
        {
          "display_value": "Child Groups",
          "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wn_relations/301fd511eb23310065deac6aa206fe31",
          "value": "301fd511eb23310065deac6aa206fe31"
        },
        {
          "display_value": "Parent Group",
          "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wn_relations/790b6e11eb23310065deac6aa206fe1c",
          "value": "790b6e11eb23310065deac6aa206fe1c"
        },
        {
          "display_value": "Sibling Groups",
          "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wn_relations/15e15a12eb233100871aac6aa206fe59",
          "value": "15e15a12eb233100871aac6aa206fe59"
        }
      ],
      "breakdown": {
        "display_value": "Assignment Group",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wns/baec0752bf130100b96dac808c0739ed",
        "value": "baec0752bf130100b96dac808c0739ed"
      },
```


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```
      "period": "Jul 22",
      "favorite": false,
      "change_formatted": "9",
      "unit": {
        "display_value": "#",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_units/1
7b365e2d7320100ba986f14ce6103ad",
        "value": "17b365e2d7320100ba986f14ce6103ad"
      },
      "frequency_label": "Daily",
      "target": null,
      "changeperc": 0.32142857142857145,
      "uuid":
 "fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c073
9ed:8a4dde73c6112278017a6a4baf547aa7",
      "gapperc_formatted": "",
      "value_unit": "6",
      "gap": null
    }
  ]
}
```


Return indicator using a breakdown relation

To use a breakdown relation, include the sys_id values of the indicator, breakdown, and element in the *sysparm_uuid* parameter, and the sys_id of the breakdown relation in the *sysparm_breakdown_relation* parameter. This example returns the Sibling Group values for Assignment Group: Software from the previous example.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96d
ac808c0739ed:8a4dde73c6112278017a6a4baf547aa7&sysparm_breakdown_
relation=15e15a12eb233100871aac6aa206fe59"
```

Response:


```
{
  "result": [
    {
      "indicator": {
      "gap_formatted":"",
      "benchmarking":false,
      "frequency_label":"Daily",
      "changeperc_formatted":"0.0%",
      "direction_label":"Minimize",
      "precision":0,
      "breakdown": {
        "display_value":"Assignment Group",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_breakdowns/baec07
52bf130100b96dac808c0739ed",
        "value":"baec0752bf130100b96dac808c0739ed"
      },
```


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```
      "personal_target":null,
      "description":"Number of incidents open based on resolved
 date is empty",
      "value_color":"#455464",

 "uuid":"fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac
808c0739ed:0a52d3dcd7011200f2d224837e6103f2",
      "frequency":10,
      "gap":null,
      "value_unit":"0",
      "indicator_frequency":10,
      "value":0.0,
      "indicator_aggregate":1,
      "facts_table": {
        "name":"incident",
        "label":"Incidents"
      },
      "key":false,
      "indicator_frequency_label":"Daily",
      "direction":2,
      "element": {
        "display_value":"Application Development",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/sys_user_group/0a52d
3dcd7011200f2d224837e6103f2",
        "value":"0a52d3dcd7011200f2d224837e6103f2"
      },
      "period_title":"Dec 03",
      "period":"Dec 03",
      "target_formatted":"",
      "change":0.0,
      "gapperc_formatted":"",

 "query":"opened_atONToday@javascript:gs.beginningOfToday()@java
script:gs.endOfToday()^ORopened_at<javascript:gs.beginningOfToda
y()^resolved_atISEMPTY^ORresolved_at>javascript:gs.endOfToday()^
state!=8^assignment_group=0a52d3dcd7011200f2d224837e6103f2^EQ",
      "realtime_enabled":true,
      "changeperc":0.0,
      "target":null,
      "unit": {
        "display_value":"#",

 "link":"https://
<instance>.service-now.com/api/now/v1/table/pa_units/17b365e2d73
20100ba986f14ce6103ad",
        "type":"formatted",
        "value":"17b365e2d7320100ba986f14ce6103ad"
      },
      "value_formatted":"0",
      "name":"Number of open incidents > Assignment Group =
 Application Development",
      "gapperc":null,
      "change_formatted":"0",
      "favorite":false,
      "personal_target_formatted":""
```


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```
    }
    // Followed by an indicator object with an element object
 for every element in the Sibling Group
  ]
}
```

Return a filtered set of elements for a breakdown

You can apply a filter to the Analytics Hub data using the **sysparm_elements_filter** parameter with the sys_id of a Performance Analytics element filter record.

Get the sys_id of the elements filter from the elements filter record, as described in .

In this example, the element filter applies to the Groups breakdown source, with the condition [[Parent][is][Database]]. The sys_id of this element filter is `7b9eb563eb11020065deac6aa206fe11`. The example gets the elements of the Assignment Group breakdown that have the element Database as a parent.

Command:

```
curl -v -u "user:password" -H "Accept:application/json"
 "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sy
sparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=ba
ec0752bf130100b96dac808c0739ed&sysparm_elements_filter=7b9eb563e
b11020065deac6aa206fe11"
```

Response:

```
{
  "result": [
    {
      "value_formatted": "37",
      "indicator": {
        "display_value": "Number of open incidents",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_indicat
ors/fb007202d7130100b96d45a3ce6103b4",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },
      "gapperc": null,
      "change": 9.0,
      "value_color": "#455464",
      "direction": 2,
      "target_formatted": "",
      "frequency": 10,
      "changeperc_formatted": "32.1%",
      "direction_label": "Minimize",
      "period_title": "Jul 22",
      "description": "Number of incidents open based on resolved
 date is empty.",
      "name": "Number of open incidents / Assignment Group /
 Database",
      "value": 37.0,
      "key": false,
      "gap_formatted": "",
      "element": {
        "display_value": "Database",
```

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```
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/sys_user_g
roup/287ee6fea9fe198100ada7950d0b1b73",
        "value": "287ee6fea9fe198100ada7950d0b1b73"
      },
      "precision": 0,
      "breakdown": {
        "display_value": "Assignment Group",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wns/baec0752bf130100b96dac808c0739ed",
        "value": "baec0752bf130100b96dac808c0739ed"
      },
      "period": "Jul 22",
      "favorite": false,
      "change_formatted": "9",
      "unit": {
        "display_value": "#",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_units/1
7b365e2d7320100ba986f14ce6103ad",
        "value": "17b365e2d7320100ba986f14ce6103ad"
      },
      "frequency_label": "Daily",
      "target": null,
      "changeperc": 0.32142857142857145,
      "uuid":
 "fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c073
9ed:287ee6fea9fe198100ada7950d0b1b73",
      "gapperc_formatted": "",
      "value_unit": "37",
      "gap": null
    },
    {
      "value_formatted": "20",
      "indicator": {
        "display_value": "Number of open incidents",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_indicat
ors/fb007202d7130100b96d45a3ce6103b4",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },
      // Database Atlanta
      "gapperc": null,
      "change": 4.0,
      "value_color": "#455464",
      "direction": 2,
      "target_formatted": "",
      "frequency": 10,
      "changeperc_formatted": "25.0%",
      "direction_label": "Minimize",
      "period_title": "Jul 22",
      "description": "Number of incidents open based on resolved
 date is empty.",
      "name": "Number of open incidents / Assignment Group /
 Database Atlanta",
      "value": 20.0,
```


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```
      "key": false,
      "gap_formatted": "",
      "element": {
        "display_value": "Database Atlanta",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/sys_user_g
roup/db53580b0a0a0a6501aa37c294a2ba6b",
        "value": "db53580b0a0a0a6501aa37c294a2ba6b"
      },
      "precision": 0,
      "breakdown": {
        "display_value": "Assignment Group",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_breakdo
wns/baec0752bf130100b96dac808c0739ed",
        "value": "baec0752bf130100b96dac808c0739ed"
      },
      "period": "Jul 22",
      "favorite": false,
      "change_formatted": "4",
      "unit": {
        "display_value": "#",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_units/1
7b365e2d7320100ba986f14ce6103ad",
        "value": "17b365e2d7320100ba986f14ce6103ad"
      },
      "frequency_label": "Daily",
      "target": null,
      "changeperc": 0.25,
      "uuid":
 "fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c073
9ed:db53580b0a0a0a6501aa37c294a2ba6b",
      "gapperc_formatted": "",
      "value_unit": "20",
      "gap": null
    },
    {
      "value_formatted": "19",
      "indicator": {
        "display_value": "Number of open incidents",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/pa_indicat
ors/fb007202d7130100b96d45a3ce6103b4",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },
      ...

      // Database San Diego
      "gapperc": null,
      "change": 0.0,
      "value_color": "#455464",
      "direction": 2,
      "target_formatted": "",
      "frequency": 10,
      "changeperc_formatted": "0.0%",
      "direction_label": "Minimize",
```


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```
      "period_title": "Jul 22",
      "description": "Number of incidents open based on resolved
 date is empty.",
      "name": "Number of open incidents / Assignment Group /
 Database San Diego",
      "value": 10.0,
      "key": false,
      "gap_formatted": "",
      "element": {
        "display_value": "Database San Diego",
        "link":
 "https://<instance>.service-now.com/api/now/v1/table/sys_user_g
roup/db53a9290a0a0a650091abebccf833c6",
        "value": "db53a9290a0a0a650091abebccf833c6"
      },
      "precision": 0,
      "breakdown": {
        "display_value": "Assignment Group",
        "link":
 "http://localhost:8080/api/now/v1/table/pa_breakdowns/baec0752b
f130100b96dac808c0739ed",
        "value": "baec0752bf130100b96dac808c0739ed"
      },
      "period": "Jul 22",
      "favorite": false,
      "change_formatted": "0",
      "unit": {
        "display_value": "#",
        "link":
 "http://<instance>.service-now.com/api/now/v1/table/pa_units/17
b365e2d7320100ba986f14ce6103ad",
        "value": "17b365e2d7320100ba986f14ce6103ad"
      },
      "frequency_label": "Daily",
      "target": null,
      "changeperc": 0.0,
      "uuid":
 "fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c073
9ed:db53a9290a0a0a650091abebccf833c6",
      "gapperc_formatted": "",
      "value_unit": "10",
      "gap": null
    }
  ]
}
```


Scripting in Performance Analytics

Performance Analytics provides several script objects for use in scripts and APIs for querying Performance Analytics data. The scripts serve as breakdown mappings or to calculate a value from an indicator.

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Tips on scripts

- In general, use scripts only to support indicators like Age with date processing, using the `score_start` and `score_end` variables.
- Limit unnecessary fields. Every time you include an extra dot-walked field, you add an extra join to the query.
- Try to replace manual breakdowns with database views for better performance.
- Try to use script includes for common functions. For more information, see Script includes.
- If the data is not structured in a way you need for reporting, try adding 'reporting fields' to the operational tables instead of creating scripts. For more information, see this Community post.
- If you are running a background script that queries the Performance Analytics scores or snapshots tables, you cannot access data about a scoped application unless you have an appropriate role for that application.

Warning:
Try not to use *`GlideRecords`* or *`GlideAggregates`* in Performance Analytics scripts or formula indicators. While sometimes you must use these operations to get what you want, they are expensive, potentially running hundreds of thousands of times. Be certain that no alternative exists before you use them.

Breakdown mapping and indicator scripts

A breakdown mapping script typically returns either a sys_id of a breakdown element or an integer to put the score in a bucket. Indicator scripts return a score calculated from one or more fields. The same script can serve both as a breakdown mapping script and as an indicator script.

Example: Breakdown script

For example, consider the provided Incident.Age.Days script, which uses the `opened_at` field from the incident table. This script serves as a breakdown mapping for the Age breakdown, which uses the Incident Age Ranges (Days) bucket group as the breakdown source.

```
var diff=function(x,y){return y.dateNumericValue() -
 x.dateNumericValue();};
var days=function(x,y){return diff(x,y)/(24*60*60*1000);};
days(current.opened_at, score_end);
```

In this example, `current.opened_at` gets the timestamp of when the currently evaluated record was opened. The `score_end` script variable comes from the data collector and is bound to the period being collected. For example, if a monthly indicator is being collected, the `score_end` is the end of the month. Here the timestamp of when the incident was opened is subtracted from the timestamp of the end of the collection period and the result is converted to days.

This example includes the `Incident.opened_at` field, which is specified in the **Fields** field for this script. You can use `score_start` and `score_end` without defining them in the **Fields** field.

Related topics

Create a breakdown mapping on a breakdown record

Server Scoped API List

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Create a script in Performance Analytics

To create a script, first select the facts table to which the script applies and explicitly select any fields.

Before you begin

Role required: admin, pa_admin. To access data for scoped applications in Performance Analytics tables, you also need the appropriate admin role for that application.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Scripts** and click **New**.
2. Give the script a descriptive **Name**.
3. Select the **Facts table** that the script applies to.
   Only indicators that use the same facts table can use this script.
4. Select the fact table **Fields**, if any, that will be used in the script.
   You select fields by their labels.
5. Write the script.
   The script must conform to the following relationships and restrictions:
   - You can include only the fields that are selected in this form and script variables. For more information, see the section about Performance Analytics variables.
   - When you use a field in the script, you use the column name. If necessary, look up the column name in the facts table.
   - When you use a field from a database view, you must include the prefix. For example, the incident_sla database view includes the task_sla table, with the prefix taskslatable. Task_sla includes the business_duration column. To use the business_duration field from the incident_sla database view, write it as *`taskslatable_business_duration`*. If you do not have access to the database view, ask your system administrator to find the prefix for you.

What to do next

After you create the script, create a breakdown mapping or indicator that uses the script. You can open a breakdown mapping or indicator form by clicking **New** in either the breakdown mapping or indicator tab. The breakdown mappings and indicators that use this script are listed in those tabs.

Performance Analytics variables

Several variables are available for use in Performance Analytics scripts and formula indicators.

You can use the following variables in Performance Analytics scripts and formulas.

- `score_start`: First second of the day of the first indicator score collection. For scripts, the time is calculated based on the difference between the time zone of the Run As user for the collection job and the database time zone, which is GMT. For formulas, the time is calculated based on the difference between the time zone of the user who executes the formula and GMT. A user executes a formula by viewing the formula indicator in a dashboard widget or on the Analytics Hub.
- `score_end`: Last second of the day of the last indicator score collection. The time is calculated the same way as for `score_start`.
- `pa`: A formula variable, not usable in scripts, that provides a set of Analytics Hub attributes and methods.

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In scripts, the score collection start and end variables are *GlideElementGlideObject* objects. You can obtain a *GlideDateTime* object from these variables by calling *getGlideObject()*, such as in this example: `gs.log("Score main = " + score_end.getGlideObject().getDayOfWeek());`

In formulas, the score collection start and end variables already are *GlideDateTime* objects. Therefore, you can use the variables directly without calling *getGlideObject()*, such as in this example: `gs.log("Score main = " + score_end.getDayOfWeek());`

The values of the start and end variables are bound to the period being collected. For example, if a monthly indicator is being collected, the `score_end` is the end of the month.

The `score_start` and `score_end` values are calculated based on the time zone of the relevant user. For Performance Analytics scripts, this is the Run As time zone for the collection job. For formulas, this is the time zone of the user who views the formula indicator in a dashboard widget or the Analytics Hub. Users in different time zones therefore may have different dates for `score_start` and `score_end` in a formula.

Related topics

Get analytics methods in formulas

Changes to score_start/end because of different user time zones

Using Performance Analytics with external data

Performance Analytics on external data sources enables you to perform detailed analysis on data that is not in your ServiceNow instance.

When you collect scores on external data, Performance Analytics stores scores and breakdown elements from the external data on your instance. The raw data being analyzed remains on the external data source and is not copied to your instance. This functionality enables you to analyze and share metrics without duplicating the underlying data.

Performance Analytics external data collection uses three types of configuration records:

- An external indicator which specifies the JDBC data source and SQL statement used to collect scores.
- An external breakdown which specifies the JDBC data source and SQL statement used to specify breakdown elements.
- An external indicator breakdown which defines the relationship between an external indicator, and breakdown, and the SQL statement used to collect scores for each breakdown element for that indicator.

Supported database formats for external data

Performance Analytics supports only the database formats that ServiceNow supports by default. If a customer adds a JDBC driver for an unsupported database format, Performance Analytics does not support that database format as an external data source.

Supported database formats

SQL Server Type	Port
MySQL	3306
Microsoft SQL Server	1433
Oracle	1521

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Related topics

JDBC type data source

Create an indicator for external data

Create an external indicator to define what data to evaluate and the SQL statement used to determine the indicator score.

Before you begin

Role required: pa_admin, pa_power_user, or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **External Indicators** and click **New**.
2. Give the indicator a descriptive **Name**.
3. In the **Frequency** field, specify the frequency of data points for the indicator, such as **Daily**, **Weekly**, or **Monthly**.
4. In the **Source** tab, select a **Data Source** to collect scores from.

   Only JDBC type data sources are supported by Performance Analytics. Refer to the data sources documentation for information on setting up data sources.

   Note:
   The SQL Statement and Import set table defined in the data source are not used by Performance Analytics.

5. Specify the **SQL Statement** to use to calculate the score value.
   The SQL statement must return an aggregate value with the alias *value*, and should filter data based on a date field.

   Important:
   The aggregate alias must be **value**.

   Example
   For a simple indicator, the SQL statement will be something like `SELECT count(*) AS value FROM... WHERE DATE(date_field) >= DATE(${start_at})`.

   For more complex indicators, you may also need a condition that DATE is earlier than the date that DATEADD returns. Here a monthly indicator with complex data has the SQL statement `SELECT count(*) AS value FROM... WHERE DATE(date_field) >= DATE(${start_at}) AND DATE(date_field) < DATEADD(month, 1, ${start_at})`.

6. If you prefer that the score of this indicator increases or decreases over time, select **Maximize** or **Minimize** in the **Direction** field.
   Analytical tools and graphic displays use this **Direction** with this indicator.

   Tip:
   Set a direction whenever you can. All key indicators should be set to Maximize or Minimize.

7. **Optional:** Under Indicator properties, specify any of these properties:

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Field	Description
Key	Identifies the indicator as a key indicator. Used only to filter the list of indicators in **Performance Analytics** > **Analytics Hub**. Not used in Platform Analytics experience.
Unit	The unit of measurement for the score, such as number, days, or percentages. (Optional) To collect scores in the system reference currency on a Price, Currency, or FX Currency field, select **Use reference currency**. For more information, see Indicator scores in reference currency. If you select % or a time period as the unit, consider excluding some types of time series from being applied to the indicator. For more information, see Exclude time series from an indicator. If you select Time as the unit, the time is given as Days, Hours, and Minutes. If the system property `glide.ui.duration.seconds.enabled` exists and is true, seconds are also displayed. In this case, seconds are also displayed for all-time fields on the instance and are included in exports to Microsoft Excel.
Precision	The number of digits behind the decimal separator. For more information, see Rounding and precision in indicators. This field isn't available when the unit is **Use reference currency**. In this case, the precision is inherited from the reference currency.
Number format	The abbreviations used for large numbers, thousands through quintillions. For more information, see Rounding and precision in indicators.

8. In the **Access control** tab, set whether to save this indicator to the library and whether to limit the visibility of the indicator by user, group, or role.
   Activating **Show in library** means that the indicator will be available in the following places:
   - The Platform Analytics indicator library
   - KPI Details
   - Analytics Hub, but only on upgraded instances that haven't fully migrated to Platform Analytics
9. **Optional:** In the **Other** tab, set various miscellaneous properties.

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'Other' tab fields

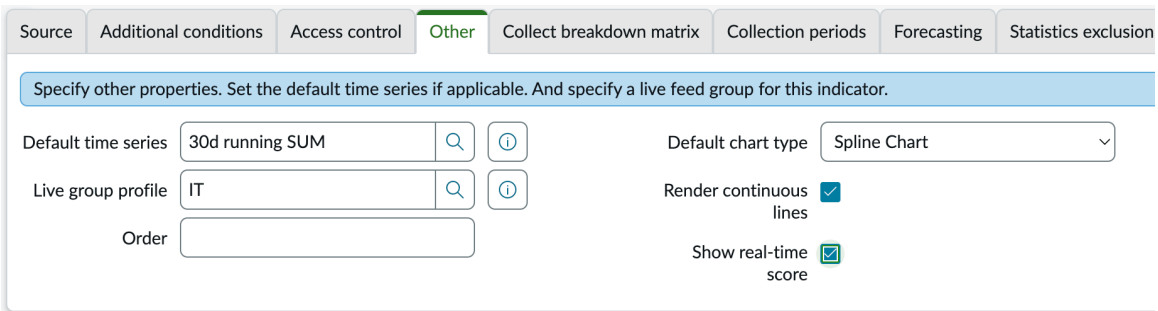
Field	Description
Default time series	(Optional) A predefined analytical function, like a 7-days running average, to apply to the indicator instead of showing the raw scores of the indicator. For more information, see Applying time series aggregations. **Note:** You can't set the default time series for an indicator that uses a business or fiscal calendar. These calendars do not support time series aggregations.
Live group profile	(Optional) Live Group Profile [live_group_profile] record for a Live Feed group. Specify a group profile to cause that group to get notifications about this indicator. For more information about this social application on the ServiceNow AI Platform, see Live Feed.
Order	(Optional) Number indicating the order in which indicators are displayed in the Analytics Hub. Indicators with the lowest value are displayed at the top of the list. If no values are provided in the **Order** field, indicators are displayed from a to z using the **Name** field. To use the order field, you must enter order numbers for all indicators. If you put in numbers for only a few indicators, the order in which indicators are displayed reverts to a to z. Not used in Platform Analytics experience.
Default chart type	(Optional) Set a default chart type (line, column, spline, or area) for this indicator. When opening the Analytics Hub or KPI Details for this indicator for the first time, the default chart type is used. If the chart type is changed in the Analytics Hub or KPI Details, that preference is remembered.
Render continuous lines	(Optional) When selected, the Analytics Hub and KPI Details show unbroken data lines for this indicator, even when there's no data for a specific date. This behavior may be

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Field	Description
	useful when displaying datasets with varied starting dates or for data that aren't regularly updated, such as stock information. Continuous lines aren't rendered when a time series is set on the indicator or the Analytics Hub or KPI Details.
Show real-time score	(Optional) When selected, the Analytics Hub and KPI Details can show the score of this indicator in real time, as well as the current state of associated records. Clear this check box when indicator data isn't available in real time, such as in an integration that uses data from a third-party source. For more information, see Real-time scores. Note: A condition must be set on the indicator or the associated indicator source for real-time scores to be displayed.

Example
For example, in the Other tab you can configure an indicator as follows:

- By default, it shows a 30-day running sum of scores in widgets. You can override this default in the Analytics Hub, KPI Details, dashboard widgets, or workspace data visualization.
- The IT Live Group is notified of changes to the indicator.
- The indicator is listed third in the Analytics Hub list of indicators. All other indicators also have their position specified. This setting does not affect the order of indicators on KPI Details.
- The default chart type is Spline on KPI Details.
- Data lines for the indicator are shown unbroken, even when data is missing.
- KPI Details can show the score of this indicator in real time.



10. **Optional:** In the **Forecasting** tab, set the forecast method, the number of data collection periods to forecast, the amount of historical data to base the forecast on, and the upper and lower limits of forecast values.
    For more information, see Performance Analytics scores forecasts.
11. Save the indicator.
12. Press **Test Collection**.
    This action tests the main query of the indicator.

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What to do next
If you want to collect breakdown scores for the indicator, define an external breakdown and associate it with the indicator.

Create a breakdown using external data

Create an external breakdown to define what elements are available to break down external indicator scores.

Before you begin
Role required: pa_admin, pa_power_user, or admin

About this task
By default an external breakdown can contain a maximum of 5000 elements. This limit is controlled by the property *com.snc.pa.dc.max_external_elements*.

External breakdown elements are stored on the pa_ext_elements tables.

Procedure

1. Navigate to **All** > **Performance Analytics** > **External Breakdowns**.
2. Click **New**.
3. Select a **Data Source** that contains the records you want to use as breakdown elements.

   Only JDBC type data sources are supported by Performance Analytics. Refer to the data sources documentation for information on setting up data sources.

   Note:
   The SQL Statement and Import set table defined in the data source are not used by Performance Analytics.

4. Specify a **SQL Statement** to select the breakdown elements.
   The SQL Statement must return the unique key for each breakdown element with the alias *id* and the element display name with the alias *name*,such as `SELECT guid AS id, user_name AS name FROM...`.

   Important:
   The unique key alias must be **id** and the display name alias must be **name**.

5. Save the breakdown.
6. Press **Test Collection**.
   This action tests the query that selects the breakdown elements.

What to do next
After defining how to collect breakdown elements, associate the external breakdown with one or more external indicators.

Configure an external indicator to use an external breakdown

Associate an external indicator and external breakdown to define how to collect breakdown scores for the indicator.

Before you begin
Role required: pa_admin, pa_power_user, or admin

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Procedure

1. Navigate to **All** > **Performance Analytics** > **External Indicators**.
2. Select an indicator.
3. In the **Breakdowns** related list, click **New**.
4. Select the external **Breakdown** to apply to this indicator.
5. In the **SQL statement** field, enter a SQL statement that calculates the score value for each breakdown element.
   The SQL statement should use the same aggregate function as the indicator SQL statement, such as COUNT. The SQL statement must return the aggregate value with the alias *value* and the breakdown element unique key with the alias **id**. The SQL statement must also group the data by the column that contains the breakdown element values.

   For example, `SELECT count(*) AS value, guid as id FROM... WHERE DATE(date_field) >= DATE({$start_at}) GROUP BY guid`

   Important:
   The aggregate alias must be **value** and the breakdown unique key alias must be **id**.
6. Save your changes.
7. Press **Test Collection**.
   This action tests the SQL statement that calculates the score value for the breakdown element.

What to do next

Repeat the previous steps to add additional breakdowns to the indicator. Test the SQL statement after adding each one.

Test external indicators and breakdowns

Test your external indicators and breakdowns to ensure you can connect to the external data source and collect the data you expect.

Before you begin

Role required: pa_admin, pa_power_user, or admin

About this task

Test an indicator to test the query for that indicator and the queries for all breakdown elements. Test a breakdown to test the query used to determine available breakdown elements.

No scores or breakdown elements are saved when you test an indicator or breakdown.

Procedure

1. Navigate to **All** > **Performance Analytics** > **External Indicators** or **Performance Analytics** > **External Breakdowns**.
2. Select the indicator or breakdown that you want to test.
3. Click the **Test** button.
   If the query runs successfully, the number of scores or breakdown elements that would be collected appears. If an error occurs during testing, the error message appears.

What to do next

After confirming that all queries run successfully and return the data you expect, add the external indicator to a data collection job to begin collecting scores.

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Filtering external data by date

When using Performance Analytics with external data you must filter SQL statements that collect scores by date.

In indicator and indicator breakdown SQL statements, filter the query by date, such as `WHERE DATE(my_date_field) >= DATE(${start_at})`. It is not necessary to filter breakdown SQL statements by date as breakdown SQL statements collect only elements and not scores.

The variable ${start_at} contains the date of the period being collected in the format YYYYMMDD. For daily indicators this value is always the date being collected. For indicators with longer collection frequencies, such as weekly or monthly, the date is the first day of the collection period. The date that the data collection job runs on does not affect this variable.

When you test an indicator or breakdown, the ${start_at} variable is always set to the current date.

Limitations when using Performance Analytics with external data

Certain Performance Analytics functionality is not available when you measure external data.

- You cannot collect snapshots
- You cannot view real-time scores
- You cannot apply 2nd-level breakdowns
- You cannot use widget visualizations that depend on 2nd-level breakdowns with external data. This includes pivot and heatmap visualizations.
- Because snapshots are not available, you cannot view changes in collected records

Cleaning collected Performance Analytics data

Performance Analytics scores and snapshots may grow over time and should be routinely cleaned to ensure optimal performance and accurate data.

Performance Analytics uses a scheduled job to remove old scores and snapshots.

The Clean PA collections scheduled job is active by default and has no impact on performance. By default, the job runs daily so it only has to delete a small amount of data.

Note:
The dictionary attributes nibble_size and nibble_sleep affect the behavior of the collection cleaner job if the attributes are defined for one of the Score (pa_scores, pa_scores_l1, pa_scores_l2) tables or the Snapshot (pa_snapshots) table. For more information, see Altering tables and fields using dictionary attributes.

Related topics

Altering tables and fields using dictionary attributes

KB0720725: Clearing Performance Analytics Score data

Modify the Clean PA collections job

Modify the scheduled job to configure when Performance Analytics scores and snapshots are cleaned. The scheduled cleanup job should not run while a data collection job is running.

Before you begin
Role required: pa_admin or admin

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About this task

By default, the Clean PA collections job runs at 05:00 which is appropriate when using the default data collection jobs. If you create additional data collection jobs, you may need to change the start time of the Clean PA collections job.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Automation** > **Schedules**.
2. Select the **Clean PA collections** job.
3. Make any necessary changes.
   For example, change the **Run time** field value to change when the job runs.
4. Click **Update**.

Related topics

Scheduled jobs

KB0721309: Configuring the Performance Analytics Table Cleaner

Migrating indicator scores

The Performance Analytics Scores [pa_scores] table was split into two tables. This structure helps with processing large numbers of scores. You can migrate your scores from the old table structure to the new, using the score migration tool.

Warning:
The new table structure is not supported on Oracle databases.

In Istanbul, the Scores [pa_scores] table was split into Scores Level 1 [pa_scores_l1] and Scores Level 2 [pa_scores_l2]. The pa_scores_l2 table contains the second-level breakdown matrix of scores and the pa_scores_l1 table contains all other scores. This separation of scores ensures optimal performance when collecting and analyzing scores, and enables larger sets of scores. New instances created on the Istanbul release or later use the new scores tables by default.

Instances created prior to Istanbul still use the original Scores [pa_scores] table after upgrading.

Important:
For full details on migrating Performance Analytics scores to the new table structure, see KB1294371.

Migration Monitor

After beginning the migration, you can track the migration status by navigating to **Performance Analytics** > **Scores Migration Monitor.**

If any errors occur during migration, contact Customer Service and Support to resolve the issue.

Delays in starting score migration

If any of the following processes are running, score migration remains in the Waiting state until they stop:

- Data collector jobs
- Collection cleaner jobs
- Scoresheet editing

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Schedule the Performance Analytics scores migration

Schedule the automated migration process to move existing scores to the new table structure.

Before you begin

Role required: admin. Users with the pa_admin role can view the migration monitor page but cannot schedule the migration.

About this task

Migrating scores improves performance and scalability of Performance Analytics. Migration should be performed during off-peak hours.

During migration you cannot collect, modify, or delete scores. Scheduled data collection jobs do not run during migration. After migration completes, check any data collection jobs that were scheduled to run during the migration, as these jobs were suspended.

Note:

- The scores migration can take several hours to complete, depending on the number of scores. Schedule the migration in a non-production instance and then carefully plan the migration in production.
- The original Scores [pa_scores] table is truncated 10 days after successful migration.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Scores Migration Monitor**.
2. Click the **Schedule Scores Migration** button.
   The scores migration is scheduled. The page displays the time that the migration is scheduled to start, and the estimated completion time.
3. **Optional:** Click the **Logs** or **Active Jobs** links to view additional information about the migration.
   If there are any data collection or cleanup jobs running when you start the migration, the migration waits for those jobs to complete before beginning. All scheduled collection and cleanup jobs are paused during the migration.

What to do next

If the migration fails for any reason, contact Customer Service and Support for assistance. Existing scores remain in place.

(Legacy) Quickly configure Performance Analytics for a task table

The configuration generator enables you to quickly configure Performance Analytics to display data from any task table.

Note:
The configuration generator is a legacy feature. Performance Analytics Solutions are content packs of Performance Analytics components including dashboards. These Performance Analytics Solutions have been greatly expanded over the last few releases. The separate configuration generator has lost most of its value. For custom applications, it makes more sense to find and to install a closely related Performance Analytics Solution and modify it as needed. For more information, see Analytics solutions.

You can specify a Task-based table to report on, and the configuration generator automatically creates indicators, breakdowns, formulas, data collection jobs, and dashboards. This configuration provides the same elements as the Performance Analytics incident solution, but for any Task table. When using domain separation, all records are created in the domain of the current user.

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Note:
You can use the configuration generator only with tables that extend Task. You may need to tweak the configuration before you start using the files that are created by the generator.

You can access the configuration generator by navigating to **Performance Analytics** > **Configuration Generator**.

After generating a configuration for the selected table, you can view the created records using the **Go to the configuration record**, **Generated Indicators**, and **Generated Jobs** related links. You can modify the generated records as needed using standard Performance Analytics configuration options.

Activate the Performance Analytics configuration generator

As an administrator, you can enable the Performance Analytics configuration generator plugin (com.snc.pa.configurationgenerator).

Before you begin
Role required: admin
Before starting this procedure, you must have a subscription to Performance Analytics.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the plugin using the filter criteria and search bar.

   You can search for the plugin by its name or ID. If you cannot find a plugin, you might have to request it from ServiceNow personnel.
3. Select **Install** to start the installation process.

   Note:
   When domain separation and delegated admin are enabled in an instance, the administrative user must be in the **global** domain. Otherwise, the following error appears: `Application installation is unavailable because another operation is running: Plugin Activation for <plugin name>.`

   You will see a message after installation is completed. For information about the components installed with a plugin, see Find components installed with an application.

Performance Analytics reference

Reference topics provide information about roles and properties, and include a glossary of terms.

Performance Analytics roles

Assign roles to ensure that users can perform all necessary actions.

Roles and personas

Warning:
Giving someone the pa_admin or pa_data_collector role is equivalent to giving them admin, from a security perspective.

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Role	Authorizations	Typical persona
No role	• View Performance Analytics visuals on the Service Portal. • View dashboards that have been shared with this user. Some dashboards require a subject matter related role for viewing, such as sn_hr_core_basic for the HR Agent dashboard. Dashboard owners and administrators can also restrict dashboard access by role. For more information, see Dashboard permissions.	Requester who does not need any access to Performance Analytics beyond certain visualizations of results
Any role (not necessarily a Performance Analytics role)	• Create dashboards. • Restrict access by role to a dashboard they create. • Share dashboards they own.	
pa_viewer Contained by: All roles except pa_contributor	Before Quebec, this role was necessary for the following actions. It may still be necessary on upgraded instances. • View Analytics Hub . • Create personal thresholds and targets for indicators. • Read, Update, and Delete thresholds and targets that they created. • View text analytics widgets on dashboards.	Requester who needs and understands the details of key performance indicators
sn_pa_diagnostics.pa_diagnostic Contained by: pa_admin	• Read from the Diagnostics tables. • Activate or deactivate a diagnostic. • Run diagnostics. • Delete message records and diagnostic logs.	No specific persona, but this role would typically be assigned to individual business analysts or groups of fulfillers.
pa_contributor Contained by: pa_power_user, pa_admin	For indicators for which the user is designated as a **Contributor**:	No specific persona, but this role would typically be assigned to individual fulfillers

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Role	Authorizations	Typical persona
	• Read and update scores in scoresheets. • View the Analytics Hub. This user can also read dashboards that have been shared with them.	or groups, who are allowed to set indicator scores manually
pa_kpi_signal_admin Contained by: admin	Enables the user to dismiss a signal or reset the baseline for KPI Signals.	Process owner who also has some training in Performance Analytics. Also needs the pa_viewer role.
pa_target_admin Contained by: pa_power_user, pa_admin	• Create targets. • Read, update, and delete all targets, including those that they do not own. • Assign targets to indicators.	Manager who knows what targets to set but may not have any further input to Performance Analytics
pa_threshold_admin Contained by: pa_power_user, pa_admin	• Create global thresholds. • Read, update, and delete all thresholds, including those that they do not own. • Assign thresholds to indicators.	Manager who knows what thresholds to set but may not have any further input to Performance Analytics
pa_analyst Contained by: pa_power_user, pa_admin	• CRUD text analytics keywords, phrases, and stop words • Read indicator sources.	No specific persona, but this role would be assigned to individual fulfillers or groups whose expertise includes keywords, phrases, and stop words for word clouds.
pa_power_user Contained by: pa_admin The pa_power_user role contains the viz_admin, pa_viewer, pa_contributor, pa_target_admin, pa_analyst, and pa_threshold_admin roles.	• CRUD indicators and breakdowns. • CRUD widgets • Add Performance Analytics widgets to dashboards. • CRUD text index configurations for text analytics. • CRUD bucket groups. • CRUD indicator groups	Business analyst and visualization designer. Understands the use cases for Performance Analytics and the requirements for indicators and breakdowns.

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Role	Authorizations	Typical persona
pa_data_collector Contained by: pa_admin	• CRUD, schedule, and run data collection jobs • CRUD indicator and breakdown sources • Read some system properties • CRUD system units • CRUD scripts and automated notifications • CRUD bucket groups • Activate or deactivate data snapshots	Technical expert who understands the underlying database record structure of Performance Analytics
pa_admin The pa_admin role contains the pa_power_user, sn_pa_diagnostics.pa_diagnostic, viz_admin, and pa_data_collector roles.	• Read Performance Analytics properties. • Access Admin Console • Launch Dependency Assessment	Performance Analytics technical expert who also understands business needs.
admin	The system administrator role. Users with the admin role can perform all pa_admin functions, edit properties, create database views, CRUD any dashboard, and assign ownership to dashboards.	System administrator

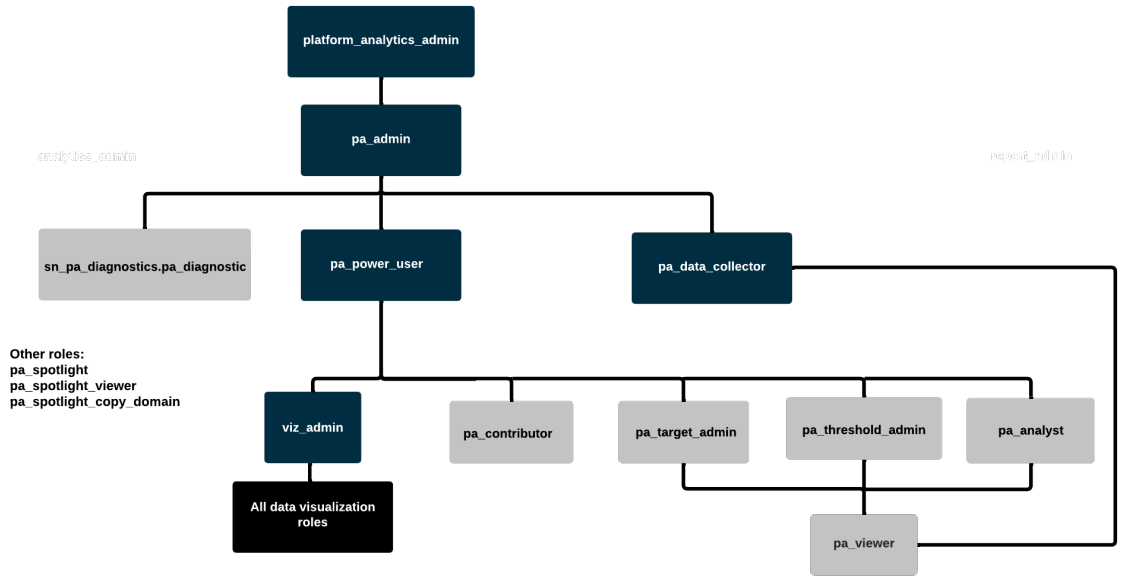
Spotlight roles

Role	Authorization	Typical persona
pa_spotlight Contains: pa_viewer, pa_spotlight_copy_breakdown	CRUD Spotlight groups and criteria.	Expert who understands the business logic of what records require reminders.
pa_spotlight_viewer	Access to the dashboards from the Analytics and Reporting Spotlight Solutions.	Fulfiller who needs more than simple Priority setting to remind them of records that require action.
pa_spotlight_copy_breakdown	Can copy Spotlight groups to multiple elements of a breakdown.	Spotlight expert or business analyst who understands the applicability of a Spotlight group by breakdown element.
pa_spotlight_copy_domain	Can copy Spotlight groups to multiple domains	Domain administrator with Performance Analytics expertise

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Role hierarchy

Certain roles such as pa_power_user and pa_admin include other roles. For example, pa_power_user includes pa_contributor. This diagram shows the role hierarchy.



Required roles for actions

Module	Action	Minimal required role
Admin Console	Access	pa_admin
Analytics Hub (Scorecards)	View	None, since Quebec. However, upgraded instances may still require pa_viewer.
Automated indicators	CRUD	pa_power_user
Automation schedules	Read and delete (other security restrictions likely apply)	pa_data_collector
Automation scripts	CRUD	pa_data_collector
Breakdowns and elements, including breakdown relations	CRUD	pa_data_collector or pa_power_user
Bucket groups	CRUD	pa_data_collector or pa_power_user
Color schemes for charts and targets	CRUD	pa_power_user
Dashboards (Responsive or Platform Analytics)	Create a dashboard. Update a dashboard they created, including restricting access by role.	Any roles necessary to access the data to display, or any one role
Data snapshots	Activate or deactivate	pa_data_collector

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Module	Action	Minimal required role
Responsive dashboards	Add Performance Analytics widgets to responsive dashboards you own.	pa_power_user
Dashboards (Responsive or Platform Analytics)	Read a dashboard that has been shared with you	No role by default, but dashboards can require roles to view their data. For more information, see Dashboard permissions.
Dashboards (Responsive or Platform Analytics)	Update, delete, or share a dashboard that you own.	pa_power_user
Dashboards (Responsive or Platform Analytics)	Update, delete, or share any dashboard. Reassign ownership of any dashboard.	admin (and dashboard role dashboard_admin)
Data collector jobs	Read, write, execute	pa_data_collector
Dependency assessment	Launch dependency assessment from indicator or breakdown form	pa_admin
External indicators and breakdowns	CRUD	pa_data_collector or pa_power_user
Formula and manual indicators	CRUD	pa_power_user
Indicator Groups	CRUD	pa_power_user
Sources, either indicator or breakdown	CRUD	pa_data_collector
Indicator targets	Read and edit targets that you do not own	pa_target_administrator
Indicator targets or thresholds	Create new. Read or edit ones you own.	None, since Quebec. However, upgraded instances may still require pa_viewer.
Indicator thresholds	Read and edit thresholds that you do not own	pa_threshold_administrator
In-form analytics	CRUD	pa_power_user
KPI Signals	Reset baseline or dismiss signal	pa_kpi_signal_admin
Lists in all applications	Access an interactive analysis	No role by default, but some interactive analyses require roles to view their tables
Manage diagnostics	Read, execute, delete	sn_pa_diagnostics.pa_diagnostic
Scheduled email summary jobs	CRUD	pa_power_user
Scoresheets	CRUD	pa_power_user

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Module	Action	Minimal required role
Service Portal	View Performance Analytics visuals	No role
System Properties	Edit	admin
System Properties	Read	pa_data_collector for some, pa_admin for all
System Units	CRUD	pa_data_collector
Text Analytics	Set up text index configurations	pa_power_user
Text Analytics	View a text widget on a dashboard	None, since Quebec. However, upgraded instances may still require pa_viewer.
Text analytics keywords, phrases, or stop words	CRUD	pa_analyst
What's on the Move News Rules and Statistics Generators	Read, edit	pa_power_user
Visualizations that contain indicator information	CRUD	pa_power_user

Related topics

Dashboard permissions

Administering reports

Performance Analytics properties

These system properties control the behavior of Performance Analytics.

To configure properties, navigate to **Performance Analytics** > **System** > **Properties** or to `sys_properties_list.do`.

Note:
Only the properties on the Performance Analytics Properties page are described here. The `sys_properties.list` page contains other properties that affect Performance Analytics. For more information, see Available system properties.

Collection cleanup Performance Analytics properties

Several properties determine how long Performance Analytics scores and snapshots are maintained before the scheduled cleanup job deletes them.

Property	Description
com.snc.pa.dc.keep_scores_for.frequency	Maximum number of periods prior to today for which scores are collected and kept. The number of periods varies according to the score collection frequency, as follows: daily; weekly; bi-weekly; four weeks; monthly; bi-monthly; quarterly; fiscal quarterly; half-yearly; yearly; fiscal yearly

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Property	Description
	Scores older than this limit are not collected during data collection. **Note:** This property can be overridden on individual indicators. • Type: String • Default value: 732;105;53;40;60;30;20;20;20;10;10 • Location: **Performance Analytics** > **System** > **Properties**
com.snc.pa.dc.keep_snapshots_for.frequency	Maximum number of periods prior to today for which lists of records (snapshots) related to a score are collected and kept. The number of periods varies according to the score collection frequency, as follows: daily; weekly; bi-weekly; four weeks; monthly; bi-monthly; quarterly; fiscal quarterly; half-yearly; yearly; fiscal yearly. Snapshots older than this limit are not collected during data collection. **Note:** This property can be overridden on individual indicators. • Type: String • Default value: 183;26;13;10;15;8;5;5;5;3;3 • Location: **Performance Analytics** > **System** > **Properties**

Fiscal year Performance Analytics properties

These properties set the year in Performance Analytics to match your company fiscal year.

Property	Description
com.snc.pa.fy_start	Start of the fiscal year of your company Range: 1 (January) - 12 (December) Default: 1

Default color scheme Performance Analytics properties

These properties set the default colors for the chart overall and for indicator targets.

Property	Description
com.snc.pa.indicator_target_default_color_schema	Default indicator target color scheme

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Property	Description
	Default: 3 color traffic light
com.snc.pa.chart_default_color_schema	Default visualization color scheme Default: Default UI14

Breakdown and indicator Performance Analytics properties

These properties set limits on breakdown elements and indicators, mostly in the context of visualizations.

Property	Description
com.snc.pa.scoresheet.max_elements	Maximum number of breakdown elements of a breakdown that can be shown in a scoresheet Default: 500
com.snc.pa.breakdown_element_cutoff	Maximum number of elements that a breakdown can have where the Analytics Hub and KPI Details show its scoreless elements. An element is scoreless when it meets one of these conditions: • For real-time scores, the element has never had a score. • For a formula indicator, the element has never had a score in one or more of the contributing indicators. • For the collected scores of an automated indicator, the element has never had a score. However, if the number of elements that would still be displayed exceeds the *com.snc.pa.breakdown_element_cutoff* value, only the elements that have a score or change value on the selected date are displayed. For more information and examples, see Collected scores and com.snc.pa.breakdown_element_cutoff. **Note:** This parameter does not affect whether unmatched elements are shown. Default: 50
com.snc.pa.scorecards.max_breakdown_elements	Maximum number of breakdown elements in Analytics Hub lists

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Property	Description
	Default: 1000 Maximum: 10,000. Any value set above 10,000 is treated as 10,000. **Tip:** If this value is not high enough for your indicators, consider redesigning your Performance Analytics solution.
com.snc.pa.scorecard.breakdown.chart.max_rows	Number of breakdown elements in visualizations Default: 10
com.snc.pa.thresholds.frequency_intervals_in_the_past_limit	Maximum number of frequency intervals in the past that a threshold check job analyzes Default: 2
com.snc.pa.scorecard.max_record_num	Number of records to be loaded automatically on the records tab of the Analytics Hub for a single indicator. If the number of records exceeds the value of this property, records are not automatically loaded. In this case, the user is presented with a message and a button to load all records. Default: 50,000
com.snc.pa.breakdown_element_ui_max_records	Deprecated in Analytics Hub. Limit for the number of elements to be fetched for a breakdown. Used for the lookup fields (breakdown dashboard, old detailed scorecard, and so on.) Default: 100
com.snc.pa.target_batch_operation_limit	Applies only to KPI Details: The maximum number of targets that can be inserted or updated in one bulk action on the Targets Configuration page. If you face timeouts while inserting or updating targets in bulk, consider reducing this limit. Default: 100
com.snc.pa.widget.max_widget_indicators	Maximum number of widget indicators, in addition to the main indicator that can be added to a widget Default: 7
com.snc.pa.widgets.respect_acl	Restrict widget visibility following the ACLs of indicators and breakdowns. True|false.

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Property	Description
	• Default on new instances: true • Default on upgraded instances from before Quebec: false

Chart properties for Performance Analytics

A chart refers here to a graphical component of a Performance Analytics widget or the Analytics Hub. These properties apply only to the Core UI, not visualizations in configurable workspaces.

Property	Description
com.snc.pa.default_chart_line_color	Color of the scores in the Analytics Hub and widgets, including the trend line and bullet chart. • Format: RGBA • Default: 106,183,239,1
com.snc.pa.text.trendline_points_for.frequency	Maximum number of points visible in the text analytics trend-line Default: 30
com.snc.pa.default_chart_target_color	Color of the target in a graph. • Format: Hexadecimal • Default: #506163
com.snc.pa.default_chart_personal_target_color	The line color for personal targets displayed on the Analytics Hub for a single indicator. • Type: string • Default value: #879394
com.snc.pa.default_chart_threshold_color	Color of the threshold in a chart. • Format: Hexadecimal • Default: #506163
com.snc.pa.default_chart_personal_threshold_color	The line color for personal thresholds displayed on the Analytics Hub for a single indicator. • Type: string • Default value: #879394
com.snc.pa.default_chart_area_color0	Color of the first gradient area in a chart. • Format: RGBA • Default: 106,183,239,1

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Property	Description
com.snc.pa.default_chart_area_color1	Color of the second gradient area in a chart. • Format: RGBA • Default: 106,183,239,0
com.snc.pa.navigator_line_color	Color of the Line in the chart navigator. • Format: RGBA. • **Default:**106,183,239,1
com.snc.pa.navigator_area_color0	Color of the first gradient area in the chart navigator. • Format: RGBA. • Default: 204,204,204,0.25
com.snc.pa.navigator_area_color1	Color of the second gradient area in the chart navigator. • Format: RGBA. • Default: 204,204,204,0.5
com.snc.pa.navigator_mask_fill_color	Deprecated in the Analytics Hub. Mask fill color of the chart navigator. • Format: RGBA. • Default: 106,183,239,0.25
com.snc.pa.spark_line_width	Pixel width of the chart line. Used only on the workbench widget. Default: 1
com.snc.pa.scorecard.breakdown.chart.name_max_length	Maximum number of element names on the legend in a breakdown widget. Default: 27

Data collector Performance Analytics properties

Data collector properties enable you to configure various limits for Performance Analytics data collection. The properties are configured to safeguard the data collection process. The default values are appropriate for most environments.

Note:
Try not to increase these values beyond what is necessary. Depending on your implementation, increases in these values may impact performance. If possible, consult a domain expert or implementation partner, who may be able to find an alternative solution to increasing the property value.

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Property	Description
com.snc.pa.dc.script_timeout	The maximum time in seconds that a script is allowed to run during a data collection cycle, such as an indicator source script or a breakdown script. This limit applies individually for each record processed by the data collection job. If a script exceeds this limit, the data collection job skips the current record. If your scripts frequently reach the default limit, simplify the scripts as much as possible before modifying this property. • Type: integer • Default value: 30
com.snc.pa.dc.query_time_limit	The maximum duration in minutes that a single query for a data collection job can run before a warning is logged. • Type: integer • Default value: 60
com.snc.pa.dc.max_row_count_indicator_source	The maximum number of records that a job can collect from a single indicator source. **Important:** This property applies only to jobs that do not use optimized data collection. If optimized data collection is enabled, which is the default condition, see the property *com.snc.pa.dc.hsql.max_row_count_indicat* This limit applies separately to each indicator source included in a data collection job. The number of indicators associated with each indicator source does not affect this limit. For example, if a data collection job collects scores for 12 indicators from three indicator sources, the job can collect a maximum of 150,000 records by default: 50,000 from each indicator source.

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Property	Description
	Warning: • If the number of records that an indicator source contains is higher than the value of this property, no indicators are collected for this indicator source. • This property can be overridden on individual indicator sources. In this case, the individual indicator source might not be collected even though the row count is lower than the value of *com.snc.pa.dc.max_row_count_indicator_s* • Type: integer • Default value: 50,000
com.snc.pa.dc.hsql.max_row_count_indicator_source	The maximum number of records that a job can collect from a single indicator source. **Important:** This property applies only to jobs that use optimized data collection. Otherwise, *com.snc.pa.dc.max_row_count_indicator_so* applies. For more information, see Optimizing data collection. This limit applies separately to each indicator source included in a data collection job. The number of indicators associated with each indicator source does not affect this limit. For example, if a data collection job collects scores for 12 indicators from three indicator sources, the job can collect a maximum of 3 million records by default: 1 million from each indicator source. On upgrade to a later version than San Diego, the optimized data collector becomes enabled. This property then overrides *com.snc.pa.dc.max_row_count_indicator_sourc* The value of the new property is set to the default 1 million, unless the value of *com.snc.pa.dc.max_row_count_indicator_sourc* was more than 1 million. In the latter case, the original property value is retained.

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Property	Description
	Warning: • If the number of records that an indicator source contains is higher than the value of this property, no indicators are collected for this indicator source. • This property can be overridden on individual indicator sources. In this case, the individual indicator source might not be collected even though the row count is lower than the value of *com.snc.pa.dc.hsql.max_row_count_indica* • Type: integer • Default value: 1,000,000
com.snc.pa.dc.max_breakdown_elements_limit	Maximum number of breakdown elements retrieved by data collection for each breakdown source. If the number of elements on a breakdown source exceeds this limit, the data collector does not collect scores from that breakdown source. **Important:** This property applies only to jobs that do not use optimized data collection. For optimized data collection, see the property *com.snc.pa.dc.hsql.max_breakdown_element* Also see Optimizing data collection. This limit applies separately to each breakdown source included in a data collection job. The number of breakdowns associated with each breakdown source does not affect this limit. For example, if a data collection job collects scores for 12 breakdowns from three breakdown sources, the job can collect a maximum of 30,000 records by default: 10,000 from each breakdown source. **Warning:** Increasing this limit increases the processing load on the node. This property is handled differently depending on whether nested collection is enabled: If nested collection is enabled, only elements with non-null scores count against this limit.

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Property	Description
	The count is taken as the data collection job runs. When the number of elements with scores reaches this limit, the breakdown source is disabled and the scores cleared from memory. When nested collection is not enabled, all elements of a breakdown source are counted against the limit. The count is taken before any scores are collected. Consider a case where the default limit of 10,000 elements is applied to a breakdown source with 1 million elements of which 5,000 have scores. Under nested collection, the job collects the scores for those 5,000 elements. With nested collection turned off, the job does not collect any scores for this breakdown source. • Type: integer • Default value: 10,000
com.snc.pa.dc.hsql.max_breakdown_elements_limit	Maximum number of breakdown elements retrieved by data collection for each breakdown source. If the number of elements on a breakdown source exceeds this limit, the data collector does not collect scores from that breakdown source. **Important:** This property applies only to jobs that use optimized data collection. Otherwise, *com.snc.pa.dc.max_breakdown_elements_lim* applies. For more information, see Optimizing data collection. This limit applies separately to each breakdown source included in a data collection job. The number of breakdowns associated with each breakdown source does not affect this limit. By default, no limit is set on the number of breakdown elements. If you experience performance issues on jobs with breakdown sources with large numbers of elements, consider setting a limit in consultation with Customer Service and Support. On upgrade to a later version than San Diego, optimized data collection is activated. This property then overrides *com.snc.pa.dc.max_breakdown_elements_limit*.

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Property	Description
	• Type: integer • Default value: -1
com.snc.pa.dc.max_breakdown_elements_level2_limit	Maximum number of breakdown elements allowed in a matrix of two breakdowns. If this limit is exceeded, the breakdown elements in the matrix are not collected. **Important:** This property applies only to jobs that do not use optimized data collection. For optimized data collection, see the property *com.snc.pa.dc.hsql.max_breakdown_element* Also see Optimizing data collection. For example, with the default limit of 1 million elements, a first-level breakdown with 10,000 elements, and a second-level breakdown with 500, the resulting matrix of 5 million elements is not collected. If the first-level breakdown had only 1,000 elements, the resulting 500,000 elements would be collected. **Note:** This limit is also affected by the *com.snc.pa.dc.max_breakdown_elements_lim* property. No breakdown matrix is collected where one of the breakdown sources exceeds that limit. • Type: integer • Default value: 1,000,000
com.snc.pa.dc.hsql.max_breakdown_elements_level2_limit	Maximum number of breakdown elements allowed in a matrix of two breakdowns. If this limit is exceeded, the breakdown elements are not collected. **Important:** This property applies only to jobs that use optimized data collection. See Optimizing data collection. By default, no limit is set on the number of breakdown elements in a matrix. If you experience performance issues on jobs with breakdown sources with large numbers of elements, consider setting a limit in consultation with Customer Service and Support.

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Property	Description
	Note: This limit could be affected by the *com.snc.pa.dc.hsql.max_breakdown_element* property. If that limit is set, no breakdown matrix is collected where one of the breakdown sources exceeds that limit. • Type: integer • Default value: -1
com.snc.pa.dc.max_error_count	The maximum number errors that may occur for a single data collection job run before data collection is stopped. Errors during data collection usually occur due to an invalid script, or when encountering the script timeout limit. If you encounter this limit, review any scripts that run during data collection to ensure that they are valid and perform as expected. • Type: integer • Default value: 500
com.snc.pa.dc.max_records	Maximum number of sys IDs that are stored in a single Snapshot [pa_snapshots] record. A Snapshot record is created for each collected score, and a field in this record contains all the sys IDs of the records that contribute to the score. If this limit is exceeded, a Snapshot record is created with the maximum number of records. This limit applies only when **Collect records** is selected for an indicator. For example, say you are using the default limit of 5,000 and you run a job where 5,010 records contribute to the score. The system creates a Snapshot record with a comma-separated list of the first 5,000 sys IDs in the sys_id field. Generally, the default limit provides enough detail into collected records. Increasing this limit may impact performance during data collection or when performing operations on the Snapshot table. • Type: integer • Default value: 5000

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Collected scores and com.snc.pa.breakdown_element_cutoff

The elements of a breakdown that the Analytics Hub and KPI Details display for a selected date depend on the number of elements and the value of *com.snc.pa.breakdown_element_cutoff*.

In general, when the number of elements for a breakdown exceeds *com.snc.pa.breakdown_element_cutoff*, the Analytics Hub and KPI Details display only the elements that have ever had a score.

For a formula indicator, the elements that have ever had a score for all the contributing automated indicators are displayed. These scores do not need to be on the same date. The requirement is only that for each contributing indicator, on some date, there was a score for the element.

For collected scores of an automated indicator—that is, for all scores other than real-time scores—there are two behaviors:

- If the number of elements that have ever had a score is less than the limit set in *com.snc.pa.breakdown_element_cutoff*, all of these elements are listed for any selected date. Elements that do not have a score for the selected date are still listed for that date. This behavior is the same as the behavior for real-time scores.
- If the number of elements that have ever had a score is greater than the limit set in *com.snc.pa.breakdown_element_cutoff*, only elements that have a score or a Change value for a selected date are listed for that date. Elements that do not have a score or Change value for that date are not listed regardless of whether they have a score for any other date.

Tip:

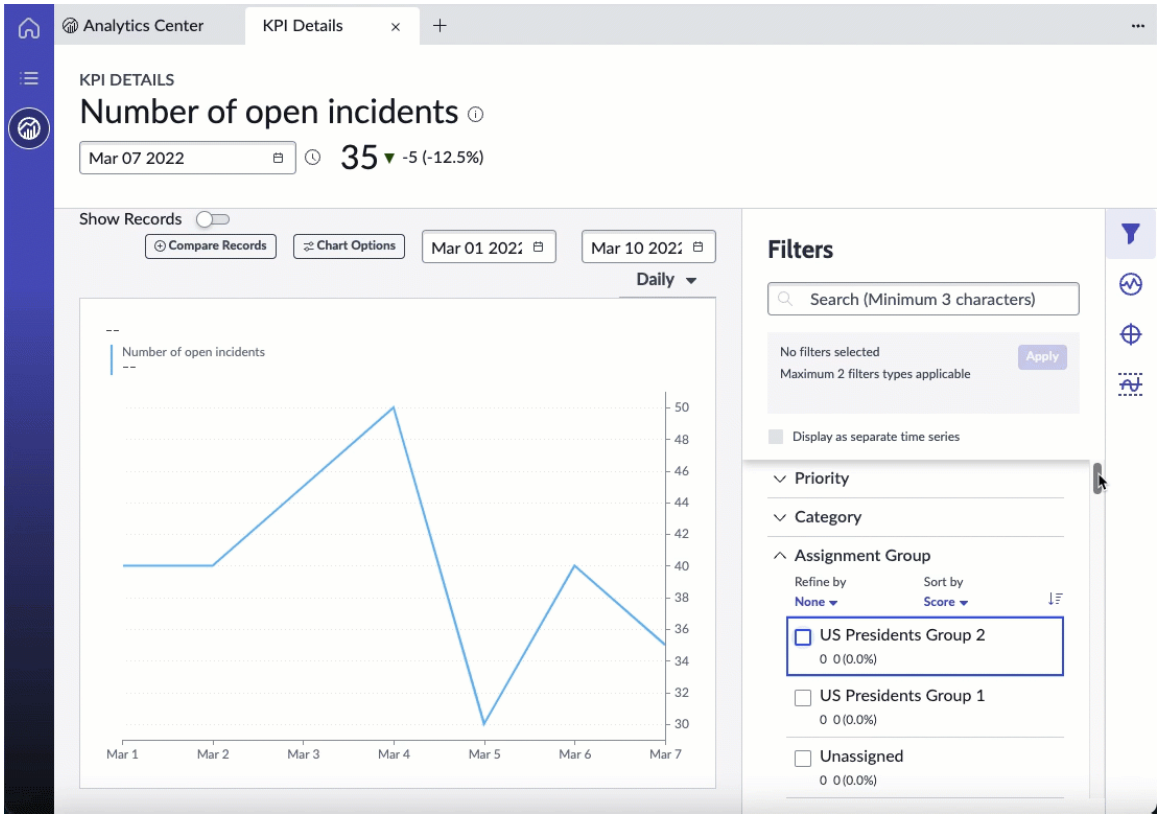
To prevent elements with null scores appearing in the Analytics Hub or KPI Details for automated indicators, consider setting a low value for *com.snc.pa.breakdown_element_cutoff*, such as 0 or 1. Elements with null scores may still appear however for real-time scores and formula indicators.

Example: Scores appearing for automated indicators with different values of com.snc.pa.breakdown_element_cutoff

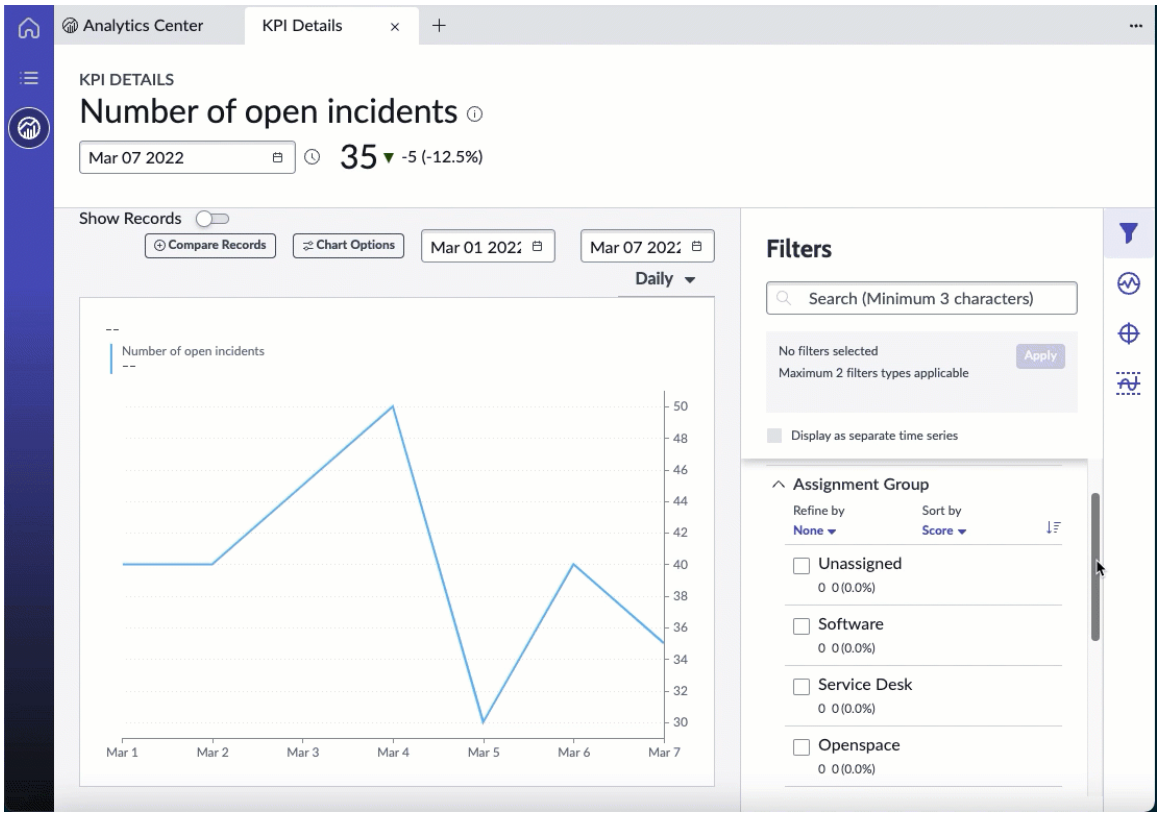
This example uses KPI Details to explore the Assignment Group breakdown for the "Number of open incidents" indicator. The Assignment Group breakdown on the instance used in the example has just under 50 elements.

First is the default case, where *com.snc.pa.breakdown_element_cutoff*=50. This value is higher than the number of elements of Assignment Group. Therefore, for any selected date, all elements of the breakdown group are displayed.

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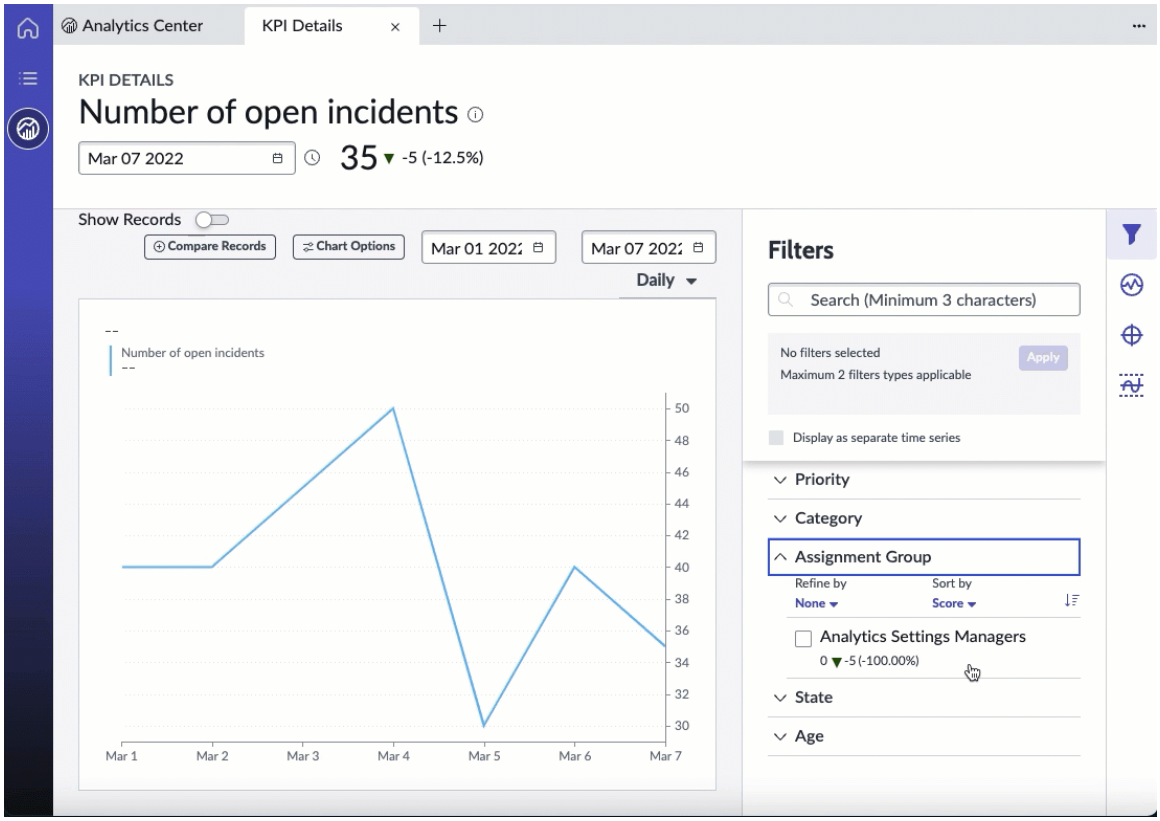


The next case is where *com.snc.pa.breakdown_element_cutoff*=10. The number of elements in the Assignment Group breakdown far exceeds this value. However, only eight elements have ever had a score. This number is less than the cutoff value of 10, so for any date, all eight elements are shown, even when null.



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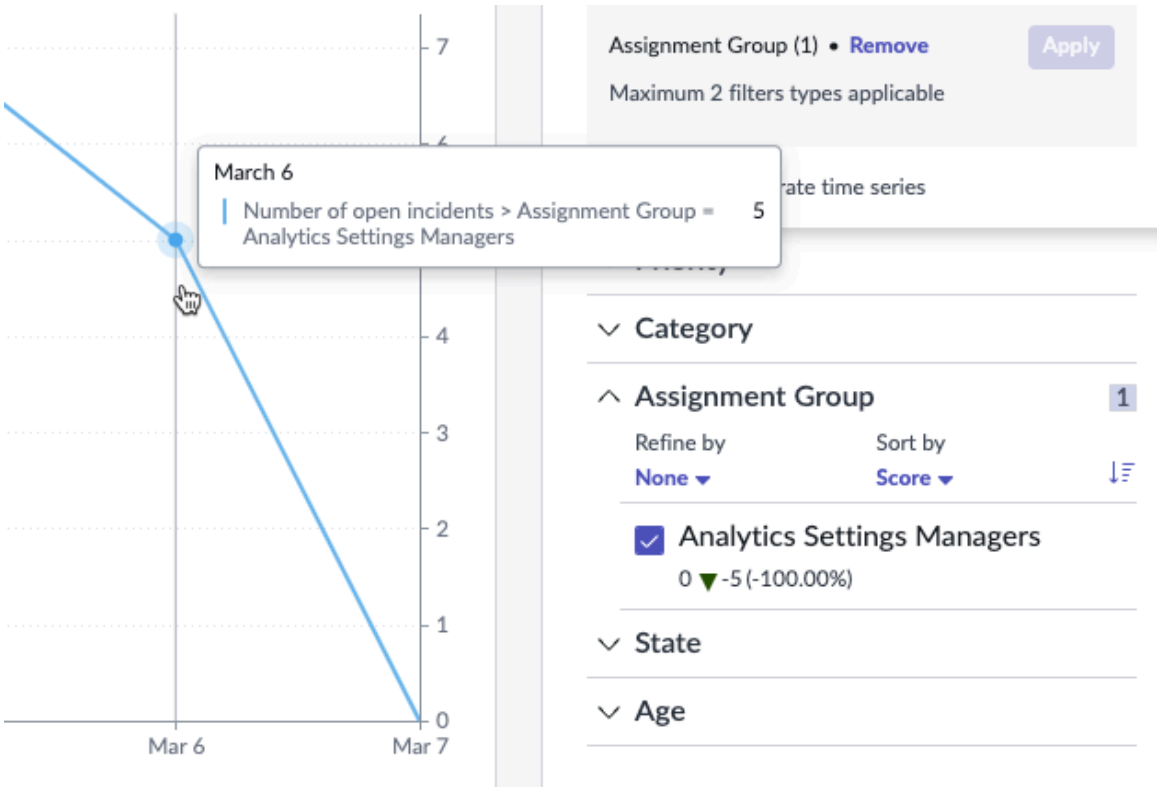
Finally, there is the case where *com.snc.pa.breakdown_element_cutoff*=5. This number is less than the number of elements that have ever had a score. Now only the elements with a non-null value or a change value on the selected date are shown on that date. Different elements are thus shown for different dates.



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Note:

The Analytics Settings Manager element is shown for March 7 despite having a null value. It is shown because it had a value of 5 for the previous collection period and thus has a change value of -5 for March 7.



Performance Analytics terms

Performance Analytics uses terms and concepts that can differ from industry norms due to the unique nature of the ServiceNow platform.

automated breakdown

Automated breakdowns are based on a breakdown source, which is a set of records from a table. The breakdown maps these records, known as breakdown elements, with fields on tables that indicators collect scores from. Scores collected from mapped tables can then be grouped and filtered based on the values in the mapped fields and the breakdown elements.

automated indicator

An automated indicator uses an indicator source as its data set. The indicator source specifies a table or database view, conditions for filtering records from that source, and the frequency at which you expect to display the data. The indicator applies an aggregator and optional conditions to this data. The indicator also specifies a data collection job and any breakdowns to apply.

Related topics

indicator (KPI)

database view

breakdown

A grouping or a filter of indicator scores that is based on a qualitative attribute such as Priority, Category, or Assignment Group.

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Related topics

- breakdown element
- indicator (KPI)

breakdown element

The values for a breakdown. For example, the Priority breakdown may have the elements Critical, High, and Low.

Related topics

- breakdown

breakdown mapping

A breakdown mapping specifies the relationships between breakdowns and indicator sources. A breakdown mapping references either a field on the indicator source or a script that queries the indicator source.

breakdown source

A set of records from a table or database view that constitute the unique values, or breakdown elements, of a breakdown source. Can be a bucket group. Multiple breakdowns can use the same breakdown source.

Related topics

- breakdown
- breakdown element
- bucket group

bucket group

Gathers continuous data into discrete groups when there is no table field that can serve as breakdown elements. For example, a bucket group might take differences between timestamps and divide them up into hourly periods.

contributing indicator

An indicator that is used in the formula of a formula indicator. A contributing indicator can be an automated or a formula indicator.

database view

A database view defines table joins for reporting purposes.

For example, a database view can join the Incident table to the Metric Definition table. This view can be used for an indicator source.

data collector, data collection job

A scheduled job that collects data from one or more indicator sources to produce indicator scores.

data snapshots

An alternative architecture for indicators. This architecture uses a change data capture (CDC) process, which captures data changes from configurable tables that are optimized for generating scores and time series at run-time. Data snapshots avoid the need for breakdown matrices, allowing unlimited breakdowns.

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formula indicator

Produces a computed indicator score from one or more other indicators. Besides indicator scores, the formula can include calculations such as the gap between an indicator score and the indicator target.

indicator (KPI)

A performance measurement taken at regular intervals of a business service, an activity, or organizational behavior. These performance measurements result in a series of indicator scores over time. Businesses track these scores to measure current conditions and to forecast trends.

indicator score

The value of an indicator for a specific collection period. For automated indicators, this value is calculated in a data collection job. For formula indicators, this value is calculated by performing operations on multiple automated indicators.

indicator source

Defines sets of records from a ServiceNow table or database view that have a common characteristic, for example, that the Priority field value is critical. Indicators use indicator sources to calculate scores. Indicator scores are KPI values. Indicator sources specify a table, filtering conditions, and the frequency for collecting data.

KPI

KPI can be a synonym for indicator, or it can refer to a unique combination of an indicator with specific breakdown elements.

manual breakdown

The process where you manually define the breakdown elements and the indicator scores for each element, rather than using the records from a breakdown source.

manual indicator

An indicator that is not associated with an indicator source. An indicator's scores are not generated automatically by a data collection job. Instead, a user populates these indicators by adding scores to the score sheet manually.

snapshot

A list of table records (sys_ids) that are collected at the time that the indicator scores for those records are collected.

target

The future hoped-for indicator scores that represent goals that your organization wants to achieve. A target can be global or can be personal to one user.

threshold

The user-defined top or bottom limit of the normal range of scores for an indicator. You can set up an alert to inform you when a threshold is breached and how. For example, you can set up an alert to let you know when a score reaches an all-time high or low.

Analytics solutions

Prepackaged solutions featuring Platform Analytics dashboards with data visualizations and Performance Analytics indicators (KPIs) are available for many ServiceNow® products. Use these solutions to get started quickly.

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Performance Analytics in your solutions

Platform Analytics data visualizations use Performance Analytics indicator data to show you data over time, helping you analyze your business processes and identify areas of improvement. With Platform Analytics Solutions, you can get value from Performance Analytics for your application with minimal setup. You can always create your own objects as well.

Platform Analytics Solutions provide all the configuration records required to analyze default applications. Customize these records for use in your production environment. For more information, see Configure Platform Analytics Solutions.

Required Performance Analytics entitlement

To enable a Platform Analytics solution, an entitlement to use Platform Analytics with the relevant ServiceNow product may be required. Without proper entitlement, it may not be possible to activate the package, or the package will have data range limitations. For example, to enable the Customer Service Management - Advanced Platform Analytics Solution, you must be entitled to use Performance Analytics for Customer Service Management.

Platform Analytics Solutions that don't contain any Performance Analytics components don't need a Performance Analytics entitlement.

Related topics

Activating your Performance Analytics subscription

Available Platform Analytics Solutions

The following Platform Analytics Solutions are available for their corresponding ServiceNow Performance Analytics entitlements. The solutions are at no extra charge, but the underlying applications require appropriate licensing.

Platform Analytics Solutions provide dashboards and underlying Performance Analytics components. These dashboards leverage Performance Analytics to create greater value for the product each Platform Analytics Solution supports.

General Performance Analytics Solutions

Activate the following Performance Analytics Solutions with any paid-for Performance Analytics entitlement.

- Configuration Management (CMDB) (com.snc.pa.cmdb)
- Guided Tours dashboard
- Knowledge Management (com.snc.pa.knowledge_v2)
- Service Desk Chat (com.snc.pa.chat)

Performance Analytics Solutions for APM

Activate the following Solutions when you have the Performance Analytics for APM entitlement.

- Application Portfolio Management and Change Management (com.snc.pa.apm.change_request)
- Application Portfolio Management and Problem Management (com.snc.pa.apm.problem)
- Financial Management (com.snc.pa.fm)
- Financial Management for Customer Service (com.snc.pa.fm.csm)

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- Financial Management for Field Service Management (com.snc.pa.fm.fsm)
- Financial Management for Financial Planning (com.snc.pa.financial_planning)
- Project Portfolio Suite with Financials (com.snc.financial_planning_pmo) Starting in New York, this solution replaces the Project Portfolio Suite (com.snc.pa.ppm) Solution. It includes dashboards for Time Card Management.

Performance Analytics for Customer Service Solutions

Activate the following Solutions when you have the Performance Analytics for Customer Service entitlement.

- Advanced Work Assignment (com.snc.pa.awa)
- Change Management (com.snc.pa.change)
- Communities (com.snc.pa.communities)
- Customer Service (com.snc.pa.customer_service)
- Customer Service Management - Advanced (com.snc.pa.customer_service_advanced) Preconfigured Performance Analytics indicators and breakdowns for Customer Service Management. Has the contents of the older OOTB Customer Service Performance Analytics Solution, and also supports the following features:
  - Case Management
  - Major Issue Management
  - Customer Service Case Action Status
  - Customer Service with Request Management
  - Customer Service with Service Management
  - Agent Chat
  - Advanced Work Assignment for CSM
  - Performance Analytics - Content Pack - Advanced Work Assignment
- Field Service Management (com.snc.work_management_pa)
- Incident Management (com.snc.pa)

  Note:
  Incident management content is available by default with Performance Analytics in a Try out Complimentary Performance Analytics for Incident Management.

- Incident SLA (com.snc.pa.sla)
- ITSM Dashboards (com.snc.pa.itsm_dashboards)
- Major Incident Management (com.snc.pa.incident.mim)
- Problem Management (com.snc.pa.problem)
- Self-Service Analytics for Customer Service (com.snc.pa.self_service_analytics_csm)

  Note:
  To use Performance Analytics with Self-Service Analytics for applications other than Customer Service Management, see Self-Service Analytics.

- Virtual Agent content pack: This Platform Analytics Solution has been deprecated starting in the Quebec release. Use the Conversational Analytics Dashboard instead.

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Performance Analytics for Governance, Risk, and Compliance Solutions

When you have the Performance Analytics for GRC entitlement, first activate the GRC: Performance Analytics Premium Integration plugin. Then activate the following Solutions:

- GRC: Audit Management
- GRC: Policy and Compliance Management
- GRC: Risk Management

Performance Analytics for Human Resource Management Solutions

Activate the following Solutions when you have the Performance Analytics for Human Resource Management entitlement:

- Content Analytics
- Human Resources Employee Document Management Scoped App (com.sn_hr_employee_files_pa)
- Human Resources Scoped App (com.sn_hr_pa)

> **Note:**
> The solution for the unscoped version of Human Resources, com.snc.pa.hr_core, is deprecated. If you are using the unscoped version of Human Resources and want to activate its solution plugin, contact Customer Service and Support.

- Human Resources Lifecycles Events Scoped App (com.sn_hr_lifecycle_pa)

Performance Analytics for Business Management, Financial Management, and Service Strategy Solutions

Activate the following solutions if you have an entitlement to Performance Analytics for Business Management, Performance Analytics for Financial Management, or Performance Analytics for Service Strategy:

- Agile 2.0 (sn_scrum_dashboard on ServiceNow Store)
- Essential SaFE
- Financial Management (com.snc.pa.fm)
- Financial Management for Application Portfolio Management (com.snc.pa.fm.apm)
- Financial Management for Customer Service (com.snc.pa.fm.csm)
- Financial Management for Field Service Management (com.snc.pa.fm.fsm)
- Financial Management for Financial Planning (com.snc.pa.financial_planning)
- Financial Services Operations (sn_bom_pa)
- Project Portfolio Suite with Financials (com.snc.financial_planning_pmo) Starting in New York, this solution replaces the Project Portfolio Suite (com.snc.pa.ppm) Solution. It includes dashboards for Time Card Management.

Performance Analytics for ITOM Solutions

Activate the following Solutions when you have the Performance Analytics for IT Operations Suite or Performance Analytics for IT Operations Management entitlements:

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- Discovery (com.snc.pa.discovery)
- Event Management (com.snc.pa.em)
- Operational Intelligence (com.snc.sa.metric.pa.content)
- Service Mapping (com.snc.service-mapping.pa.content)

Performance Analytics for Project Portfolio Management Solutions

Activate the following Solutions when you have the Performance Analytics for Project Portfolio Management entitlement, Project Portfolio Suite with Financials (com.snc.financial_planning_pmo). Starting in New York, this solution replaces the Project Portfolio Suite (com.snc.pa.ppm) Solution. It includes dashboards for Time Card Management.

Performance Analytics for Security Incident and Vulnerability Response Solutions

Activate the following Solutions when you have the Performance Analytics for Security Incident Response entitlement:

- Security Incident Response (com.snc.security_incident.analytics - in ServiceNow Store)
- Vulnerability Response (com.snc.vulnerability.analytics - in ServiceNow Store)

Performance Analytics for Service Management Solutions

Activate the following Solutions when you have the Performance Analytics for Service Management entitlement:

- Change Management (com.snc.pa.change)
- Incident Management (com.snc.pa)

> **Note:**
> Incident management content is available by default with Performance Analytics in a Try out Complimentary Performance Analytics for Incident Management.

- Incident SLA (com.snc.pa.sla)
- ITSM Dashboards (com.snc.pa.itsm_dashboards)
- ITSM Predictive Intelligence Workbench dashboard - Requires the Predictive Intelligence application, which is available in the ITSM Pro SKU.
- Major Incident Management (com.snc.pa.incident.mim)
- Problem Management (com.snc.pa.problem)

Performance Analytics for Software Asset Management Solutions

Activate the following Solutions when you have the Performance Analytics for Service Management entitlement, Software Asset Management Professional (com.snc.pa.samp).

Adding Self-Service Analytics widgets to a dashboard or Service Portal

If you have Self-Service Analytics activated on an instance, you can add Self-Service analytics widgets to your Performance Analytics dashboards or a Service Portal. To obtain a ready-made set of indicators and breakdowns, activate the Self-Service Analytics PA (`com.snc.pa.self_service_analytics`) plugin. Find the Self-Service indicators

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through the Performance Analytics Admin Console, then create widgets and add them to your dashboard or portal. Also activate the [SSA] Self-Service Analytics data collection job.

Note:
Customer Service Management customers can install the Platform Analytics Solution for Self-Service Analytics for Customer Service. This Solution contains additional Customer Service-specific indicators and breakdowns as well as widgets and a dashboard. For more information, see Self-Service Analytics for Customer Service.

ITSM Dashboard solutions

The ITSM Dashboards plugin (com.snc.pa.itsm_dashboards) activates the following solutions, along with a set of additional dashboards:

- Change Management (com.snc.pa.change)
- Problem Management (com.snc.pa.problem)
- Incident SLA (com.snc.pa.sla)
- Major Incident Management (com.snc.pa.incident.mim)
- Fixed Costs (com.snc.fixed_costs)

ServiceNow Store applications with Performance Analytics content

The following applications on the ServiceNow® Store include Performance Analytics components, such as a dashboard showing widgets for indicators.

Unlike Platform Analytics solutions, these applications include stand-alone functionality. The Performance Analytics components included in the application support this functionality.

A Performance Analytics administrator may need to reschedule the data collection jobs provided with these applications. Most of the applications do not have historical data collection jobs, and their scheduled jobs are active by default.

Note:
Be aware that these applications may have licensing requirements. Check the entry for the app on the ServiceNow Store.

Configuration Management Database applications

CSDM and CMDB Data Foundations dashboards

Customer Service applications

- Conversational Analytics dashboard in Platform Analytics experience
- Workforce Optimization for Customer Service Management

DevOps applications

DevOps Insights

Employee Service Management

Safe Workplace dashboard

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IT Asset Management applications

Cloud Insights

Strategic Portfolio Management applications

Strategic Spend Tracking for PPM

IT Operations Management applications

Firewall Audits and Reporting

IT Service Management applications

- Coaching
- Continual Improvement Management
- On-Call Scheduling
- Service Portfolio Management Premium (Service Owner Workspace)

AI Experience applications

NLU Workbench

Install a dashboard

Use the Solution Library to install a dashboard and all its associated visualizations such as widgets and reports, and to configure existing dashboards.

Before you begin

Role required: pa_admin.

About this task

When you install or upgrade a Performance Analytics solution, out of the box content in the instance is overwritten and new content is added to the dashboard. Any content that you have previously customized on the dashboard is not changed.

To reinstall a solution metadata record from a dashboard, such as a widget, without impacting other records used by the same dashboard, see Install a single solution metadata record.

Procedure

1. Navigate to **PA Solution Library** > **Solutions**.
2. Select the dashboard you want to install.

   The dashboards provided in the Solution Library may depend on indicators, indicator sources, or other configuration records. Solution Library content always includes the associated visualization and configuration content.

3. Click **Install**.
4. In the confirmation window, click **Install**.
   The installation may take some time to complete after you confirm. Clicking **Cancel** during this time closes the confirmation window but does not stop the in-progress installation.
   When the installation is complete, the confirmation window disappears and the **Installed Metadata** related list is populated with the records that were installed.

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What to do next
Navigate to the dashboard to begin analyzing your data.

Related topics
Activate a plugin

Upgrade a dashboard

When you upgrade a dashboard, solution metadata that have updates available, including any new records added to the dashboard, are installed. Solution metadata records that you have customized, even if those records are updated in the newer release, are not affected.

Before you begin
Role required: pa_admin

About this task
When you install or upgrade a Performance Analytics solution, out of the box content in the instance is overwritten and new content is added to the dashboard. Any content that you have previously customized on the dashboard is not changed.

Procedure
1. Navigate to **PA Solution Library** > **Solutions**.
   Records where the **Update Available** field is true can be upgraded.
2. Select the dashboard you want to upgrade.
3. Review the **Solution Metadata** related list.
   When you click **Upgrade**, solution metadata records in which update_available = true are installed. Previously customized records are not overwritten.
4. Click **Upgrade**.
   The **Upgrade** button is available if at least one solution metadata record has an update available and the solution content has been installed at least once.
5. In the confirmation window, click **Upgrade**.
   The upgrade may take some time to complete after you confirm. If you click **Cancel** during this time, the confirmation window closes, but does not stop an in-progress upgrade.

Result
New dashboard records are added to the dashboard. Updates to dashboard records that are not customized are applied. Dashboard records that you have customized are left unchanged.

What to do next
If the dashboard does not appear as you expected after installing the solution content, see if the uninstalled records appear on the customer update table. Any uninstalled records on this table were previously customized. To view the customer updates table, enter `sys_update_xml.list` in the filter navigator.

Install a single solution metadata record

Install a single solution metadata record used by a dashboard, such as a widget, to match the latest version of the record without impacting other records used by the same dashboard.

Before you begin
Role required: pa_admin

About this task
To install the entire dashboard and all associated records, see Install a dashboard.

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Note:
Installing a record does not overwrite any customizations you have made to that record.

Available solution metadata types:

- Breakdown
- Breakdown Source
- Bucket Group
- Dashboard
- Dashboard Group
- Filter
- Indicator
- Indicator Source
- Permission
- Report
- Report Source
- Scheduled Data Collection
- Script
- Tag
- Widget

Procedure

1. Navigate to **PA Solution Library** > **Solutions**.
2. Select the dashboard that uses the record you want to install.
3. In the **Solution Metadata** related list, select the record you want to install.
4. Click **Install**.
5. In the confirmation window, click **Install**.

Duplicate an Analytics and Reporting Solution dashboard

Copy an Platform Analytics Solution dashboard, including the tabs, portal pages, and canvas records. Widgets on the dashboard are not duplicated.

Before you begin
Role required: pa_admin

About this task
By duplicating a dashboard, you can modify or upgrade one copy without affecting the other.

Note:
Duplicating a dashboard does not duplicate the widgets displayed on the dashboard. You can rearrange or remove widgets from one copy of the dashboard without affecting the other. However, modifying a widget record affects both the original dashboard and the duplicate.

To copy a dashboard that is not part of an Platform Analytics Solution, see Manage responsive dashboards.

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Procedure

1. Navigate to **PA Solution Library** > **Solutions**.
2. In the Solutions list, click the name of the dashboard you want to copy.
3. On the Solutions form, click the **Duplicate Dashboard** icon ( ).

4. Confirm that you want to duplicate the dashboard.

Result

A copy of the dashboard with the name Copy of (original dashboard name) is created. You can view it in the Dashboards Overview.

Configure Platform Analytics Solutions

Platform Analytics Solutions come configured with the expectation that you keep your ServiceNow AI Platform data in a standard set of tables and fields. If you are using different fields, configure the Solutions to point to the correct locations.

Tip:
You may find it convenient to use the Performance Analytics admin console as the starting point for configuring Platform Analytics Solutions. From the admin console, you can perform the following actions:

- Activate the Solution from the plugins list or through a guided setup, if one is available. (You cannot activate Solutions that are only available on the ServiceNow Store from the admin console.)
- Check whether Performance Analytics is fully activated on this instance.
- Run diagnostics.
- Look up KPIs to configure.
- Use Dependency Assessment to find the related indicators, breakdowns, and sources for your Solution.

For more information, see Performance Analytics Admin Console.

Run diagnostics

After you install any Platform Analytics Solutions, run all diagnostics on all records, as described in Execute diagnostics for all records. These diagnostics can catch many mismatches between the configuration of your Platform Analytics Solutions and your tables.

Domain separation and 'Run As' user

By default, System Administrator is the **Run As** user for data collection jobs in the Platform Analytics Solutions. Verify that this user exists on the instance, and whether this user has the appropriate level of access. An inappropriate **Run As** user can cause errors or limit the data that is collected. If you have Domain Separation enabled, ensure you set an appropriate **Run As** user in each domain.

Review the indicator sources

Determine which fields contain the data you are looking for in each application you are enabling for Performance Analytics.

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Before you begin

You have enabled Performance Analytics according to your entitlement. You have also installed the relevant Analytics and Reporting solutions, and run diagnostics.

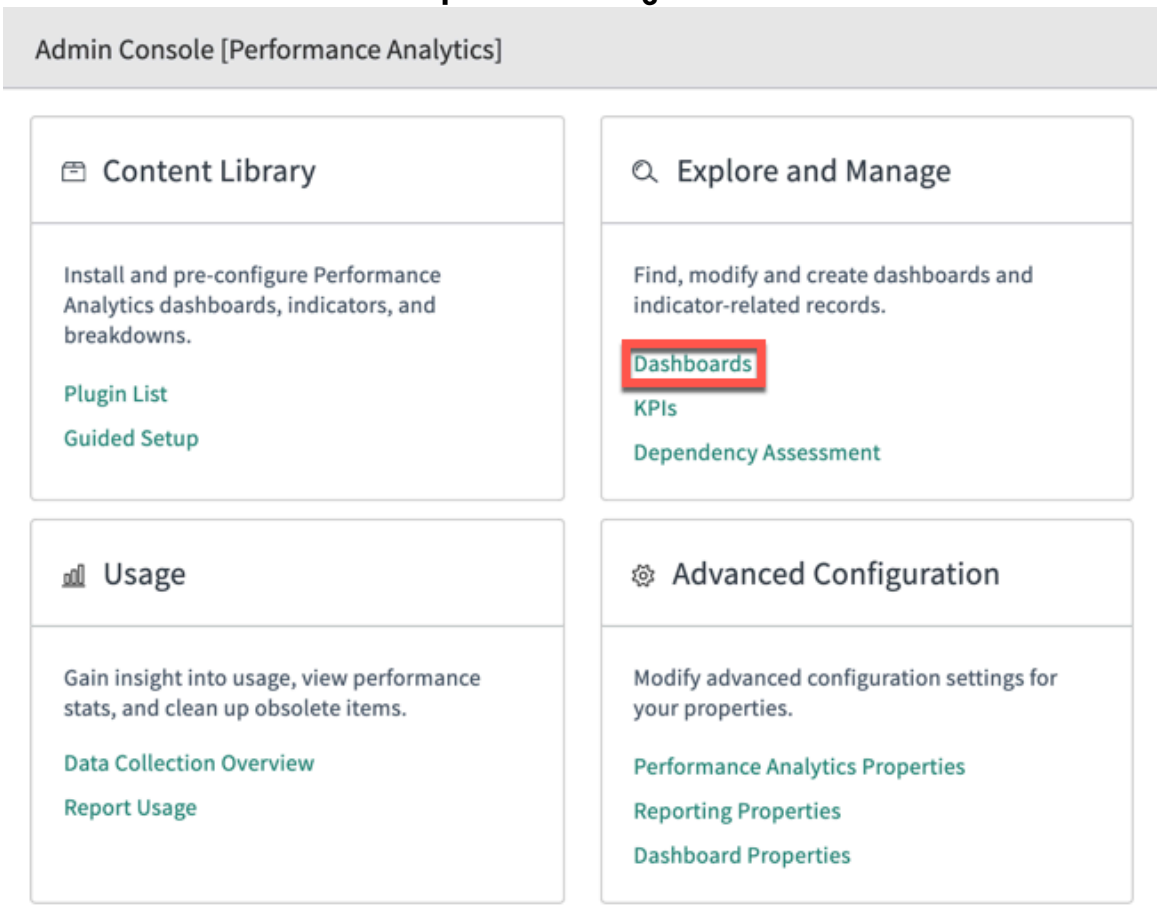
Role required: pa_admin, admin

About this task

Ensure that the indicator sources that Platform Analytics Solutions contain point at the correct fields for you to measure the performance of your processes.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Administration Console**.
2. Click the **Dashboards** link in the **Explore and Manage** tile.

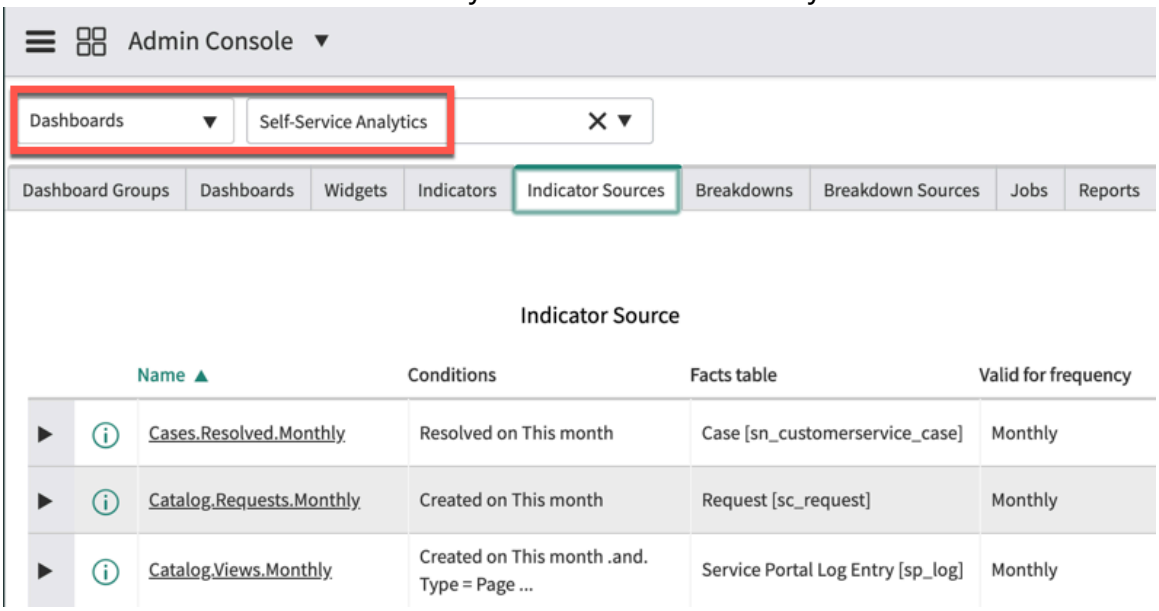


3. Verify the names of the dashboards that have been installed with this Platform Analytics Solution.
4. Open the **Indicator Sources** tab.
5. For each dashboard included in this Platform Analytics Solution:

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a. Filter the indicator sources on the dashboard name.

Example
This screenshot shows the indicator sources filtered on the Self-Service Analytics dashboard from the Self-Service Analytics for CSM Platform Analytics Solution.



b. Review the facts table, conditions, and frequency of the indicator sources compared to the data structure on your own instance.

> **Important:**
> Pay particular attention to time stamp fields such as Resolved, Opened, or Created in the Conditions. You may need to use different time stamp fields.

c. If necessary, open an indicator source and make corrections.

d. If you are editing an indicator source record, go to the Indicators related list and review the **Conditions** field for each indicator.
Changing the indicator source can also affect the additional conditions on the individual indicators.

e. Click **Update** to save your changes.

Related topics

Indicator sources

Update Performance Analytics scripts

Platform Analytics Solutions include Performance Analytics scripts to perform calculations on records. These scripts use the time stamp fields from the indicator sources. If you change the time field stamps in an indicator source, also modify the related scripts.

Before you begin

> **Important:**
> If you did not update any indicator sources in your Platform Analytics Solutions, skip this task.

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Role required: pa_admin, admin

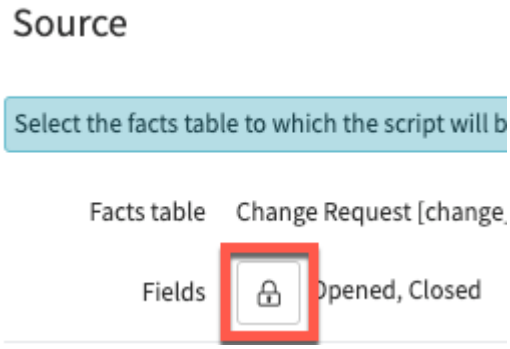
Procedure

1. Navigate to **All** > **Performance Analytics** > **Automation** > **Scripts**.
2. Click a script to open its details.

   Example
   For example, the Change.CloseTime.Hours script record contains the following script:

```
var diff=function(x,y){return y.dateNumericValue() -
 x.dateNumericValue();};
var hours=function(x,y){return diff(x,y)/(60*60*1000);};
hours(current.opened_at, current.closed_at);
```

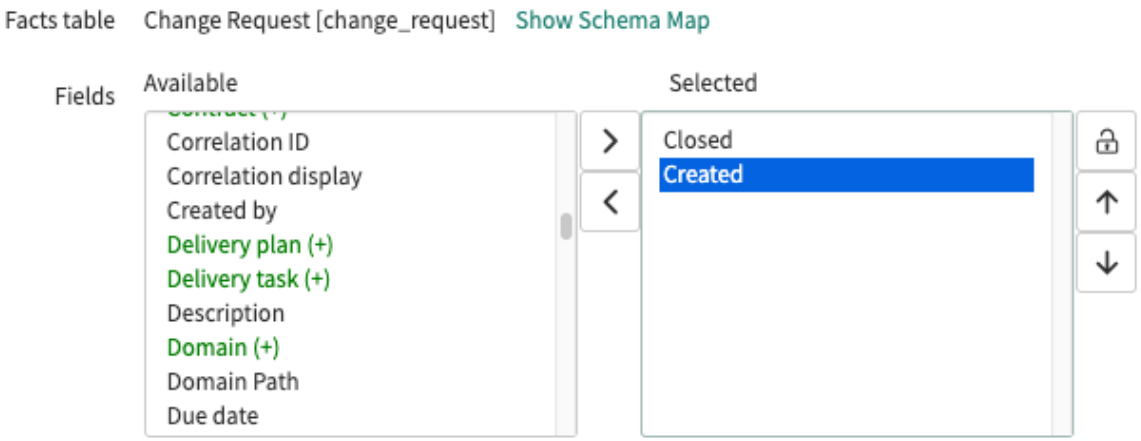
3. In the Source section, click the lock icon next to the list of Fields.



   The Fields selector opens.

4. Move the desired fields into the fields that are **Selected** for the script, and remove fields that are not appropriate.

   Example
   For example, if your organization uses the **Created** time stamp field to define a new change, replace **Opened** with **Created**.



5. In the **Script** field, replace the references to disused fields with references to the fields you just selected.

   Example
   In this example, references to the **Opened** field are replaced by references to **Created**.

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```
var diff=function(x,y){return y.dateNumericValue() -
 x.dateNumericValue();};
var hours=function(x,y){return diff(x,y)/(60*60*1000);};
hours(current.opened_atcurrent.sys_created_on, current.closed_at);
```

6. Click **Update** to save your changes.

Review the breakdown sources

Breakdown sources represent the elements that you use to examine a KPI in more detail. Modify the breakdown source to limit the element list to only those items that are meaningful for the data analysis.

Before you begin

Role required: pa_admin, admin

About this task

For example, the Assignment Group automated breakdown uses the Groups breakdown source. This breakdown source returns ALL active groups in your instance, and the system uses all these groups to examine your data. If you look at the Number of Open Changes indicator, and you examine the Assignment Group breakdown, you see all groups in your instance instead of just the groups that are actually working on your Change requests.

Restricting the number of elements that a breakdown source returns has the following benefits:

- Smaller element lists make it easier for consumers to find the data they need. Sorting through a list of 25 groups associated with a particular process is easier than trying to sort through thousands of groups.
- Smaller element lists lead to less data collection and more efficient use of data. Instead of the data collector crunching through 1,000 different groups, the data collector can analyze the 25 groups that are meaningful to the process.

Note:
You probably do not need to change the breakdown sources in Platform Analytics Solutions. However, you may find it helpful to review and understand exactly what is being measured in your processes.

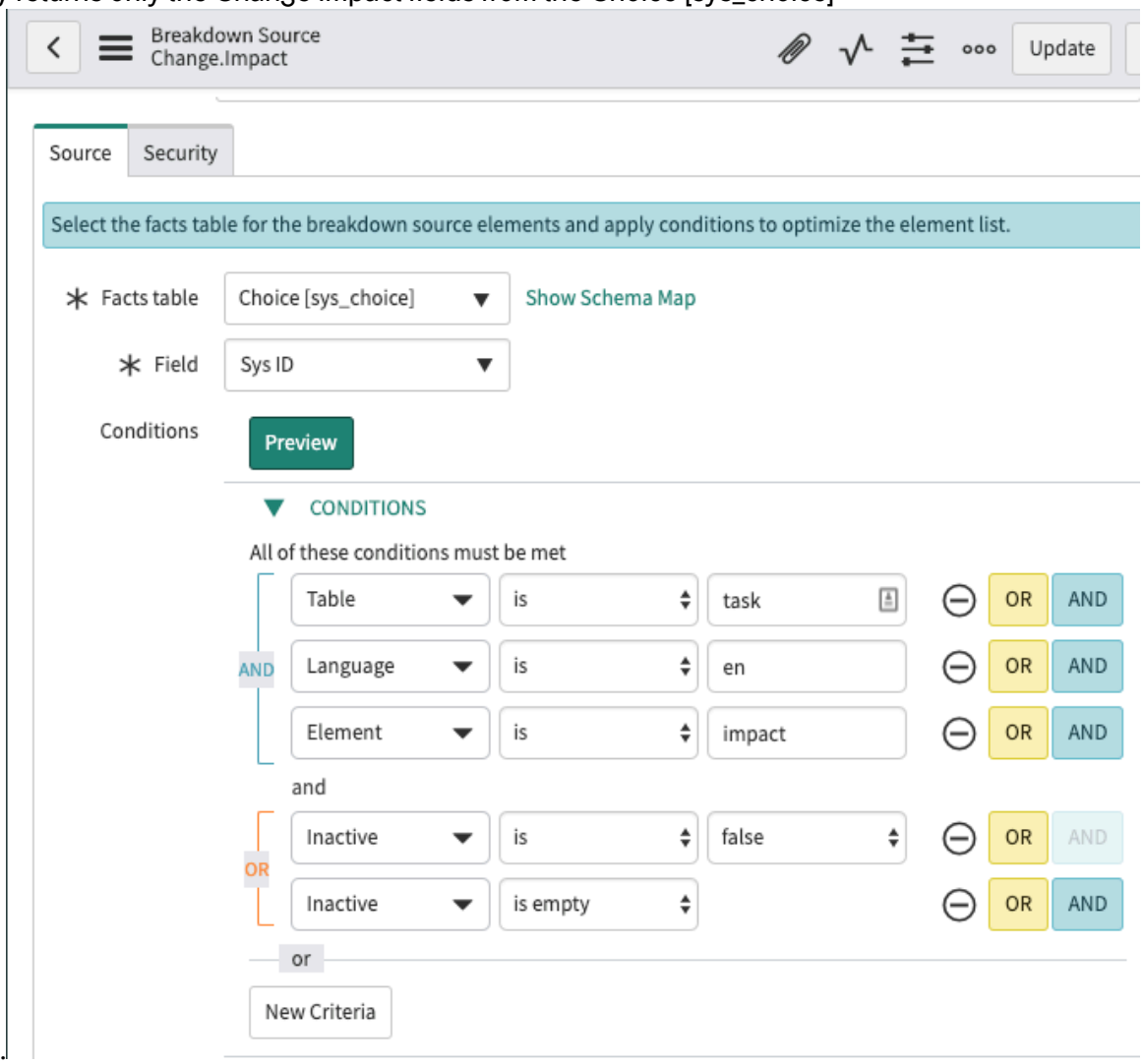
Procedure

1. Navigate to **All** > **Performance Analytics** > **Sources** > **Breakdown Sources**.
2. Click a breakdown source to see its details.
3. In the Source tab, examine the definition for the breakdown elements, including the table that contains the unique list of sys_ids.

   Example
   For example, in the Change.Impact breakdown source, the unique values contained in the Change Request Impact field come from the Choice [sys_choice] table. The conditions provide additional filters to ensure that the

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query returns only the Change Impact fields from the Choice [sys_choice] table.



4. Click **Preview** to see the number of elements that the query returns.

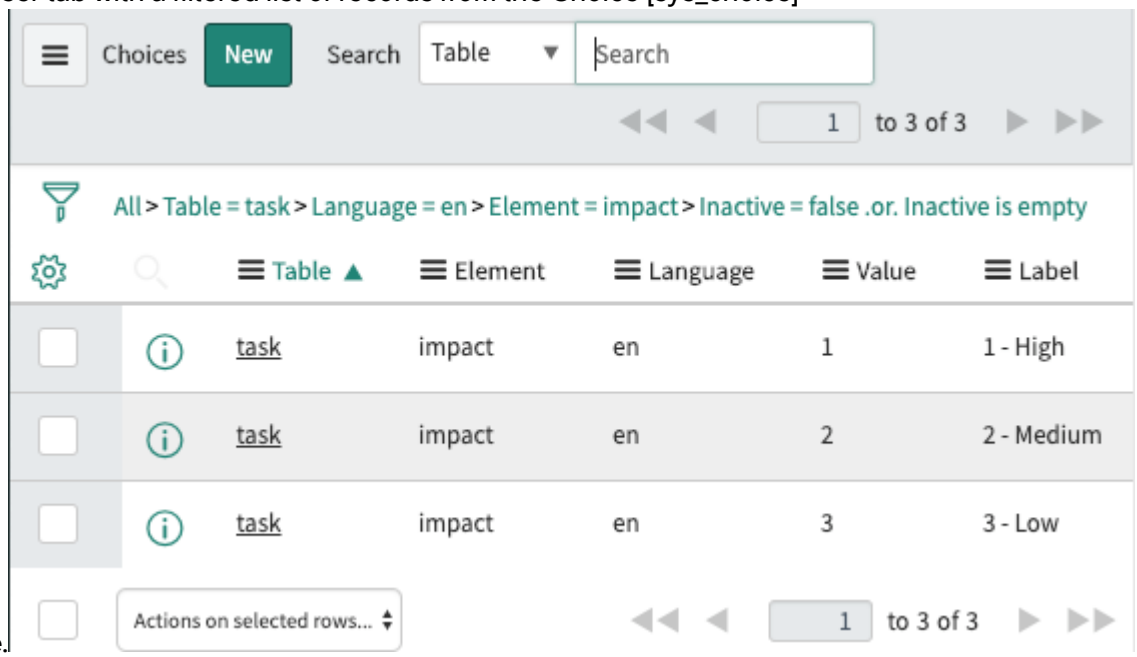
   Example
   In the example, the query returns three impact elements.



5. Click **x records match condition** to see the specific values that the query returned.

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Example
In the example, clicking **3 records match condition** opens a new browser tab with a filtered list of records from the Choice [sys_choice] table.



6. Verify that the list of records match what you expect to see in the breakdown element list.
7. If the records were not what you expected, modify the conditions in the Source tab of the breakdown source to match your environment and repeat steps 4-6 until you are satisfied.
8. Click **Update** to save your changes.

What to do next
You are now ready to collect data, as described in Collect data for Platform Analytics Solutions.

Related topics
Define a breakdown source

Collect data for Platform Analytics Solutions

After you install an Platform Analytics Solution and ensure that it points at the correct data structures in your instance, collect the data for the indicators and breakdowns.

Whenever you activate an Platform Analytics Solution, you automatically install Data Collector jobs for that Solution. These Data Collector jobs collect analytics information for the indicators and breakdowns in the Solution. After the jobs run, you can see the data in the widgets and dashboards for the Solution. Technically, the Data Collector jobs do the following actions:

- Run periodically, usually daily
- Read your operational tables
- Measure the data for the period (usually a day) against the definitions that the indicators and breakdowns specify
- Store the resulting measurement scores and (optionally) raw data in Performance Analytics tables.

The plugin or ServiceNow Store application for an Platform Analytics Solution usually installs the following two jobs:

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Historic Data Collection

Run the historic Data Collector job when you first install an Platform Analytics Solution. By default, the historic Data Collector job collects the last 60 days of data for the indicators specified in the job. If you want to go back further in time, you can configure the job to collect more historic data. A historic Data Collector job overwrites all data for the period of collection. Therefore, run it only once, when you first install the Platform Analytics Solution. Run a periodic Data Collector job for all subsequent data.

Periodic Data Collection (usually daily)

This job populates the Performance Analytics tables with data going forward. Schedule the periodic data collector to run with the same periodicity as the frequency of the indicators for which it collects data. Most indicators have a Daily frequency, so most Data Collector jobs also run daily. After you schedule the job, verify that it is Active, or it will not run.

Related topics

Collecting indicator scores

Run historical data collection for a Platform Analytics Solution

After you activate an Platform Analytics Solution, run a historical data collection job. This job gives you immediate insight from your existing data.

Before you begin

Role required: pa_admin, admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Jobs**.
2. Filter the list of jobs for those containing the word 'Historic'.
3. Locate and open the historic job that corresponds to your new Platform Analytics Solution.
4. Go to the Collection Parameters section, and set the **Relative start** and **Relative start interval** fields to collect data from as far back as you want.
   The Data Collector runs a number of times equal to the number of days (or other collection periods) specified in the form. For example, the default configuration of 60 days causes the Data Collector to run 60 times in succession. The Data Collector starts at T-60 days and examines all records as if the date were 60 days ago. After processing those records, the Data Collector runs again at T-59 days. The Data Collector repeats the process until it gets to the current date.

   Each day's collection may take a minute or two to complete depending on the size of your tables. A historic data collection over multiple months may take some time to complete.

   If the product or application for which you installed the Platform Analytics Solution is new, you might not have much historical data. In this case, you can shorten the relative start interval. If you have not yet used the product or application, you can skip collecting historical data altogether.
5. Ensure that the user specified in the **Run as** field exists.
   If you are using domain separation, you collect only records from domains which the **Run as** user can view. However, the ACL permissions of the **Run as** user do not affect data collection.
6. Verify that the **Run As tz** time zone is appropriate for your company.

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Database queries based on this indicator source use this time zone. This time zone affects the timestamps for the data collection job. This time zone also defines what day is "Today" for conditions like [[Created][on][Today]].

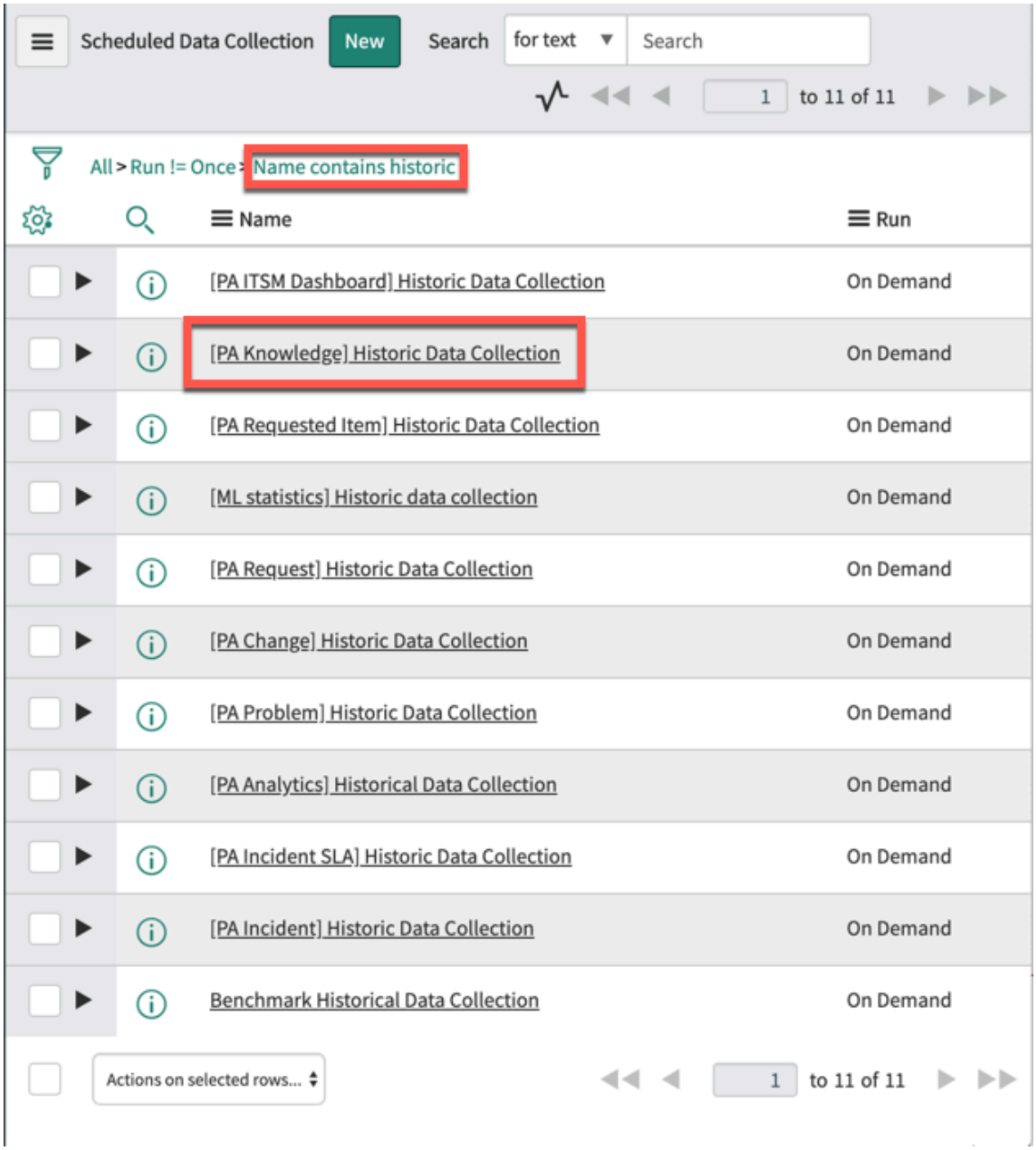
7. Click **Execute Now** to run the job.
8. Navigate to **Data Collector** > **Job Logs**.
9. Look at the **State** of the job you are running.
   Refresh the view periodically until the job completes. If the job is successful, the **State** changes to `Collected`.

Example: Collecting historical data for newly installed Platform Analytics Solution

You have just installed a set of Platform Analytics Solutions. You want to run the initial historical data collection job on them, so you navigate to **Performance Analytics** > **Data Collector** > **Jobs**. To find the historic jobs for Platform Analytics Solutions, you filter the list on [[Name][contains][Historic]].

Tip:
When you start to create your own historical data collector jobs, include the word 'Historic' in their names.

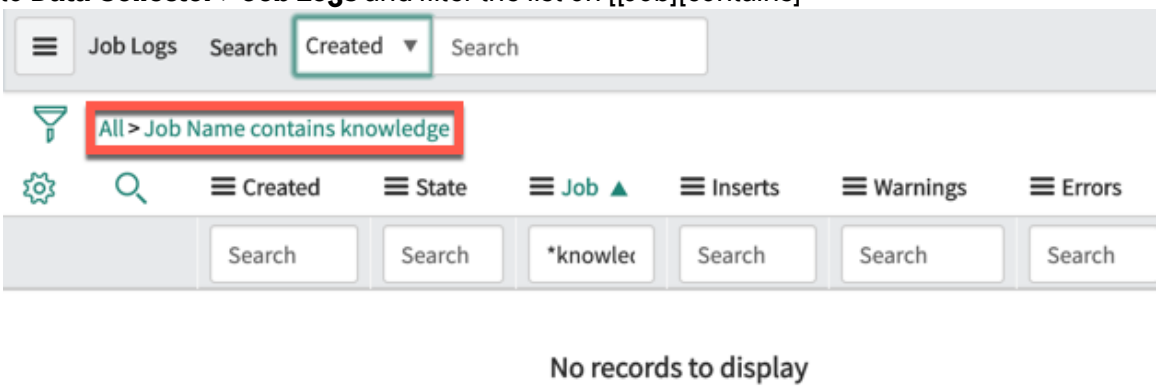
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You decide to run the job for the Knowledge Management solution first. To ensure that nobody has run the knowledge management historical job yet,

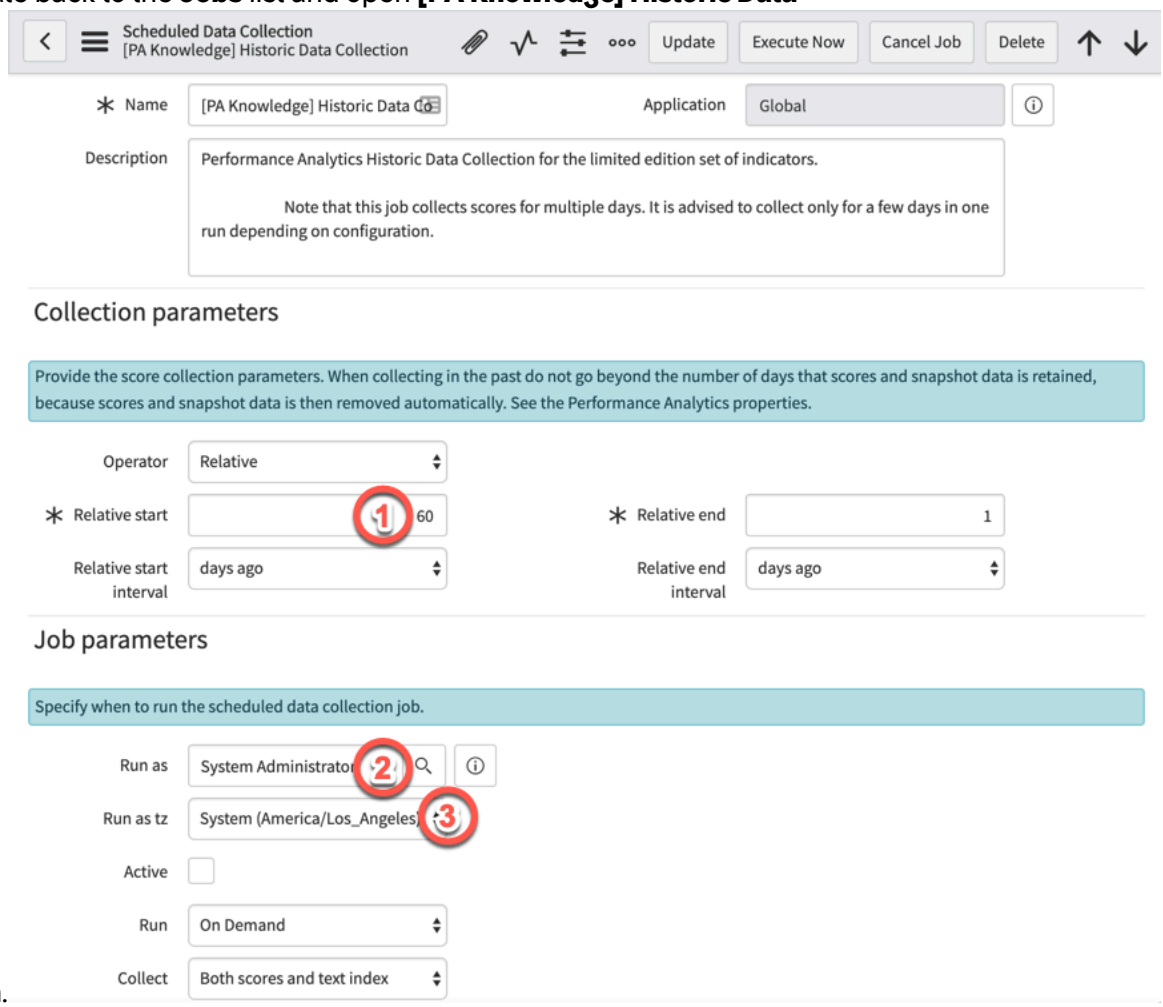
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you navigate to **Data Collector** > **Job Logs** and filter the list on [[Job][contains]



[knowledge]].

In this case, you see that the job has not been run since the last zBoot. So you navigate back to the **Jobs** list and open **[PA Knowledge] Historic Data Collection**.

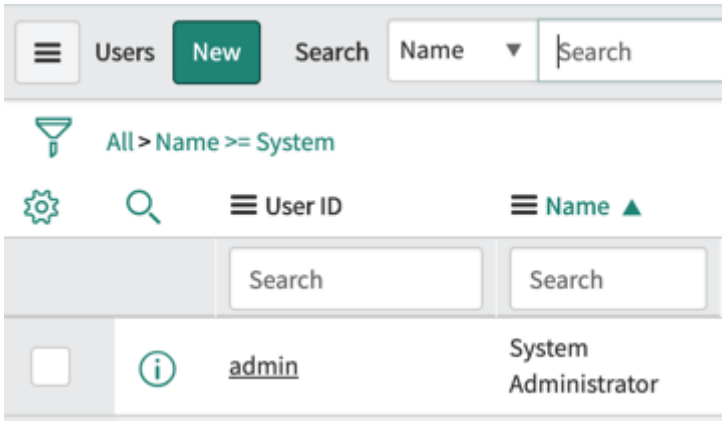


Collection.

In the form, you verify the following details:

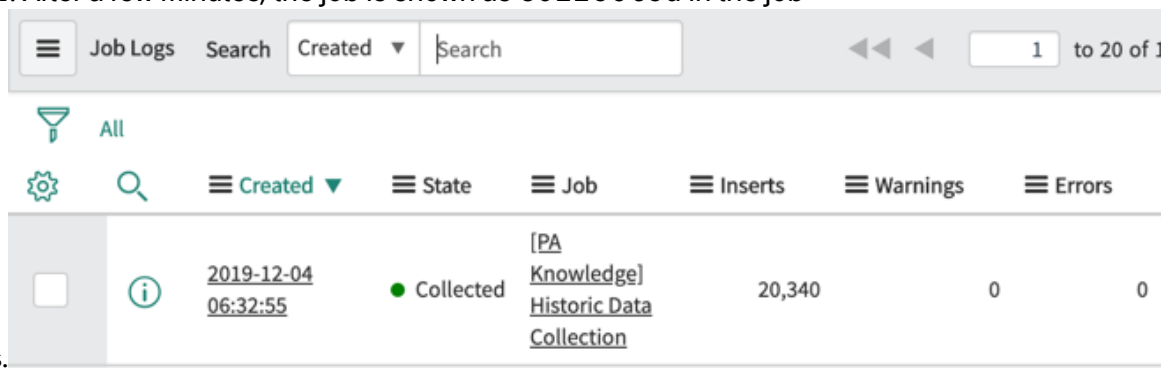
1. The **Relative start** field is set for the default 60 days, which is fine for you.
2. The **Run as** user exists on your instance. Otherwise, you would have to choose a different user.

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3. The time zone is appropriate for your company.

You are satisfied with the settings for the historical job, so you click **Execute Now**. After a few minutes, the job is shown as `Collected` in the job logs.



Related topics

Collect historical data

Schedule data collection for a Platform Analytics Solution

Enable the periodic data collection job for your Platform Analytics Solution. Check that the time that it runs is correct.

Before you begin

Role required: pa_admin, admin

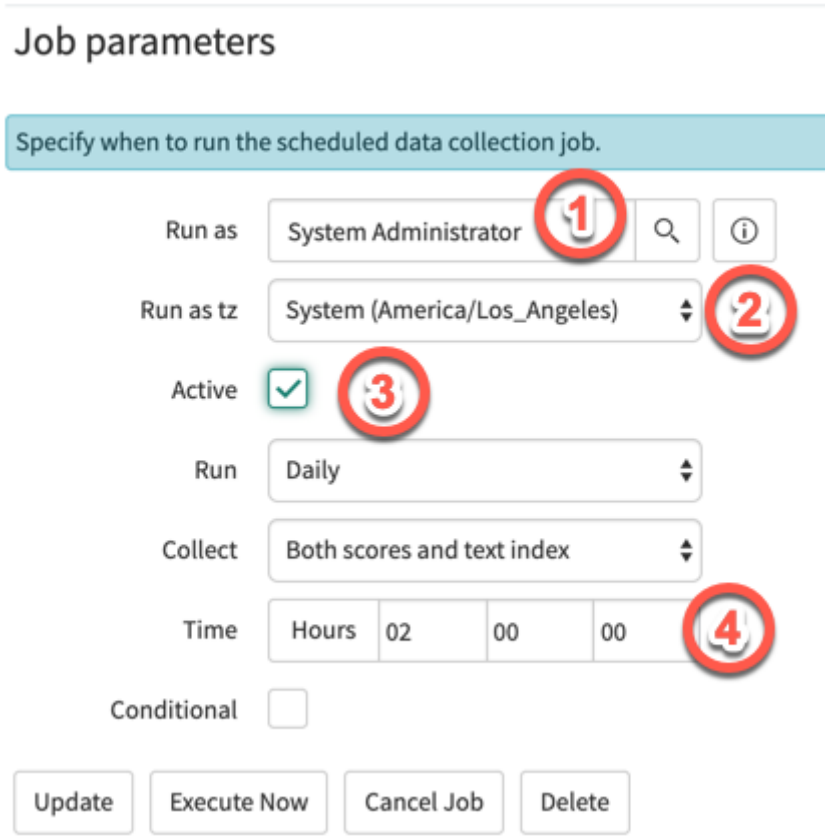
About this task

Every Platform Analytics Solution includes a periodic data collection job.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Data Collector** > **Jobs**.
2. Filter the job list on [[[Run][is not one of][Once | On Demand]] AND [[Active][is][false]]].
   You now see only periodic data collection jobs that you have not activated.
3. Open the periodic data collection job for your Platform Analytics Solution.
   The following steps refer to the Job Parameters section of the job record.

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4. Ensure that the user specified in the **Run as** field exists.
   If you are using domain separation, you collect records only from domains that the **Run as** user can view. However, the access control list permissions of the **Run as** user do not affect data collection.
5. Verify that the **Run As tz** time zone is appropriate for your company.
   The database queries created for this job use this time zone, which is reflected in the logs for this job. This time zone also determines what day is "Today" for indicator conditions like [[Created][on][Today]].
6. Select **Active** to enable the scheduled run of the job.
   Scheduling options are now available.
7. Ensure that the time that the job runs is during your company downtime.
   - The **Time** value is based on the time zone for your user session, not the **Run as tz** time zone.
   - To get an accurate measurement for a day, the day must have completed. For a Daily job, the **Time** value should be between midnight and 06:00 in the **Run as tz** time zone, to collect for the previous day. For example, if you are logged in from New York and want to run the job at 05:00 in the System/Los Angeles time zone, set **Time** to 08:00:00.
   - For a Monthly job, you also set the day that you want to run the job on. Generally set it to run on the first day of the month, soon after midnight in the **Run as tz** time zone. This setting gets all the data for the preceding month, regardless of the length of the month.

Result

After the next collection period, the dashboards and widgets should show scores from that period.

What to do next

Check the **Job Logs** to see if the job ran successfully after the next period.

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Related topics

Create or schedule a data collection job

User Experience Analytics

The ServiceNow® User Experience Analytics application enables you to monitor how users interact with your ServiceNow Core UI, Next Experience, Portal, and Mobile applications. Knowing how your users interact with these applications enables you to improve how you manage your ServiceNow instance.

Get started

Explore  Learn about User Experience Analytics features	Configure  Enable application tracking and user consent
Use  Discover capabilities and possible customizations	Reference  Understand user roles and related properties

Troubleshoot and get help

- Ask questions and view User Experience Analytics articles and video content in the Platform Analytics community.
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Additional references

- User Experience Analytics for mobile applications
- User Experience Analytics for Service Portal

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Exploring User Experience Analytics

The ServiceNow® User Experience Analytics application enables you to monitor how users interact with your ServiceNow Core UI, Next Experience, Mobile, and Service Portal applications, allowing product managers and applications owners to gain insight into usage and adoption.

User Experience Analytics features

Feature	Benefit
Retention and Cohort analysis	User retention reports and Cohortshelp you understand how often your users return, and how often they perform predetermined sequences of actions, so you can determine if your users exhibit the desired behavior.
Conversion funnel	Conversion funnels can be used to understand time to conversion, completion and drop-off rates, and trends in aggregate user behavior. These insights help you uncover the reasons behind the success or failure of a specific in-application user journey goal.
Navigation paths	Navigation paths enable you to quickly understand and isolate users' journeys through your web or mobile application. Assess the most and least common navigation paths your users take and how you can improve them.
User, Session, Event, and Page analysis	Users, Sessions, Events (user interactions), and Pages are foundational data elements that can be used to isolate users' behavior and gain deeper insights to help you make better product and implementation decisions.
Customizable user consent management	User privacy, tracking, and consent management allows you to configure analytics tracking preferences across all applications and customize consent policies by location to comply with local law and company policies.

Navigating the User Experience Analytics application

Understand how to navigate the User Experience Analytics application, including the **All Applications** and individual application views.

Users with any User Experience Analytics viewer role can access the application by navigating to **All** > **Platform Analytics** > **User Experience Analytics**..

Different users have different rights and privileges in the User Experience Analytics application. For more information, see Roles installed with User Experience Analytics.

Counters in the User Experience Analytics application contain aggregated user numbers.

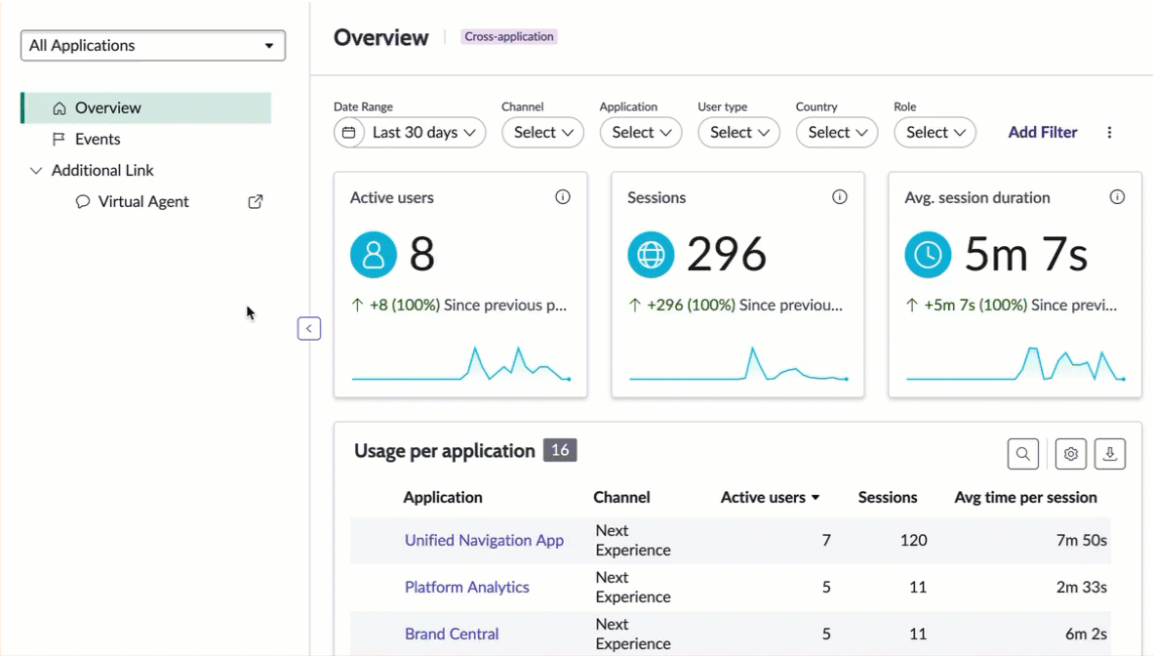
Note:
If the tracking consent policy named Disabled is selected user metrics aren't tracked.

All Applications view

When you launch User Experience Analytics, there are two tabs: Overview and Events. The Overview tab allows you to view aggregate usage within a given time frame across all of your tracked applications. There are a number of filters you can configure to see scores for Active users, Sessions, and Average session duration, as well as a list showing usage by individual

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application. The Events tab enables you to filter a list of tracked user interactions across enabled User Experience Analytics applications.



Individual application view

The individual application view has more detailed information for a specified application.

The Analysis menu items provide access to the Retention, Cohort analysis, Conversion funnel, and Navigation paths modules. The Data Foundation menu items provide access to the Users, Sessions, Events, and Pages modules.

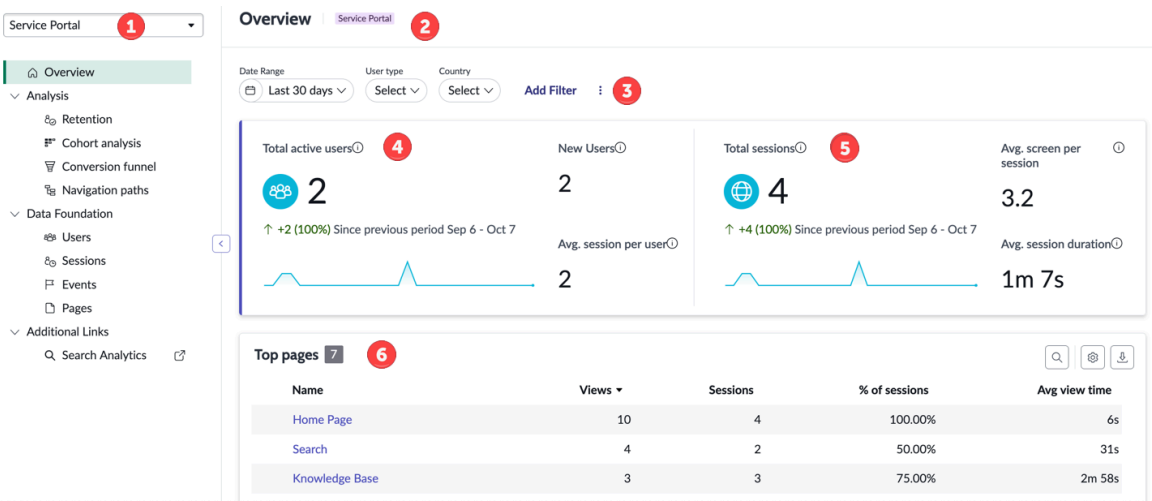
Analysis

Module	Description
Retention	Visualizes new users and their rates of return and periods between visits. For more information, see User retention.
Cohort analysis	Create and analyze custom cohorts or groups of users separated from other users by similar traits or actions. Analyze how many users perform specific sequences of actions, and how often they return to perform specified actions over a given time. For more information, see Cohort analysis in User Experience Analytics.
Conversion funnel	Create funnel reports to analyze user completion rates for a specific task to help you understand if users are finding what they need in a timely fashion. View conversion rates, the number of users progressing from one step to the next and the average time for users to advance to each step and complete the funnel. For more information, see Funnel reports in User Experience Analytics.
Navigation paths	Visualize and isolate users' journeys through your application, discovering the most and least popular paths. For more information, see Navigation paths.

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Data Foundation

Module	
Users	A list of users that you can filter, drill down into, and export.
Sessions	Visualizations illustrating the number of sessions in a specified period, trend and breakdown analysis, and a list of sessions that you can filter, drill down into, and export.
Events	A list of configured events such as page navigation and menu selection that you can filter, drill down in to, and export.
Pages	A list of visited pages on your instance that you can filter, drill down in to, and export.



Application, platform, and version menus

Feature area	UI component	Description
1	Applications list	List of registered web and mobile applications. You can select from these views: • **All Applications** (default landing page) shows basic statistics across all applications within the current instance. • Select the individual application whose analytics you want to view.
2	Selected application	The Overview, Analysis, or Data Foundation item you've selected. In the example, **Overview** is selected.
3	Filters	Default filters you can use to limit the data, including Date Range, User type, and location. Use the **Add Filter** option to add more filters to the page. For more information, see Filtering pages.
4	Total active users	Shows Active users, new users, and the average number of sessions per user. Select any visualization in this section to view the trend analysis for Active users.

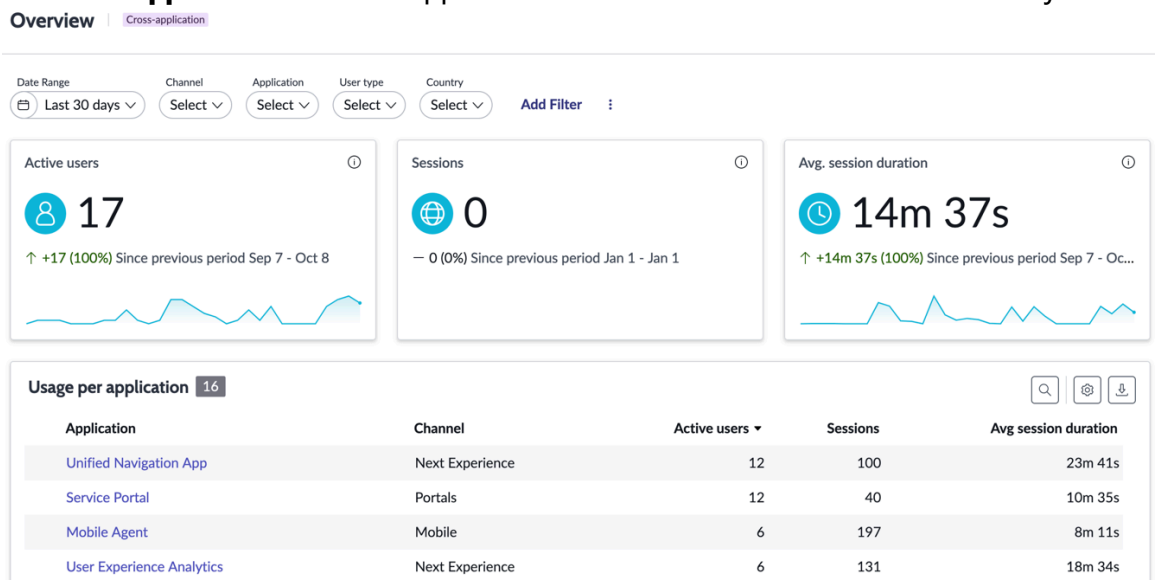
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Application, platform, and version menus (continued)

Feature area	UI component	Description
5	Total sessions	Shows the total number of sessions, the average page views per session, and the average session duration. Select any visualization in this section to view the sessions trend analysis.
6	Top pages	List of pages with the most views and most sessions. Select any entry in the list to dive into the views and related information.

Metrics across all applications

You can view basic application usage and event details for all applications within an instance. Select **All Applications** from the applications list to see these metrics simultaneously.



App usage KPIs

KPI	Description
Total Active Users	Total number of users, including new users, whose first session occurred within the specified time period.
Sessions	Total number of sessions that have occurred, and average number of sessions per day.
Average Screens/Session	Average number of pages or screens viewed and actions performed per session.
Avg. Session Duration	Average time spent across sessions for all users.
Total Sessions	Total number of sessions performed daily, weekly, and monthly.
Users	Total number of daily, weekly, and monthly active and new users.

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App usage KPIs (continued)

KPI	Description
New / Returning Users	Percentage of users whose first session occurred within the specified time period, and percentage of those users who subsequently started a second session.
App Versions	App versions installed by users for the selected platform(s).
App Version Adoption	Shows session segmentation between different versions of the app. For example, if a new app version was released yesterday, and today shows 10% of all app sessions, the current adoption of the new app version is 10%.
Session Duration	Percentages of sessions segmented by their length/duration.
Hourly Usage	Average number of app launches that occurred at a specific hour of the day over all days.

View User Experience Analytics data in custom data visualizations

You can graphically represent User Experience Analytics data in your custom Next Experience pages and inline dashboards once you install the User Experience Analytics Performance Analytics Integration #plugin from the #ServiceNow Store.

Before you begin

Role required: admin

About this task

The integration of User Experience Analytics data with Platform Analytics is included with the User Experience Analytics application.

To learn more about the available data sources and visualizations, see User Experience Analytics data sources for data visualizations.

Procedure

1. Confirm that your instance has the User Experience Analytics plugin [com.glide.appsee] activated.
2. Go to the ServiceNow Store, and search for User Experience Analytics Performance Analytics Integration.
3. Select the latest version of User Experience Analytics Performance Analytics Integration. The store installs the updates to the User Experience Analytics Performance Analytics Integration and the data configuration tools.

Configuring User Experience Analytics

An admin can configure which ServiceNow applications to track in the User Experience Analytics application as well as user tracking consent policies.

Configuration overview

For Next Experience and Core UI, application tracking is enabled by default. On Service Portal, User Experience Analytics, requires enabling.

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User Experience Analytics plugin

The User Experience Analytics plugin (com.glide.appsee) is activated by default in the ServiceNow AI Platform in new and upgraded instances. The plugin is responsible for:

- Checking hourly for new applications to register with the ServiceNow User Experience Analytics server
- Providing access to User Experience Analytics functionality.

> **Note:**
> User Experience Analytics is not supported for on-prem instances.

Enable User Experience Analytics

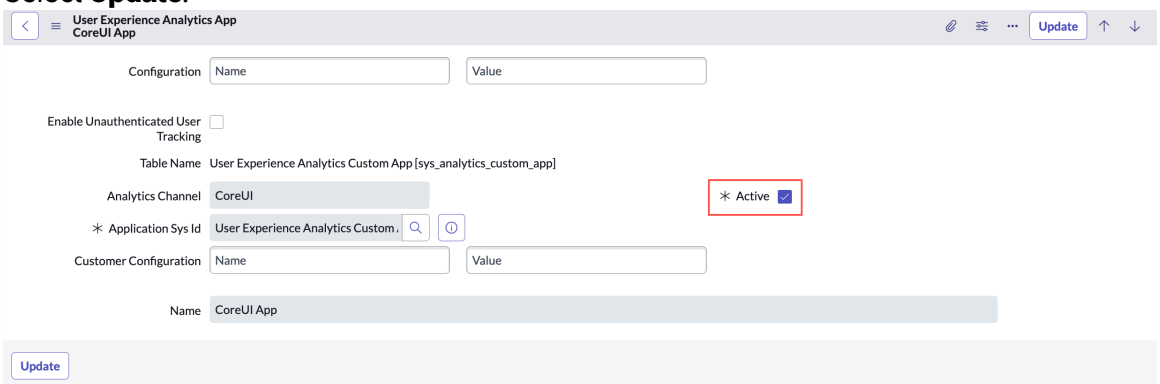
You can enable or disable User Experience Analytics for specific applications on the User Experience Analytics settings table.

Before you begin

Role required: analytics_admin, mobile_analytics_admin, web_analytics_admin, or portal_analytics_admin

Procedure

1. Navigate to **All** > **Platform Analytics Administration** > **UX Analytics Settings** > **Settings**.
2. On the list, locate the record for the application you want to enable analytics tracking on. The application name is listed in the **Name** column.
3. Select the name of the application.
4. On the form, select **Active**.
5. Select **Update**.



> **Note:**
> ServiceNow collects basic usage data to improve our products and services even when User Experience Analytics is disabled.

What to do next

Assign a web_analytics_viewer or portal_analytics_viewer role to users to enable them to view the User Experience Analytics application.

User privacy, tracking, and user consent management in User Experience Analytics

User Experience Analytics relies on tracking user activity to measure the adoption, retention, and usage of KPIs (key performance indicators) to help you make better product and implementation decisions.

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Tracking users in User Experience Analytics

User Experience Analytics can be used to track user behavior across#ServiceNow Core UI, Next Experience, Portal, and Mobile applications.#User Experience Analytics used on web and mobile applications collects limited information about the users themselves.

User Experience Analytics doesn't store the user ID. Instead, it uses a one-way SHA256 hash of the sys_id, stored on the sys_user_table as "Hashed User ID", to identify the same user consistently across multiple devices. This way, User Experience Analytics can anonymize users while retaining the ability to connect individual users to their session data consistently. This one-way hash also enables customers to reconnect their User Experience Analytics data to personally identifiable information available on the sys_user table if they choose.

The hash isn't salted intentionally. This way, customers can obtain the ID of a specific user they want to track, apply a SHA256 on that ID (for example here: SHA-256 hash calculator), and then use the output to filter the data for a specific User ID.

By default, User Experience Analytics translates the end user's IP address to a city level location, which is stored. However, the IP address isn't stored.

Note:

Geolocation information may be considered personally identifiable information (PII).

Administrators can configure analytics tracking preferences across all tracked applications via user consent management (UCM). This capability provides the flexibility to customize the consent policy for each country and to select how the location of the user is detected.

Some of the options available to you with user consent management are:

- Applying different tracking consent policies to individual countries.
- Tracking specific users or tracking users with specific roles.
- Defining how to detect your users' location.

How users consent to tracking in User Experience Analytics

An individual can select to opt in or opt out of User Experience Analytics advanced tracking at any time.

Before you begin

Role required: user

About this task

You can opt in or opt out of advanced tracking on a mobile device, in the Service Portal, or in the web-based UI. The selection to either opt in or opt out applies to all areas where User Experience Analytics advanced tracking takes place.

Procedure

Access a platform to configure User Experience Analytics advanced tracking settings either via your mobile application, the Service Portal, or the web-based UI.

Note:

When a user's country consent policy is set to Notice or Explicit Opt In, they receive a new notice or opt-in message yearly.

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What to do next

Read more about tracking options presented to you in the UI in Tracking controls and data collection behavior.

Types of tracking consent policies in User Experience Analytics

There are five types of tracking consent policies that you can define for individual countries. This option provides you with the flexibility to define tracking policies according to your own compliance requirements, applicable country requirements, and even according to users or roles.

The default consent policies are set to No Consent Required for all countries/groups of users. However, your admins should review and update a group or individual country's consent policy in line with compliance requirements to any of the following:

Basic Tracking

Users with the admin role can obtain usage metrics only. Their hashed user ID and session data continue to be collected and included in aggregate metrics (such as Active Users, Sessions, and Average Session Duration) so that these counts remain accurate for the Customer.

Disabled

Selecting **Disabled** as the user consent policy has the same effect as an end user opting out: individual-level tracking is not displayed in User Experience Analytics tracked applications and usage metrics aren't obtained from these users. Aggregate data collection continues.

Explicit opt-in

Users are presented with a message to select whether to opt in or decline to be tracked.

Notice

Users are presented with a message explaining that their activity in the application will be tracked.

No Consent Required

Users are automatically tracked and aren't presented with an opt-in/decline message. This is the default consent policy for all users. However, you should review and amend this policy in accordance with internal policies.

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Note:

- Every country's consent policy is set to **No Consent Required** by default. However, users can opt in or out of ServiceNow applications individually in application settings. If you want to provide opt-in messages or notices to users when they log in, you must configure tracking consent policies.
- When consent policies are updated to display a notice or require opt-ins, capturing detailed user and session data may be impacted due to individual opt-outs. Aggregated metrics will continue to reflect the total user base, including those who have opted out of individual session tracking.
- Counters in the User Experience Analytics application contain aggregated user numbers.
- If a country's tracking consent policy is set to **Disabled**, user metrics aren't tracked and aggregate data collection continues.
- If a country's consent policy is set to **Explicit Opt-In** or **Notice**, individual users are asked for consent yearly. Their existing tracking preference expires every 365 days.
- Analytics administrators can choose to store additional user properties. See Add user properties as filters to User Experience Analytics for more information.
- The distinction between **Basic** and full tracking is in how data is presented, not in what is collected.

Define consent policies according to country

Define the tracking consent policies for users within different countries. You can either select the same tracking consent policy for all countries, use the allocated default values, or define different consent policies for individual countries.

Before you begin

Role required: analytics_admin

About this task

This task details how to set the various tracking consent policy options you have in the User Experience Analytics Consent Policies page. You have an option to return the policies to the default values. By default, all countries are set to No Consent Required. For a detailed explanation about the types of consent policies available, see Types of tracking consent policies in User Experience Analytics.

Procedure

1. Navigate to **All** > **Platform Analytics Administration** > **UX Analytics Settings** > **Consent Policies**.
   The User Experience Analytics Consent Policies page displays.

   Note:
   Select a policy to view a list of all countries associated with the selected policy.

2. Perform one of the following actions.

Define texts for Notice and Explicit Opt-in user consent management policies

Edit the texts for Notice and Explicit Opt-in consent policies from the default text provided.

Before you begin

Role required: admin

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Procedure

1. Navigate to **All**.
2. In the navigator, enter `sys_ui_message.list` to open the Messages page.
3. In the Key field enter either:
   - `glide.analytics.consent.text.notice`
   - `glide.analytics.consent.text.explicit_opt_in`
4. Select the Key message to edit.
5. In the message area, enter your updated text and select **Update**.

View users' consent management policies

View and analyze details regarding users and their tracking selection preferences.

Before you begin
Role required: analytics_admin

Procedure

1. Navigate to **All**.
2. In the navigator, enter `sys_analytics_user_consent_decision.list` to open the User Experience Analytics User Consent Decisions page.
3. Review the data that applies to your users' tracking selections.
   The table also includes the detection policy provider and the date of the migration from the deprecated table [m2m_user_consent_info].

   - **Note:**
     When a user either explicitly consents to or opts out of advanced tracking through the Explicit Opt In or Notice modal window, or if they manually update their tracking preference, a corresponding record is created or updated in the sys_analytics_user_consent_decision table. This record is only created if it doesn't exist. However, a record isn't created if a user doesn't actively select an advanced tracking preference. This can happen, for instance, when a No Consent Required policy is assigned to a user and they don't manually adjust their tracking preference within the application.

   - **Note:**
     A ServiceNow® Instance can disable the tracking of usage analytics data with its custom script and system property. Contact customer support for assistance.

   Users who fall under an Explicit Opt In or Notice consent policy receive an annual opt-in or notice message based on the date set in the User Consent Decision record.

   See How users consent to tracking in User Experience Analytics for information on how users manually update their preference.

Configure link to your privacy policy

The privacy policy link is shown when User Experience Analytics is enabled and users choose to enable or disable tracking.

Before you begin
Role required: admin

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Procedure

1. Navigate to `sys_properties.list`.
2. Create the system property *`glide.analytics.privacy.link`*.
   For more information see Add a system property.
3. In the **Type** field, enter `string`.
4. In the **Value** field, enter the URL of your company's privacy statement.
5. Select **Update**.

Tracking controls and data collection behavior

Understand what happens when you opt out of the consent pop-up in the User Experience Analytics UI

When an end-user opts out of data collection via the consent pop-up in their User Experience Analytics UI, their individual session timeline and interaction details are no longer visible in the User Experience Analytics dashboard. However, their hashed user ID and session data continue to be collected and included in aggregate metrics (such as Active Users, Sessions, and Average Session Duration) so that these counts remain accurate. This is called Basic Tracking.

The consent pop-up remains a transparency and compliance tool. Customers can configure the consent message language and link to their own privacy policy. The pop-up is not required by default but can be enabled per the customer's compliance requirements.

When an admin disables User Experience Analytics on the instance (via the glide.analytics.enabled system property), the User Experience Analytics dashboard is no longer accessible and no analytics data is displayed. The behavior is functionally the same as opting out via the consent pop-up: underlying data is still collected to support aggregate metric calculations.

Note:
To fully disable all User Experience Analytics data collection for an instance, contact ServiceNow® Support by creating a case through Now Support (support.servicenow.com). Note that fully disabling data collection means the instance will no longer contribute to aggregated usage metrics used to monitor service health, facilitate feature delivery, and help customers benefit from the latest platform capabilities.

Define how to detect your user's location

Detect your users by selecting and prioritizing a detection policy. You can also define the order in which these policies apply. There are predefined detection policies, but you can create custom scripts to give more flexibility to your definitions.

Before you begin
Role required: analytics_admin

About this task
There are four methods by which you can detect a user's location. Prioritize the method by using the **Order** field and select if the policy should be active or not.

Note:
If a detection provider isn't active or a script doesn’t return a response, the system default policy of Explicit Opt-in is implemented.

The available detection policy providers are:

User country

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Uses the Country code [country] column stored in the User table [sys_user].

Country Customer script

A custom script that can be loaded onto the ServiceNow Platform to determine the user's location and returns the country's ISO 3166-2 code.

> **Note:**
> If a customer script is defined but the Active field isn't selected, the next priority in the Order table will be activated.

Policy Customer Script

A custom script that can be loaded onto the ServiceNow Platform to determine the user's consent policy and return one of the policy names from the User Experience Analytics Consent Policy table [sys_analytics_detection_policy_provider].

> **Note:**
> If a customer script is defined but the Active field isn't selected, the next priority in the Order table is activated.

GeoIP

An IP-based detection provider that identifies a user's geographical location using an internal service. This provider is the default option if no detection policies are selected.

Procedure

1. Navigate to **All** > **Platform Analytics Administration** > **UX Analytics settings** > **Detection Policy Providers**.
   The User Experience Analytics Detection Policy Providers page displays.
2. Select any of the detection policy providers to update its Active status and change the order in which the policy is enforced.

   > **Note:**
   > To enforce a policy, it must be active.

3. **Optional:** Select either **Country Customer Script** or **Policy Customer Script** and enter a script to determine either the user's location or the user's consent policy, and to return a value.

   > **Note:**
   > You can use the system property *glide.analytics.consent.script_timeout* to define the run time of the script. For more information, see User Experience Analytics related properties.

   For more information on using scripts, see JavaScript syntax editor.

View and update User Experience Analytics consent tracking policies for individual countries

View the consent tracking policy for all countries or select a country to update its existing policy.

Before you begin

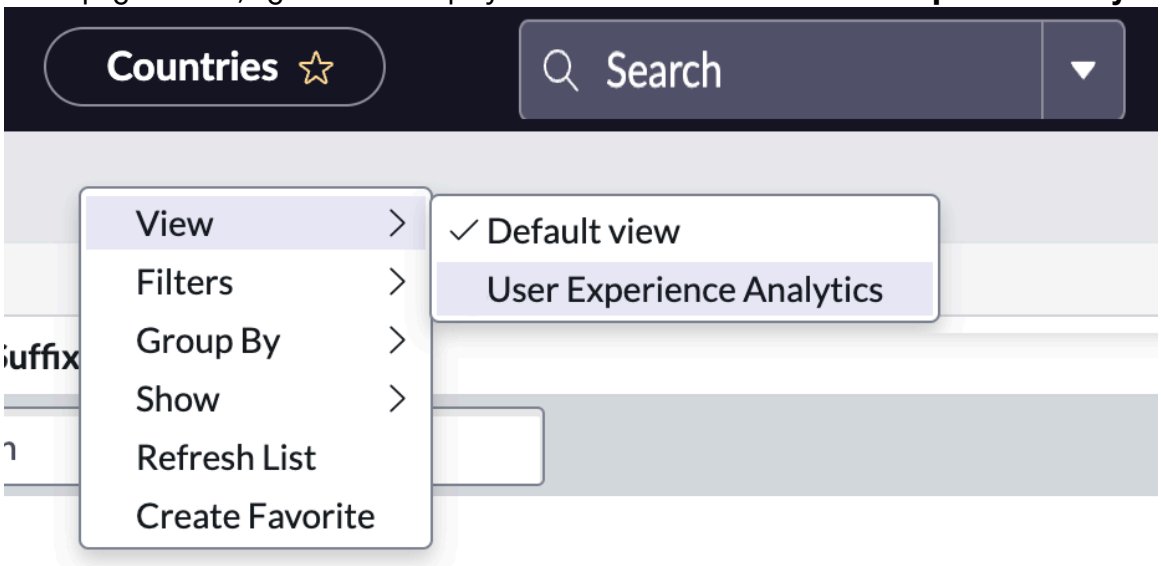
Role required: admin

Procedure

1. Navigate to **All** > **User Administration** > **Countries**.
   The Countries page displays.

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2. In the page header, right-click to display a menu and select **View** > **User Experience Analytics**



The selected view displays all countries and their allocated consent tracking policies.

3. Select the country name, whose consent tracking policy you want to update.
4. In the Analytics Consent Policy field within the Country page, select the search icon ( ).
5. Select the new **Analytics Consent Policy**.
6. Select **Update**.

Tracked analytics fields and cookies

User Experience Analytics tracks data from several sources, including web and mobile analytics fields, and client-side cookies.

Tracked web analytics fields for User Experience Analytics

User Experience Analytics collects data from web applications. These tables list the fields that are tracked. Reports and charts are generated from these fields.

For more information about using the data, see Viewing user analytics.

Collected data according to web session

Name	Description	S
UserID	User Experience Analytics internal user ID (sequential ID)	1
Hashed user ID	SHA256 hash of the user's ServiceNow® sys_id	f4
AppSysId	Application sys_id	e
SDKversion	SDK version	
Channel	Channel of the app (web, mobile, CoreUI)	w
InstanceId	Instance ID	
Instance Family Release	Family release of the instance	Z
InstancePurpose	Purpose of the instance (prod, sub-prod)	p
Patch release	Release patch number	Z

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Domain ID	User's domain ID	
Account Number	Customer's account number	
SessionId	Unique session ID	
DeviceType	Phone / Tablet / Desktop	P
DeviceID	Device ID	
Device#Resolution	Resolution of the device	1
OSType	Device's operating system	i
OSVersion	Version of the OS	1
Country Code	Country Code	I
City-Level Location	City location is translated from the end user's IP address. IPs aren't stored on the database. The IPs are only used to provide a city-level location approximation.	L
Browser Type	Type of web browser	C
Browser Version	Version of web browser	(
Local time	The local time of the user	1
Locale	User locale string	E
Tracking Level	Which consent type the user has	b

Collected data for each page visit

Name	Description	Sample output value
Description	Additional information about the data collected in a page visit	Home page
PageId	The page's unique identifier	home
StartTime	Relative start time within the session	2023-03-23T23:59:58

Collected data for customer events- optional

You can add these events by calling client-side APIs.

Name	Description	Sample output value
Name	Name of the event	Submit Catalog Request
Time	Event time (in milliseconds) from the beginning of the session	945

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Collected data for event properties

Name	Description	Sample output value
PageId	ID of the current page	home
Property Name & Value	Key value collection of property names and values	{"Version" : "1.0", “Active” : “false”}

Collected data for optional properties

Name	Description	Sample output value
Property Name & Value	Key value collection of property names and values	{“Language” : “English”}

Tracked mobile analytics fields for User Experience Analytics

User Experience Analytics collects data from mobile applications on your mobile device. These tables list fields that are tracked in the mobile applications. Reports and charts are generated from these fields.

For more information about using the data, see Viewing user analytics.

Collected data according to the mobile app session

Name	Description	Sample output value
User ID	User Experience Analytics internal user ID (sequential ID)	1
Hashed User ID	SHA256 hash of the user's ServiceNow sys_id	f4a9baa650ab13d429b185d12b14fcf5c
Session ID	Unique session ID	5a2b73857345abc3546243
Session Index	Sequential index of the specific user's session	5
Start Time	Session's start time in UTC format	2023-03-23T23:59:58
Session Duration	Session's duration in milliseconds	5165
App Version	The application’s version number	3.4.0
Device Type	Phone / Tablet	Phone
Device	Device’s make and model. Only for mobile and tablet devices.	iPhone X13 Pro
ROM Version	The ROM version (only for Android)	4.3.9
Operating System Version	Version of the device's operating system	iOS 16.5

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Name	Description	Sample output value
Network connectivity	WiFi / Cellular	WiFi
UserID	User Experience Analytics internal user ID (sequential ID)	1
Hashed User ID	SHA256 hash of the user's ServiceNow sys_id	f4a9baa650ab13d429abacf9f8c78d14fcf5c
AppSysId	Application sys_id	e5d8a2df53112110a40fddeeff7b1243
AppVersion	Application version	1.2
SDKversion	SDK version	
Connectivity	Connectivity Type (WiFi / system)	WiFi
Channel	Channel of the app (web, mobile, CoreUI)	web
InstanceId	Instance ID	
Instance Family Release	Family release of the instance	Zurich
InstancePurpose	Purpose of the instance (prod, sub-prod)	production
Patch release	The patch number of the release	Zurich p4
Domain ID	The user's domain ID	
Account Number	The customer's account number	
SessionId	Unique session ID	
DeviceType	Phone / Tablet / Desktop	Phone
DeviceID	Device ID	
Device#Code	Device’s model. Only for mobile and tablet devices.	iPhone 12
Device#Resolution	Resolution of the device	112X123
OSType	Device's operating system	iOS
OSVersion	Version of the OS	16.5
Country Code	Country Code	ISR
City-Level Location	City location is translated from the end user's IP address. IPs aren't stored on the database. The IPs are only used to provide a city-level location approximation.	Los Angeles, California
Local time	The local time of the user	1:30
Locale	User locale string	EN-US
Tracking Level	Which consent type the user has	basic Tracking

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Collected data for each screen visit

Name	Description	Sample output value
Screen Name	Name of the screen that data is collected from	Login
Start Time	Relative start time within the session	2023-03-23T23:59:58

Collected data for customer events- optional

You can add these events by calling client-side APIs.

Name	Description	Sample output value
Name	Name of the event	Submit Catalog Request
Time	Event time (in milliseconds) from the beginning of the session	945

Collected data for event properties

Name	Description	Sample output value
Property Name	Name of the event property (string)	Article Name, Language
Property Value	Value of the event property (string, Boolean, date, number)	KB0050925

Collected data for user properties

Name	Description	Sample output value
Property Name	Name of the user property (string)	English
Property Value	Value of the user property (string, Boolean, date, number)	5

User Experience Analytics client-side storage cookies

To track client-side user activity, User Experience Analytics uses the SNAnalytics JavaScript SDK that is embedded in Platform Analytics, Core UI, and the Service Portal.

The SNAnalytics SDK uses a combination of session storage and local storage variables to keep track of the information required to facilitate the analytics tracking.

For more information on session storage and local storage, refer to the JavaScript.Info documentation.

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For more information on SNAnalytics SDK, see SNAnalytics - Client #and SNAnalytics – in the Developer community.

Key structure

All locally stored keys are stored using the following structure: `sn:{API_KEY}:{KEY NAME}`

Each tracked portal has a unique API_KEY that is stored on the instance. For example, for the portal with an API key `abcd` and a key name `tab`, the local key value would be: `sn:abc:tab`

Session storage

Session storage is used to maintain the flow of information between web page refreshes and user navigations. Information in session storage is transient and kept available only during the lifespan of the current tab. When a tab is closed, the session storage information is removed.

The table lists the keys and values stored on session storage.

Key	Description
srt	Server Response Time. The last time SNAnalytics successfully communicated with the User Experience Analytics server.
data	Queue of temporary stored analytics data points, which is periodically flushed to the backend.
page	The name of the current page, automatically captured by the User Experience Analytics server.
tab	Randomly generated unique identifier for the current tab.

Local storage

Local storage is used to maintain tracking consent information, hashed identification of the user (which is cleared when consent is revoked), and randomly generated identifiers for the browser. Local storage variables are persistent locally and are deleted when the user clears their browsing data.

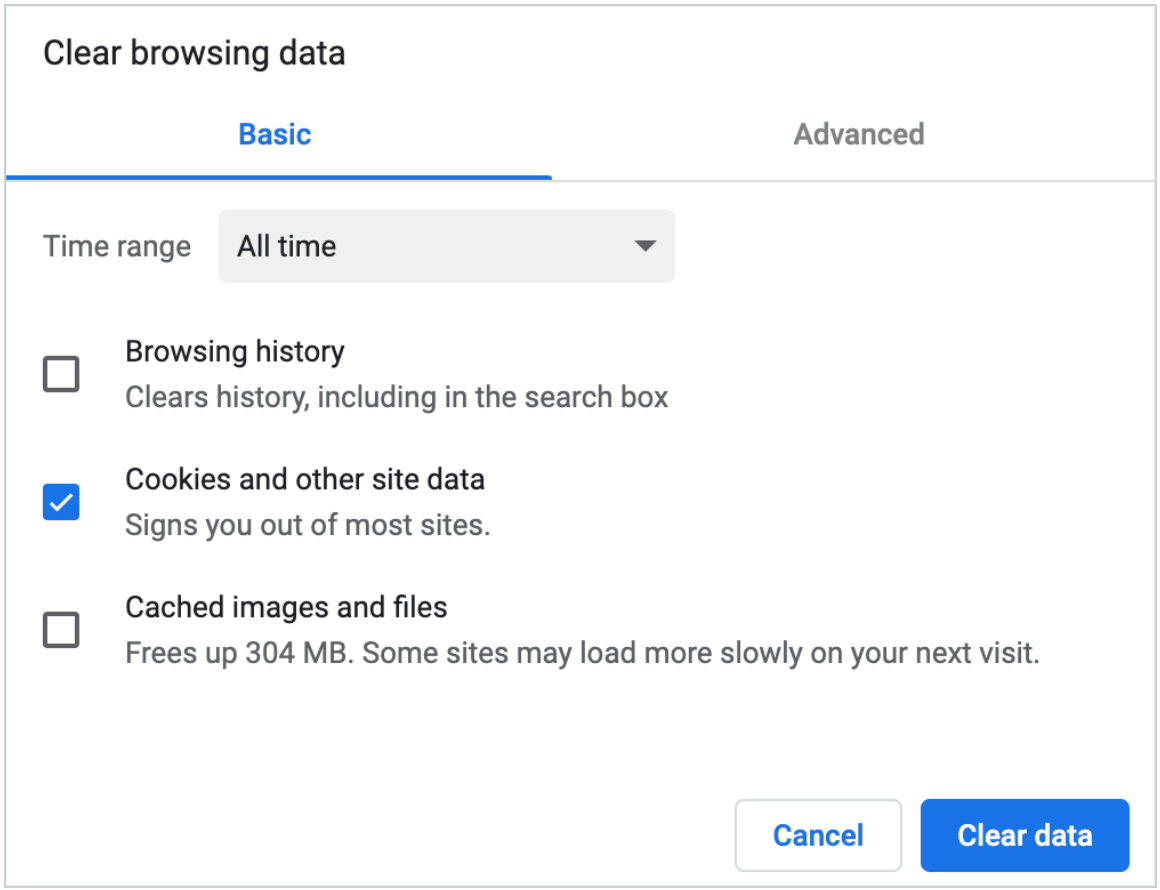
The table lists the keys and values stored on local storage.

Key	Description
browser	Randomly generated unique identifier for the current browser.
client	The server assigned ID mapped to the browser key value.
user	Hashed user id, supplied by the customer.
consent	A boolean (yes/no) value that indicates whether the user consents to be tracked.

Deleting local storage

To delete local storage variables, the user must clear the browsing data from within their browser. For example, in the Chrome browser, select **History** > **Show Full History** > **Clear browsing data**. In the Clear browsing data window, select **Cookies and other site data** and then select **Clear data**.

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Data storage

Data is encrypted at rest. It's stored in a central ServiceNow® multitenant repository closest to you, in either AMS (Canada), EMEA (Germany), or APAC (Japan).

Data is anonymized before it's sent to storage, and deleted at the database level after a retention period of two years.

For the Yokohama release, an additional backup copy is stored in a central repository in Canada using the pre-Yokohama architecture.

Domain separation in User Experience Analytics

Domain separation is not supported for the User Experience Analytics application.

Support level: No support

- The domain field may exist on data tables but there is no business logic to manage the data.
- This level is not considered domain-separated.

For more information on support levels, see Application support for domain separation.

Related topics

Domain separation for service providers

Using User Experience Analytics

Monitor usage analytics of your Next Experience web applications as well as Core UI, Service Portal and ServiceNow mobile and applications.

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Get started

Learn how you can use User Experience Analytics to track retention, use cohorts and funnels, and interpret navigation paths.

Note:
When you download raw data from User Experience Analytics, keep in mind that the internal schema structure can vary between product versions.

Filtering pages

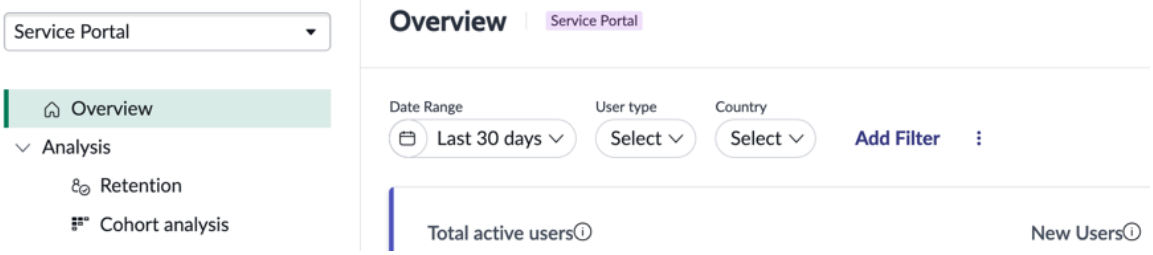
Drill down into usage data with standard and custom filters.

Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can filter pages that they have access to.

Most pages in the User Experience Analytics application have visible default filters and an option to add other standard filters. To add additional user-related fields, see .

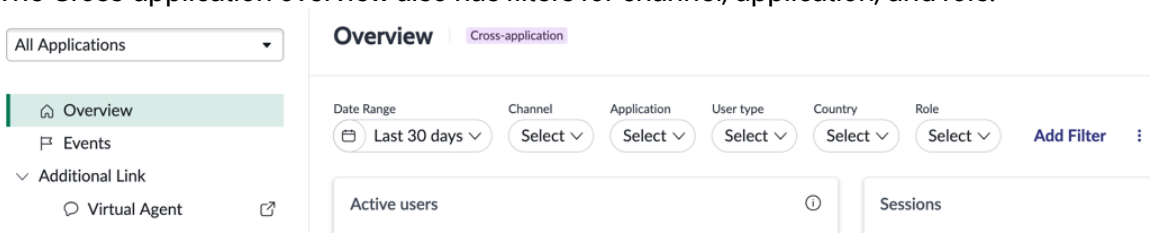
Default filters

On each page of User Experience Analytics, there are several default filters for constraining the information on the page. Most pages have filters for date range, user type, and country.



Note:
Mobile applications have additional default filters for operating system and version.

The Cross-application overview also has filters for channel, application, and role.



Additional filters

Select Add filter to choose from available filters configured for the application.

Note:
Additional filters are joined to the selected default filters with the AND condition, meaning that both filter conditions must be true for the filter to apply. For example, select **User type**=`Returning` and **Additional filter**=`Password needs reset`. If no returning users need to reset their passwords, all of the visualizations on the page will be empty because both conditions must apply.

The available additional filters are:

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- Password needs reset
- Role
- Enable multifactor authentication
- Active
- Department
- VIP

In addition to the default filters on the pages of the#User Experience Analytics application, you can add filters based on user properties. See for details.

User retention

User retention reports help you understand if your app meets your users' needs and expectations, and enables you to measure how your optimization efforts impact user retention.

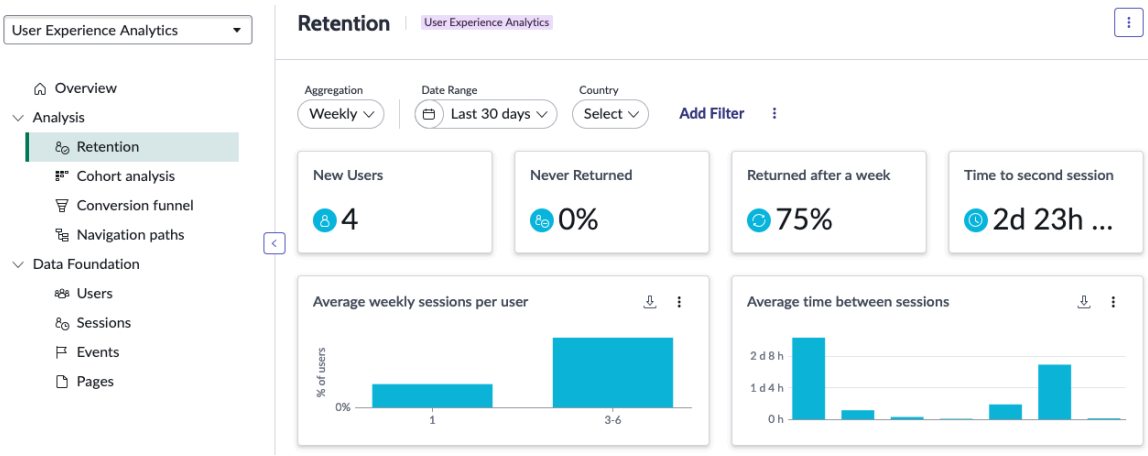
Before you begin

Role required: analytics_admin, mobile_analytics_admin, web_analytics_admin, or portal_analytics_admin

About this task

View data such as how many new users you have, how many never returned, and how many returned the following day. User retention data also shows you the frequency of user sessions and the average time in between sessions given a certain time bucket. User retention analytics can help you, for example:

- Use cohort analysis to identify a month, week, or day with poor retention.
- Compare retention analytics across versions and devices.



Procedure

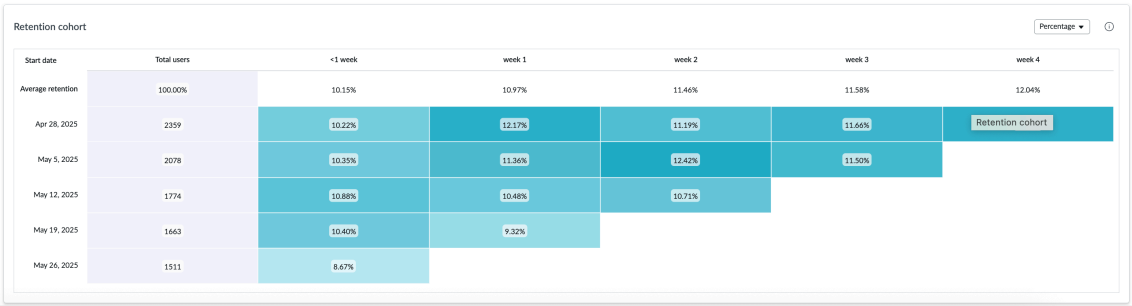
1. Navigate to **All** > **Platform Analytics** > **User Experience Analytics**.
2. Choose the application that you want to review retention for from the **All Applications** list.
3. Filter the data.
   The default filters are **Aggregation** (daily, weekly, or monthly), **Date Range**, and **Country**. For more information on filters in User Experience Analytics, see Filtering pages.

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Retention KPIs

KPI	Description
New Users	Number of new users within the specified time bucket.
Never returned	Percentage of users who never returned to use the app after their initial session.
Returned after a day/week/month	Number of users who used the app in the specified aggregation period after their initial session.
Time to second session	Average time interval between the first and the second sessions.
Session frequency	Measures the average number of sessions within the selected time bucket (daily/weekly/monthly). For example, 25% of users used the app two times per day.
Average time between sessions	Average times between initial and subsequent sessions.

4. Display the Retention cohort using different metrics.
   The Retention cohort is a heatmap that shows the number or percentage of users who started to use the app during the specified date range using the specified aggregation. In this example the **Aggregation** is `Weekly`, the **Date Range** is `Last 30 days`, and the measure is `Percentage`.



How retention is calculated

Understand how User Experience Analytics calculates user and action retention.

User retention

User retention analysis groups new users and not the total number of users. A cohort includes every new user that uses the app within a defined time frame and selected date bucket (daily/weekly/monthly). A new user is only counted once per cohort, but can be included in more than one cohort.

For example, if looking at weekly cohorts, the numbers marked <1 week, week 1, week 2, and week 3 along the top of the Retention cohort report indicate weekly buckets. The percentage under each weekly bucket represents the number of users who returned to use the application during that specific bucket.

The beginning and ending of each bucket is different for each new user in the cohort. The bucket marked **<1 week** indicates a time frame before the first full week following the user's initial session. The dates the weeks start are on the left of the visualization. For example, if a user's

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initial session begins on November 16, and the first full week begins on November 18, then the retention information for the period in between is in the <1 week column.



Start date	Total users	<1 week	week 1	week 2	week 3	week 4
Average retention	100.00%	90.91%	13.64%	4.55%	0.00%	0.00%*
Nov 18, 2024	3	33.33%	66.67%	33.33%	0.00%	0.00%*
Nov 25, 2024	10	100.00%	10.00%	0.00%	0.00%*	
Dec 2, 2024	9	100.00%	0.00%	0.00%*		
Dec 9, 2024	0	0.00%	0.00%*			
Dec 16, 2024	0	0.00%*				

Action retention

Retention cohort analysis groups the number of users who performed the first action defined for the cohort, not the total number of application users. The cohort includes every user that uses the app and performs the first action within the defined time frame and date bucket (daily/weekly/monthly).

For example, if looking at weekly cohorts, the numbers marked 1, 2, 3 along the top of the retention report indicate weekly buckets. The percentage under each weekly bucket represents the number of users who returned to use the application and performed the second action during that specific bucket.

The beginning and ending of each bucket is different for each new user in the cohort. The bucket marked '1' indicates a time frame of seven days following the user's initial session. For example, if a user's initial session began at 10:00 on Sunday, bucket 1 for them begins at 10:00 on Sunday of the following week. Bucket 1 for the user extends from 7 through 13 days from their initial session.

A new user is only counted once per cohort, but can be included in more than one cohort. For example, if a weekly cohort is based on a login event, a customer who logs in at least once each week appears in every cohort.

When a user performs the second action, it’s counted for every first action that was performed within the time frame, not only the latest one. Each cohort cell is unique. If a user performs the second action twice within the same bucket, it’s counted once. When creating a cohort in which both steps are similar, every action acts both as a first and second action.

For example, a cohort has defined two similar login actions. If a user logged in three times – on Sunday, Monday, and Tuesday – the action performed on Monday is counted as the second action for the login on Sunday. It also opens a new cohort that the Tuesday action completes.

When filtering by application versions, the analysis shows only the users who performed their first action from the selected version.

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Cohort analysis in User Experience Analytics

A cohort is a group of users separated from other users by similar traits or actions. Cohorts enable you to analyze how many users complete a predetermined sequence of actions so you can track conversion rates.

Cohort analysis reports provide you with information on how one in-app action relates to another. You can see measurements of how much time passes between a sequence of actions, and trends in user behavior and engagement over periods of time.

Create a cohort

Define the predetermined sequence of actions a group of users complete so you can track conversion rates at each step.

Before you begin

Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete cohorts for the applications they have access to.

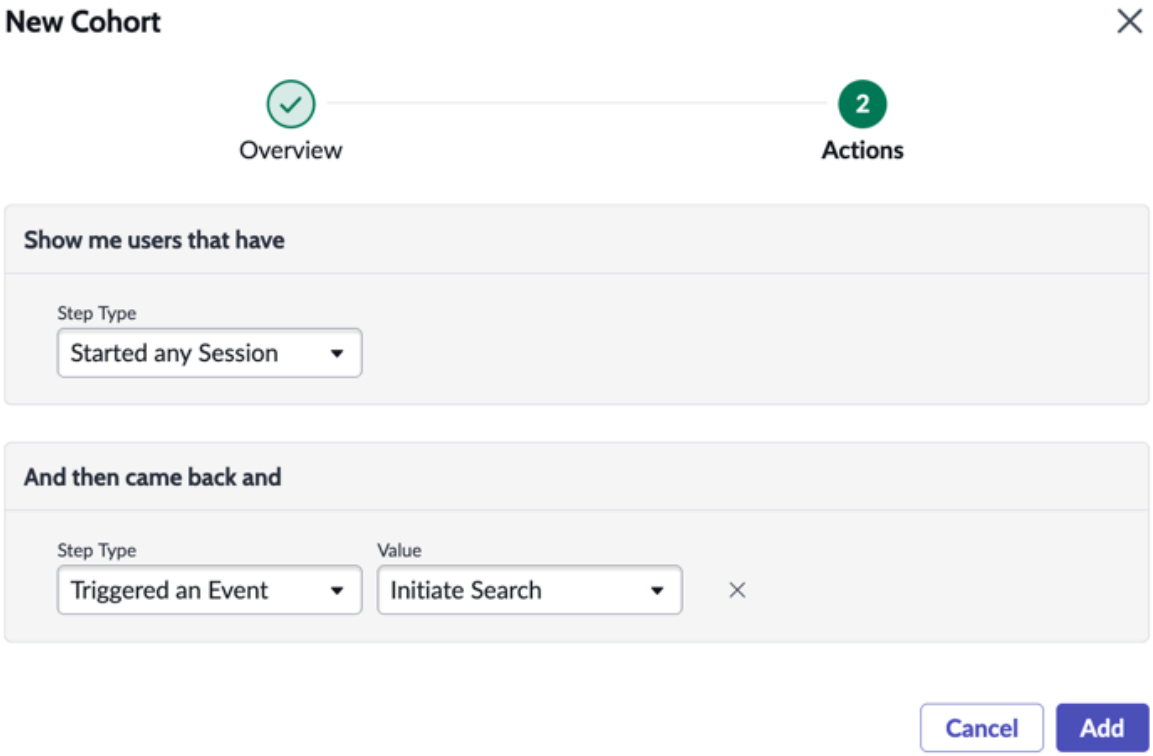
About this task

Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application to create a cohort for.
3. Select **Analysis** > **Cohort Analysis**.
4. Select the Create new cohort button (+).
5. Enter a name and a description for the process you want to measure.
6. Select two step types and their values and select **Add**.
   The step types are:
   - Visited a Screen
   - Triggered an Event
   - Performed an Action
   - Started any Session
   - Started their 1st Session

   The actions are dependent on the step type.

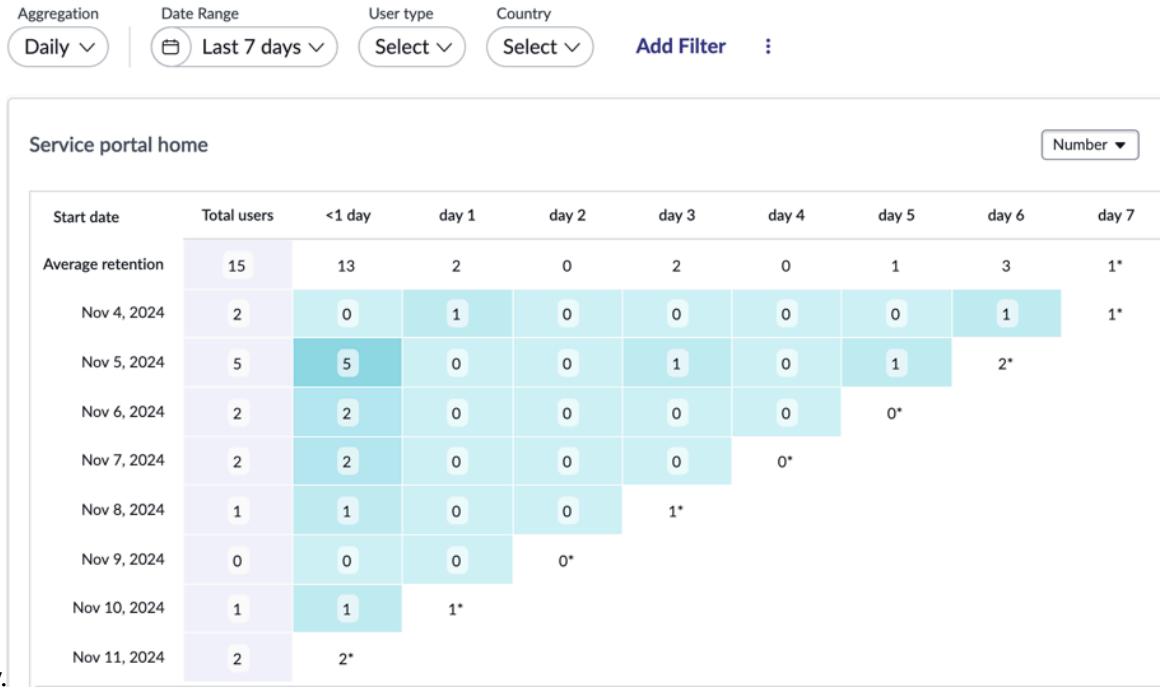
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7. Select **Save**.

What to do next

View the cohort to see how many of the users who performed the first defined action returned to perform the second action. When you view the cohort, you can filter on Aggregation, Date range, User type, Country, and add filters as necessary.



Note:
If data shown in the cohort analysis is not final, a note indicates that retroactive data is still being processed. Refresh the screen to see the report with final data.

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Edit a cohort

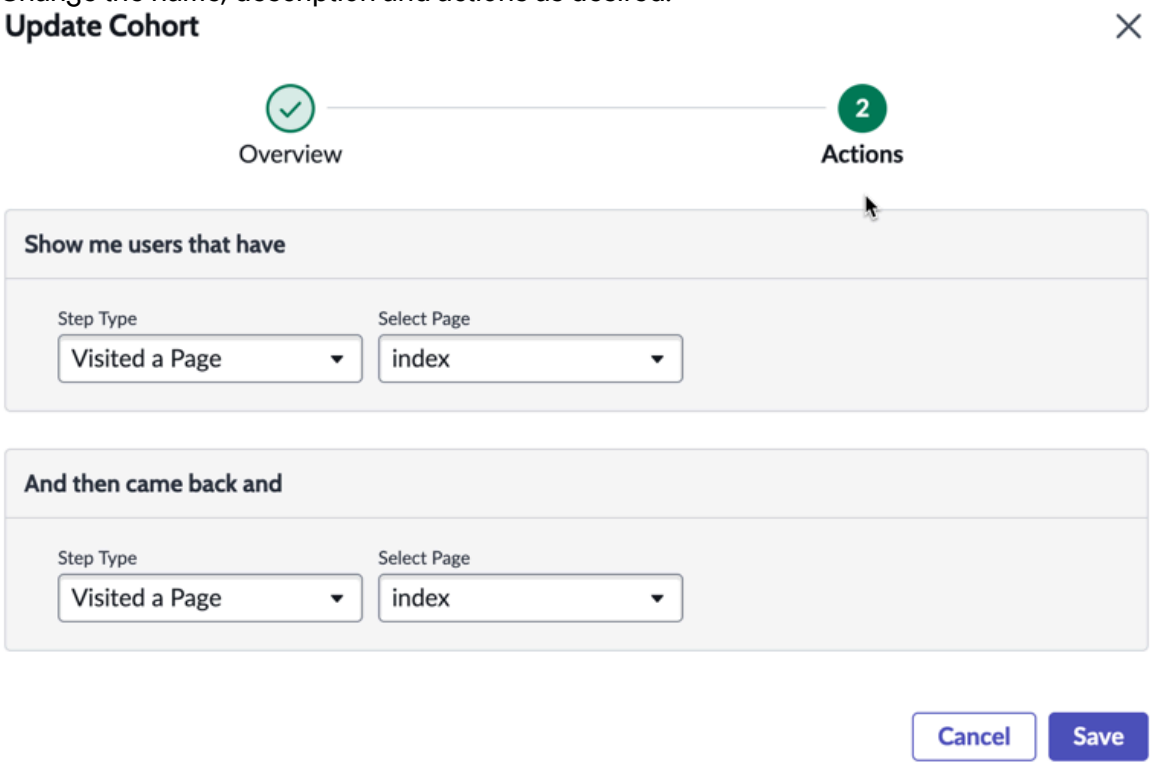
Edit cohort session data to include in your analysis.

Before you begin

Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete cohorts for the applications they have access to.

Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application with the cohort you want to edit.
3. Select **Analysis** > **Cohort Analysis**.
4. Select the Actions menu ⋮ of the cohort you want to edit and choose **Edit**.
5. Change the name, description and actions as desired.



6. Select **Save** to update the cohort configuration.

Delete a cohort

Easily delete a cohort report.

Before you begin

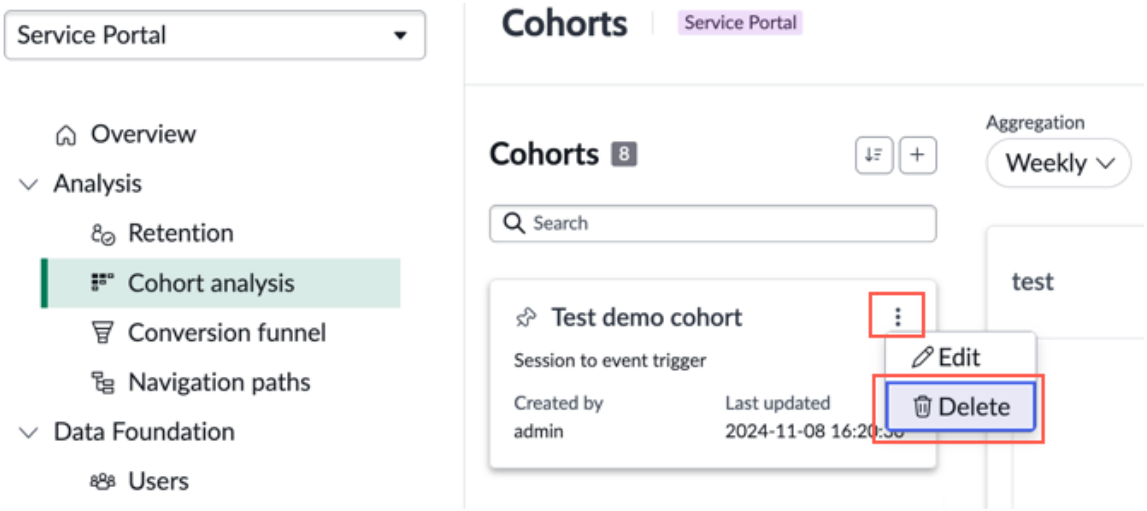
Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete cohorts for the applications they have access to.

Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application with the cohort you want to delete.

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3. Select **Analysis** > **Cohort Analysis**.
4. Select the Actions menu ⋮ of the cohort you want to edit and choose **Delete**.



5. Confirm your choice by selecting **Delete**.

Funnel reports in User Experience Analytics

Conversion funnels track a specific sequence of actions and show conversion rates and trends in aggregate user behavior to uncover the reasons behind success or failure of a specific in-application user goal. Investigating a conversion funnel can help you measure and optimize the conversion rates of relevant processes within your application.

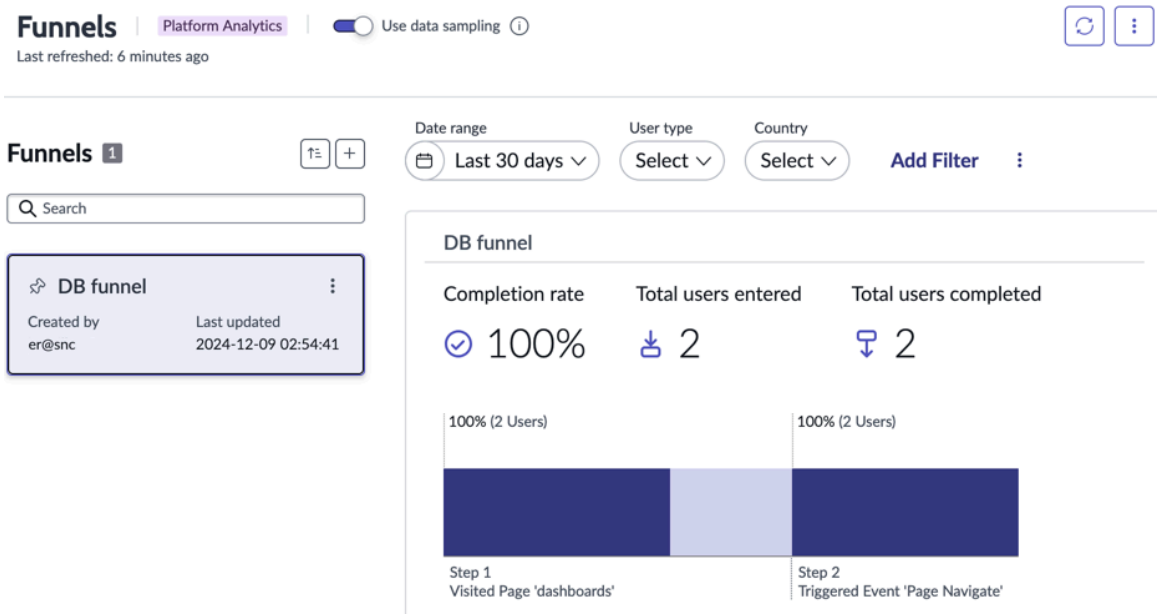
A funnel analysis shows the percentage of users who completed a desired action along a critical path in your application, such as completing onboarding. You can also discover reasons why users drop off.

Note:
Conversion funnel data is analyzed from the complete data set. Toggle **Use data sampling** on to analyze the data from a sample of 15%.

A funnel can include various actions leading up to success or failure of a conversion. There can be multiple paths users might take to reach a goal, so you may want to build several conversion funnels to determine which goal path is the most relevant and effective for your users. To measure users conversion rates on a particular goal, three primary metrics give you a baseline assessment of your conversion funnel's overall effectiveness:

- Number of users that progress from one step to the next
- Associated conversion rates
- Average time it takes for users to advance from one step to the next

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Create a conversion funnel

View conversion rates and trends in aggregate user behavior to uncover the reasons behind success or failure of a specific in-application user goal. Investigating a conversion funnel can help you measure and optimize the conversion rates of relevant processes within your application.

Before you begin

Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete funnels for the applications they have access to.

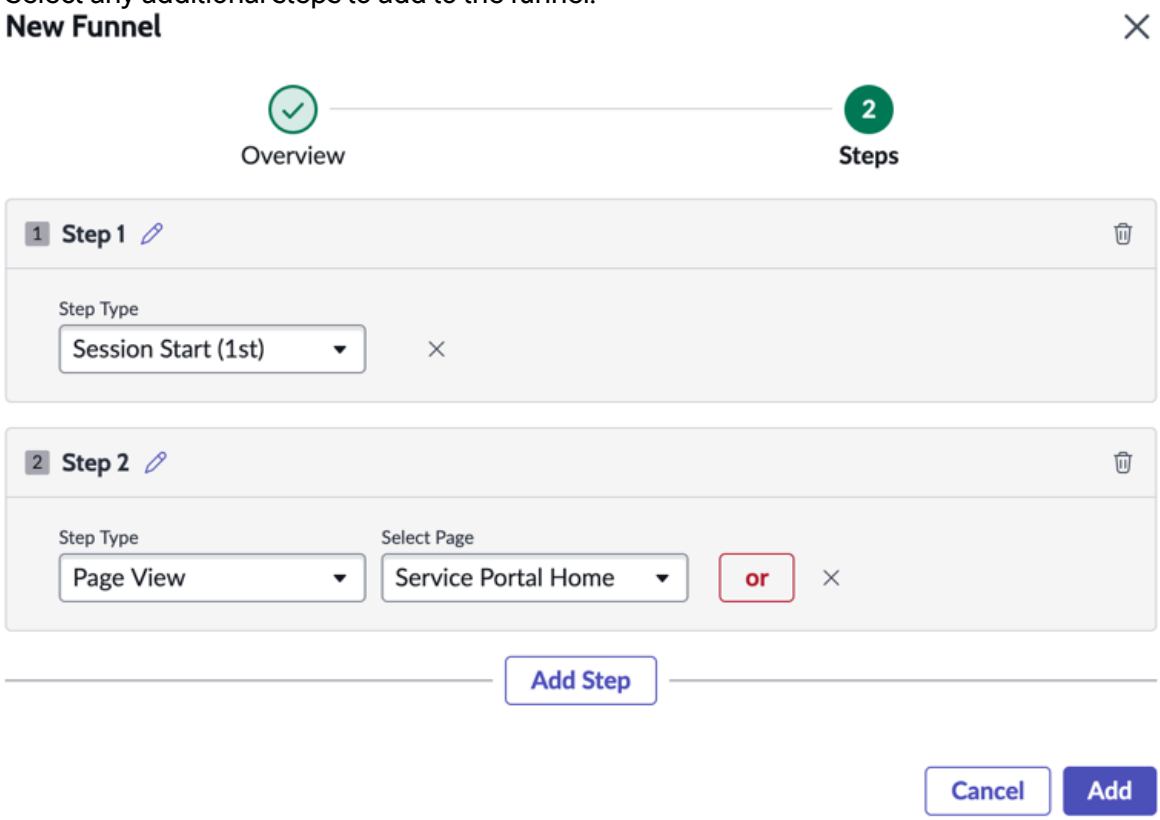
Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application to create a conversion funnel for.
3. Select **Analysis** > **Conversion funnel**.
4. Select the **Create new funnel** button (+).
5. Enter a name for the relevant process you want to measure and, optionally, a description, and select **Next**.
6. From the **Step Type** options, select steps you want to measure, and screens, events, or actions as applicable.

Option	Description
Event Trigger	Select User Analytics Events KPIs to measure. To match a selected event by a certain property, select **Filter properties**, select a property from the drop down, and enter a value for the property.
Session Start (1st)	Select to measure users' first sessions.
Session Start (any)	Select to measure any user sessions.

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7. If applicable, select the **or** button to add an alternative step type that users might choose at that point in the path.
8. Select any additional steps to add to the funnel.



9. Select **Add** to finish the funnel.

Edit a conversion funnel

Edit conversion funnel data to collect or steps to include in your analysis.

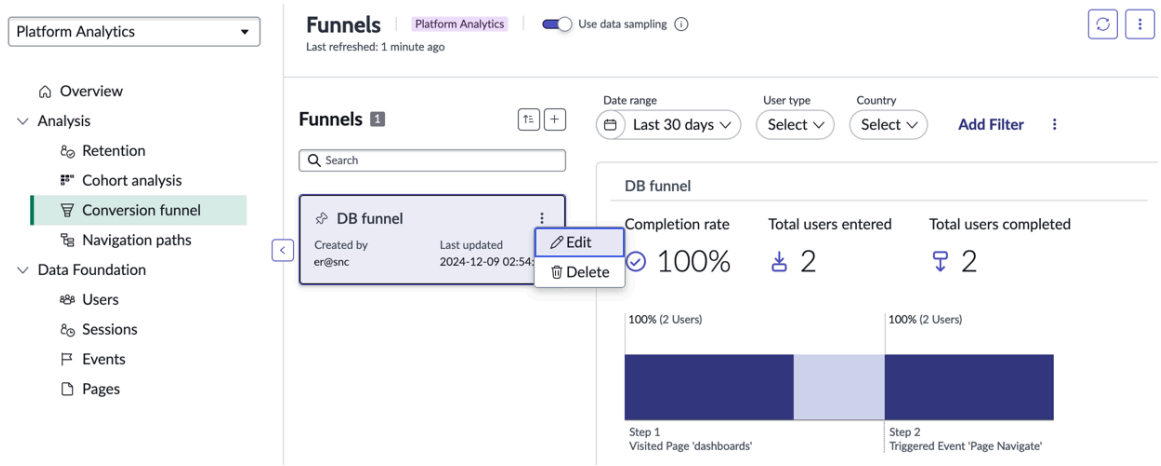
Before you begin

Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete funnels for the applications they have access to.

Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application with the funnel you want to edit.
3. Select **Analysis** > **Conversion funnel**.
4. Select the Actions menu ⋮ of the funnel you want to edit and choose **Edit**.

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5. Change the funnel name or description, and edit or add steps as applicable.
6. Select **Save** to update the funnel configuration.

Delete a conversion funnel

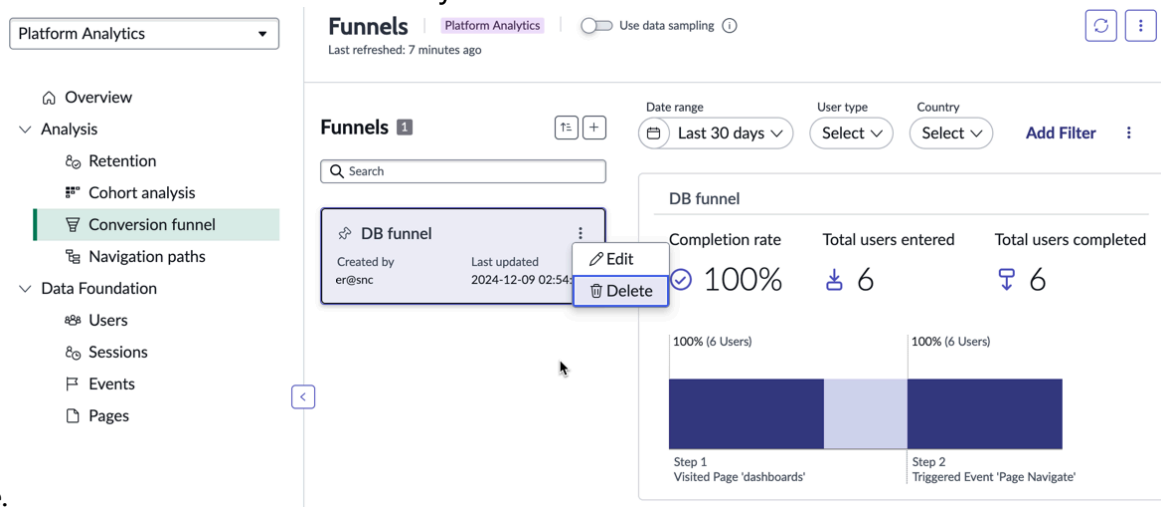
Easily delete a funnel.

Before you begin

Role required: Users with the analytics_viewer, portal_analytics_viewer, mobile_analytics_viewer, core_ui_analytics_viewer, now_experience_analytics_viewer roles can create, edit and delete funnels for the applications they have access to.

Procedure

1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. From the Applications list, select the application with the funnel you want to delete.
3. Select **Analysis** > **Conversion funnel**.
4. Select the Actions menu ⋮ of the funnel you want to delete and choose **Delete**.



5. Confirm your choice by selecting **Delete**.

How User Experience Analytics matches funnels

Learn how User Experience Analytics matches sequences of pages you anticipate users seeing before they reach a goal.

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User Experience Analytics bases funnel matching on unique users, and not on sessions, so steps can be matched between sessions. For example, a user may start the first step of a funnel in their first session, and continue the next step in another session. Users are counted only once for a selected time range, and step completions are only counted once per user.

A funnel measures users who complete a funnel step within 30 days, so a user can complete step #2 on January 1, then step #3 on January 30, to be counted.

Funnels steps are loosely matched. Users can perform other steps between the steps that define the funnel. For example:

For the funnel A > B > C:

- A > B > C are matched.
- A > B > D > C are also matched, where D can be any user action.
- A > B > E are not matched—the user is considered to have completed only step B.

When matching duplicate steps, the funnel analysis selects the first occurrence that progresses the funnel, and ignores duplicate occurrences. For example, for the funnel A > B > C: With a user who performs A > B > B > C, the second B is ignored.

When selecting a time range, the analysis shows only users who complete the entire funnel within the time range. If a user starts the first step before or after the selected time range, they are not counted.

Funnel analysis respects duplicate funnel entrances. For example, for the funnel A > B > C, a user performs the following actions:

```
A (Sunday) > B (Monday) > A > (Tuesday) > B (Wednesday) > C
(Thursday)
```

The user is returned when selecting Sunday-Thursday, Monday-Thursday, Tuesday-Thursday, but not if they select Wednesday-Thursday.

This behavior is true both for reviewing individual sessions, and for the aggregated user count.

User Experience Analytics shows all sessions that progress through the funnel for the selected step, excluding ignored occurrences, and can show multiple sessions of a user.

When filtering by application versions, the analysis shows only the users who performed their first action from the selected version.

Navigation paths

Navigation paths enable you to quickly understand and isolate users' journeys through your web or mobile application. Assess the most and least common navigation paths your users take and how you can improve them.

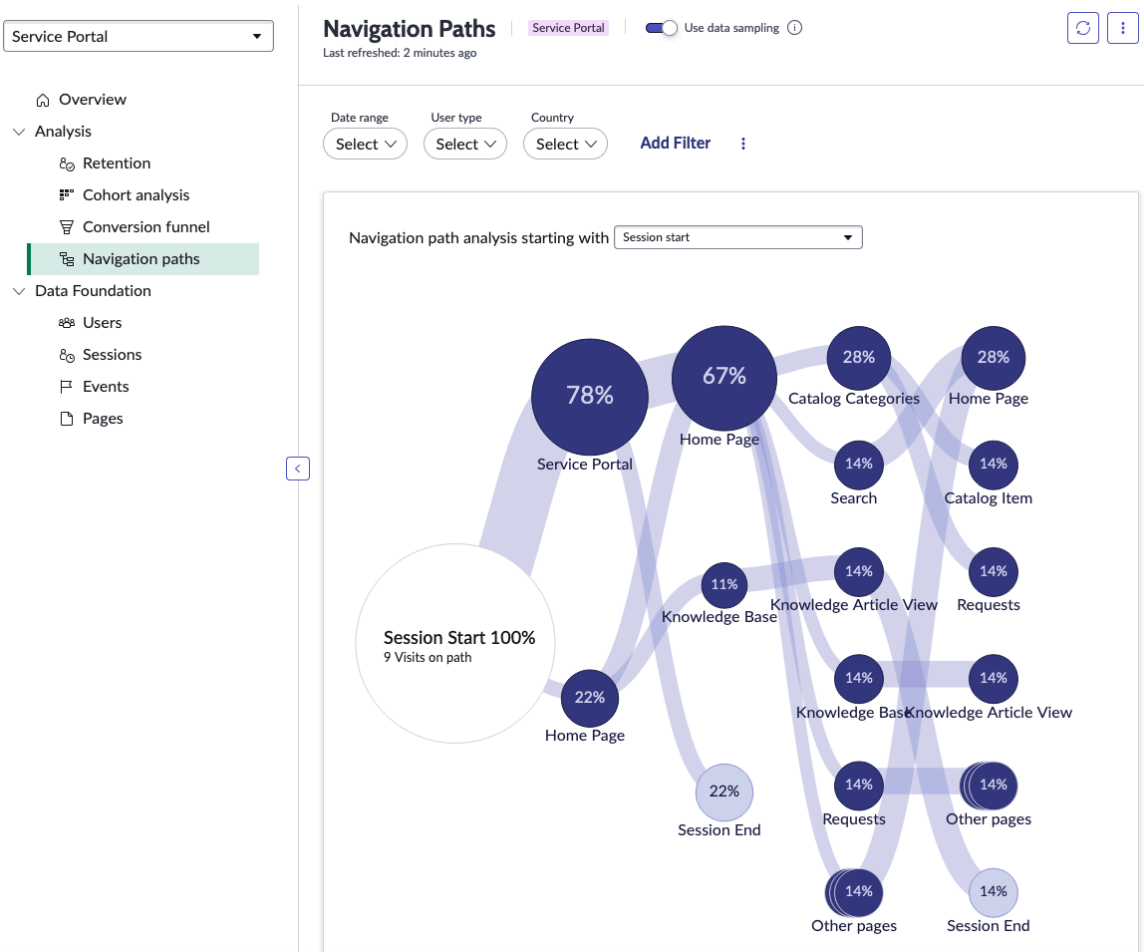
Navigation paths give insights into the paths users follow from a root screen. These can help you:

- Identify user journeys that show user confusion, for example, navigation back and forth between two screens.
- Identify critical journeys that end prematurely.
- Understand the effect of pop-ups on user navigation.

A navigation path shows the frequency of specific, ordered paths within the application, enabling you to see the most common paths that users take. Each screen can appear multiple times within a navigation path.

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Note:
Navigation path data is sampled to 15% by default. Toggle **Use data sampling** off to analyze the full data set.



Viewing and interacting with a navigation path

The Navigation Paths screen shows an initial visualization which contains data for all screens contained in the selected application. Each circle on the visualization represents a navigation level, and shows the numbers of navigations from the previous screen, up to five levels. You can choose whether to display the visualization with analytics for **All Users**, **New** users, or **Returning** users.

You can interact with a navigation path in these ways.

Action	Step
Filter the navigation path visualization	Choose to filter on **Date Range**, **User type**, and **Country**. Select **Add Filter** to add filters to the current session that are appropriate to the application you're analyzing. The **User type** filter enables you to select New or Returning. Clear the selection to show analytics for all users.
Change the root screen to see navigation paths from that screen onward.	Change the root screen several ways:

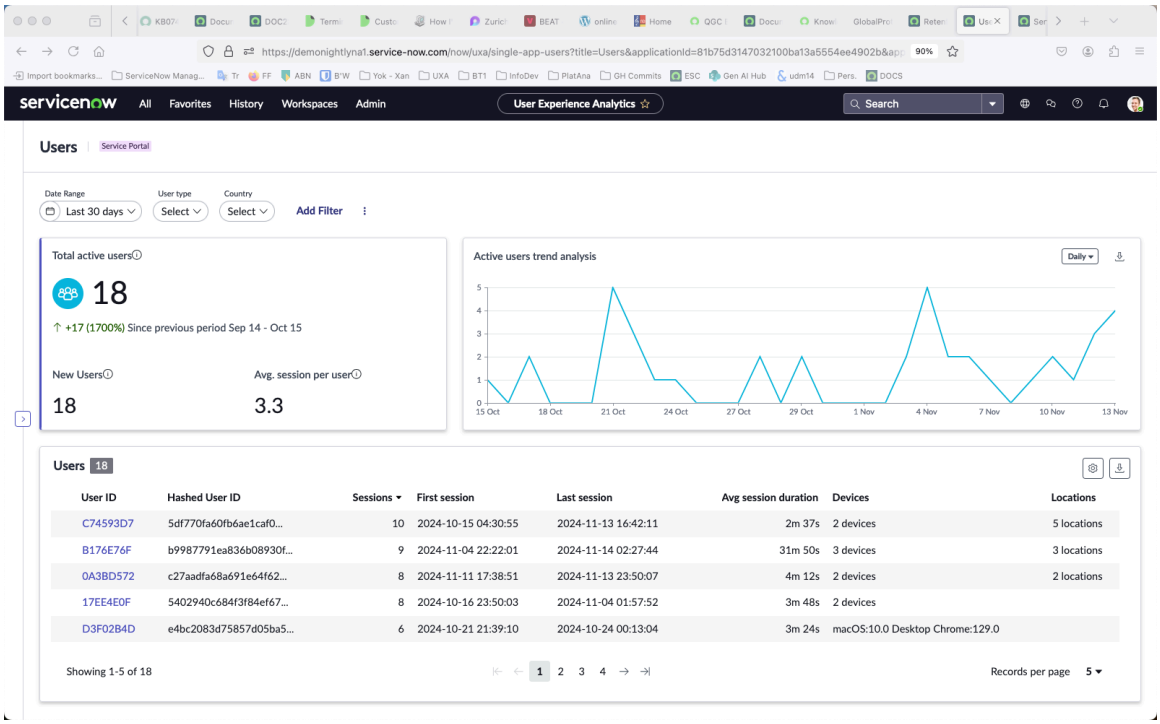
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Action	Step
	• Choose a start screen from the list labeled **Navigation path analysis starting with**. • Select any node and select it a second time to make that node the root. Choose Session start from the **Navigation path analysis starting with** list to return to the full navigation path analysis.

Viewing user analytics

The Users page within the Data Foundation module enables views of individual user journeys through your applications, from their first session to the most recent within the defined date range.

View user analytics and behavior, including taps and swipes, and other timeline actions. Select the users you want to see, set filters, and drill down into individual user sessions for closer insights.



Users list

Field	Description
User ID	Automatically generated number assigned to each unique user tracked by User Experience Analytics. Select the User ID to view the user's sessions and Activity timeline.
Hashed User ID	Generated hashed `sys_id` value for each user. Actual user IDs are not displayed. Instead they are automatically hashed via the SHA-256 hash function.

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Users list (continued)

Field	Description
	Note: Users not logged into the portal are displayed as “Anonymous”.
Sessions	Total number of sessions the user has performed across all versions and devices.
First Session	Date and time when the user first accessed the application.
Last Session	Date and time when the user last began a session.
Average session duration	Average time the user spent in the application across all versions and devices.
Devices	All web or mobile devices the user has installed the application on.
Locations	The number of locations the user has accessed the application from.

Note:
Users lists can only be reordered by user index.

Filter options

You can filter the Users list by date range, User type, and Country by default. Using the **Add filter** option, you can filter on Locale, Department, Role, Group, and Manager, as well as by your custom User filters.

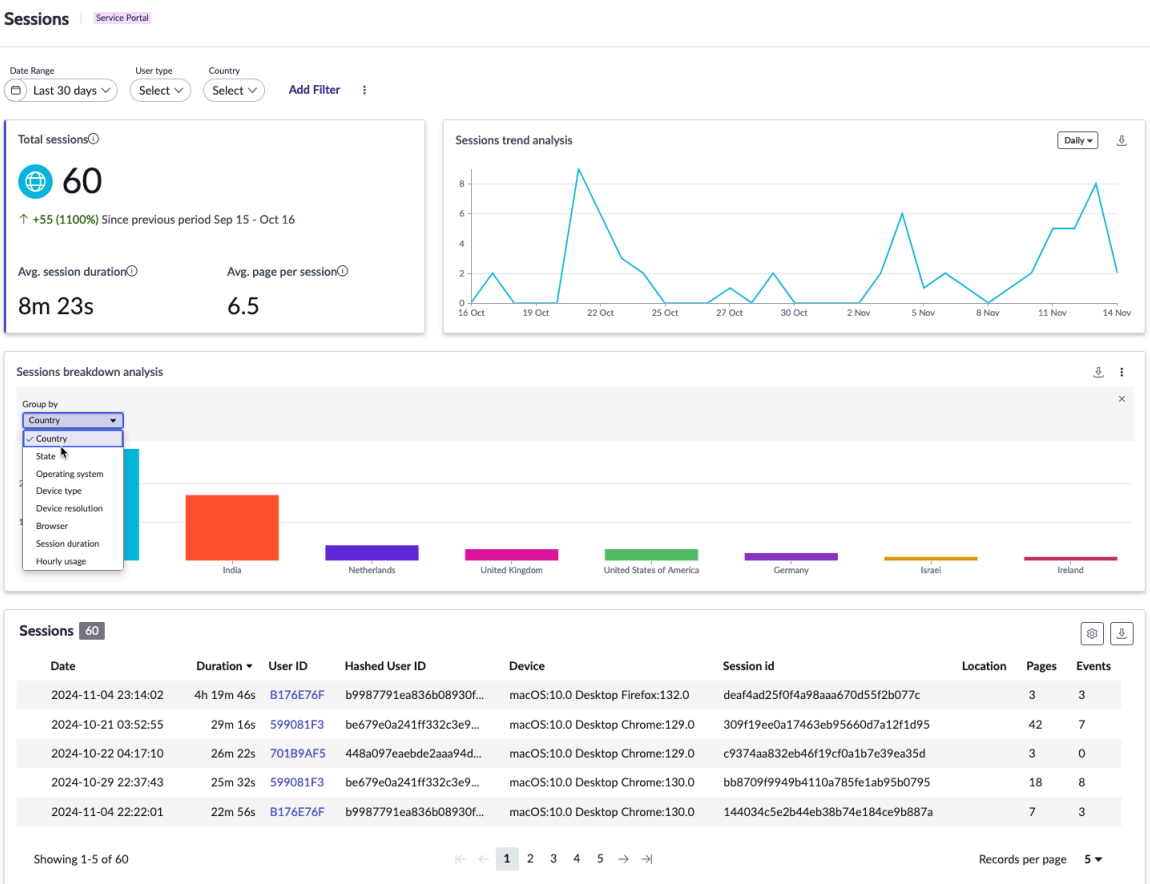
Note:
The Add filter options use a logical AND operator, meaning that the results must meet both the criteria in the default filters AND the criteria in the additional filters to be included in the visualizations.

Viewing session analytics

The User Experience Analytics Sessions page in the Data Foundation module lists filterable application sessions that you can drill down into for more detailed insights. Refine the sessions list to focus on data such as selected screens or events for your application.

To view the Sessions overview, navigate to **Platform Analytics** > **User Experience Analytics**, select an application, and then select the **Data Foundation** > **Sessions** module. Select a User ID in the Sessions list to view that user's sessions.

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Sessions list

Field	Description
Date	Date the session occurred.
Duration	Length of time the session lasted. • **Note:** User Experience Analytics tracks a maximum session length of four (4) hours. • **Note:** On the legacy dashboard, session start times were based on the server clock, which applied uniformly. After the replatforming, session start times are based on the client clock, which can differ slightly between users (for example, due to local time settings or sync delays). This can cause a minor variation, typically less than 2%, in total session counts.
User ID	Automatically generated number assigned to each unique user of an application version. Can be used instead of an internal User ID. Select the User ID to view the user's sessions and Activity timeline.
Hashed User ID	Generated hashed `sys_id` value for each user. Actual user IDs aren't displayed. Instead they're automatically hashed via the SHA-256 hash function.

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Sessions list (continued)

Field	Description
	Note: Users not logged in to the portal are displayed as “Anonymous.”
Device	Specific device the user session occurred on.
Session ID	Unique session number for the user. A new, consecutive session number is tracked for the user each time they start a session.
Location	Location the user accessed the application from.
Pages	Number of screens visited or pages viewed during the session by the user.
Events	Number of actions the user performed during the session.

Filter options

You can filter a Users list by date range, user type, and country by default. Using the **Add filter** option, you can filter on Locale, Department, Role, Group, and Manager.

Note:
The Add filter options use a logical AND operator. This means that the results must meet both the criteria in the default filters AND the criteria in the additional filters to be included in the visualizations.

Session breakdown analysis

You can view a breakdown analysis of sessions by grouping them according to country, state, device type, hourly usage, and so on. The Geographic Analytics visualization, which was available until the Xanadu release, has been replaced by this Analysis Breakdown.

Session Details record

View statistics and timeline details for a specific user session.

Before you begin
Role required: admin

About this task
Access a Session Details record from a user sessions record.

Procedure

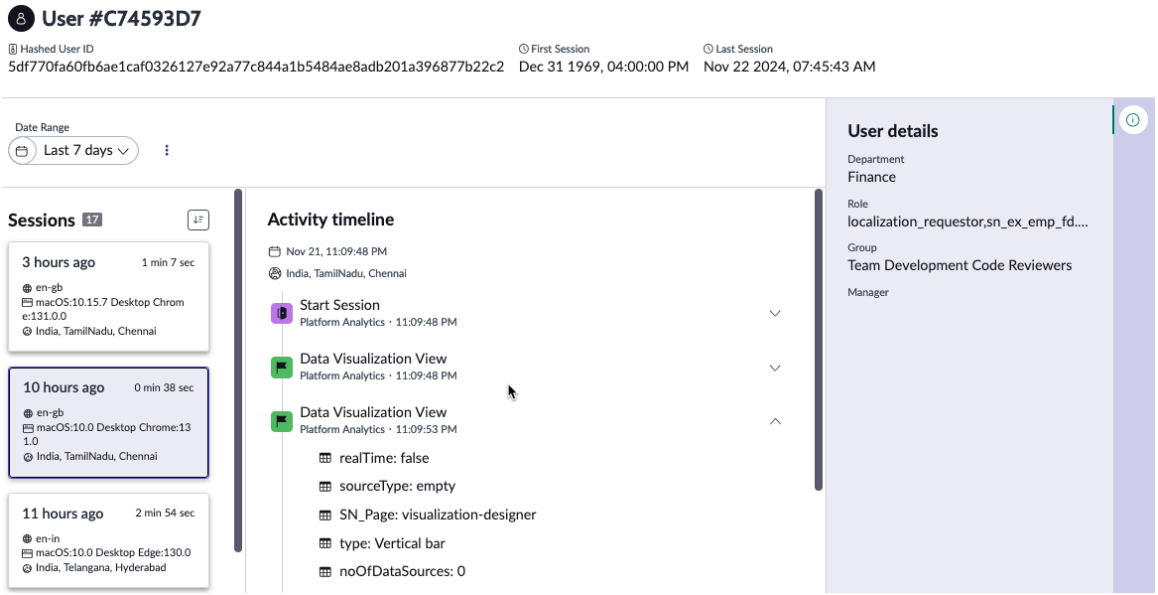
1. Navigate to **Platform Analytics** > **User Experience Analytics**.
2. Select an application.
3. Select the **Sessions** module.
4. Select a User ID in the Sessions list to view that user's sessions.
5. Select a session.

User sessions record

View overall session statistics for a user, and event timeline details for a user's specific sessions.

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You can access a user sessions record from a sessions or users list screen. Select a hashed user ID to open the sessions record for that user. Select a session tile to view its Activity timeline.



Field	Description
User ID	
Hashed User ID	Generated hashed `sys_id` value for each user. Actual user IDs are not displayed, and instead are automatically hashed via the SHA-256 hash function. **Note:** Users not logged into the portal are displayed as “Anonymous”.
First Session	Date and time the user first accessed the application.
Last Session	Date and time the user last began a session.
Date range	Choose a range of dates to display in the sessions list.
Locales	The country, language, and region the user viewed the application in.
Devices	Shows browser type, device and device version used by the user.
Sessions	Shows the following session details: • Relative time since the session occurred. • Duration - How long the session lasted. • Operating system, version, platform, and browser used for the session. • Search - Navigates to the Sessions list specific to sessions for the selected user. You can reorder sessions by date, index number, session duration, or app version.
Activity timeline	Shows a timeline of events for the user session. To see more detail for an event, click the Expand icon ⌄ next to an event on the timeline.

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Field	Description
User Details	Relevant details associated with the user, including Role, Department, and whether the user is active.

Related topics

Session Details record

View User Experience Analytics Events

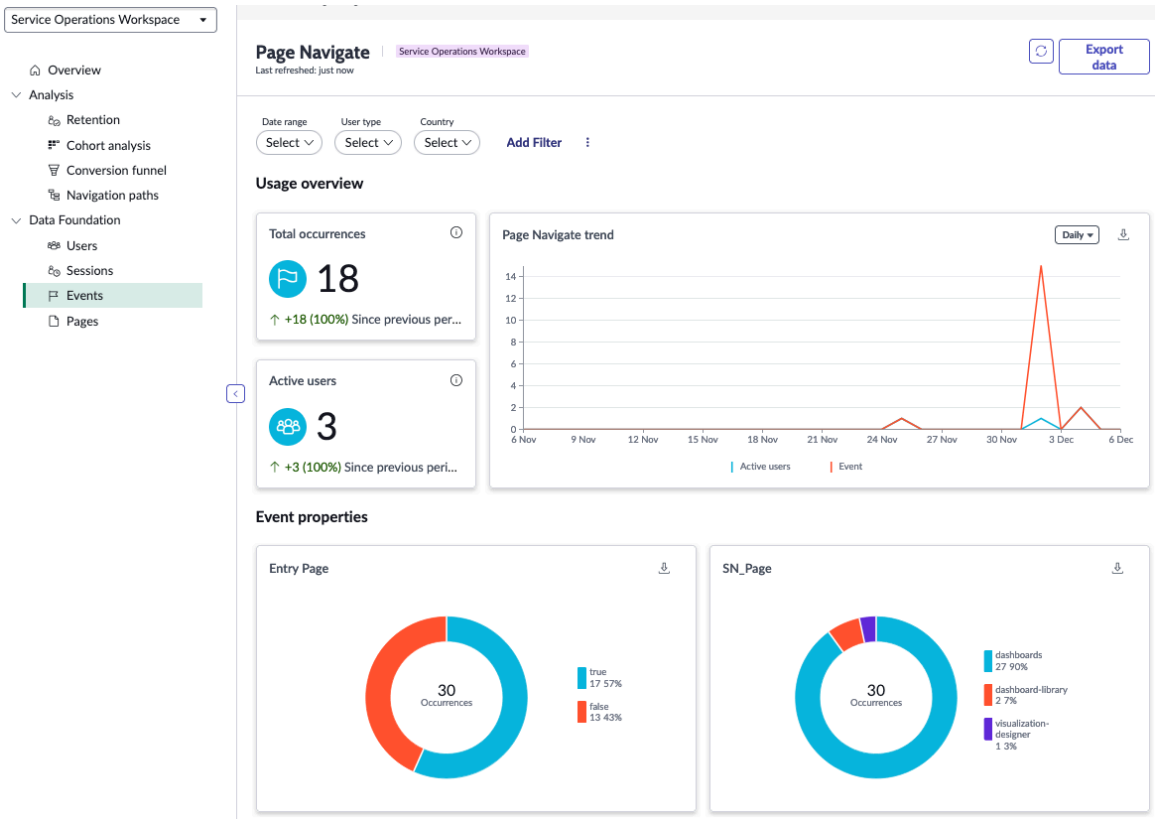
View user analytics event occurrences to help you analyze core steps within your business processes.

Before you begin

Role required: user

About this task

User Experience Analytics automatically detects all screens, gestures, and user actions in your applications. You can view occurrences of user-triggered events including menu selection, button clicking, and swiping.



Procedure

1. Navigate to **All** > **Platform Analytics** > **User Experience Analytics**.
2. Select the application for which you want to analyze events.
3. Select the search icon to open the Search field and type the name of the event to filter in the Events list, or scroll to search the Events list.
   To view events across all applications, select **All Applications** from the applications list and then select **Events**.

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What to do next

For more information about viewing events, read SNAnalytics APIs.

User Analytics Events KPIs

These event KPIs are tracked for web and mobile platforms.

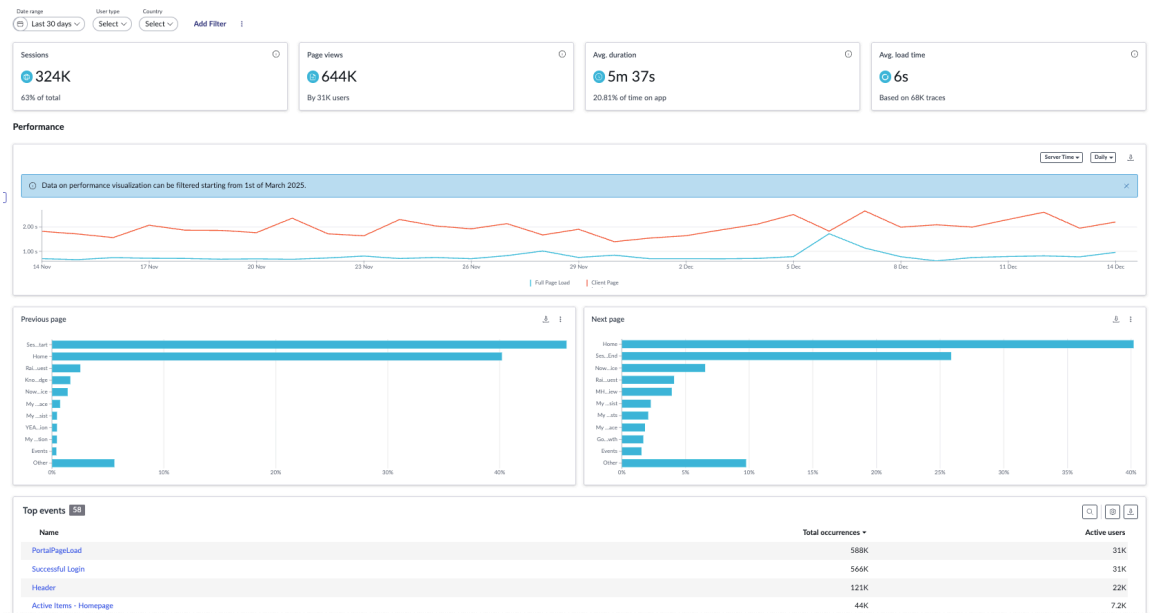
Events KPIs

KPI	Event logs when:
App Launch External	User launches application from a notification or deep link.
User Login	User successfully logs in.
Open App/ALP	User taps ALP/screen.
Open Applet	User opens an applet.
Voice Search Tapped	User taps the Microphone icon.
Contact Support Tapped	User taps the Contact Support icon.
Field Action	User taps a button, such as **Call** or **Email**.
Search Start	Search action starts.
Search Complete	Search action completes. This time is recorded in milliseconds.

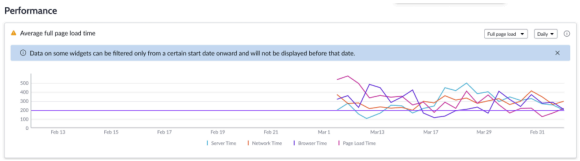
User Experience Analytics for pages and screens

The Pages module for UI Analysis in User Experience Analytics shows analytics specific to pages on the web-based UI in terms of page use and navigation. View user action, performance, and navigation details for each web page to identify pages where users might be having issues and optimize workflows accordingly.

The analogous module for mobile applications is Screens. For more information, see User Experience Analytics for mobile applications.



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Item	Description
Page stats	
Sessions	Shows the number of sessions contained on the specified page. If a page was opened more than once during a session, it's only counted once.
Page views	Shows number of views of the selected page and the number of users who visited it.
Avg. Duration	Shows the average time spent on the page and the percentage of time spent on the page relative to the time spent throughout the app during sessions.
Avg. Load Time	Shows the average time that it takes to load the page, based on the number of times the page is viewed.
Performance **Note:** The sampled data represents 5–10% of the total data that is collected in real time.	
Performance graph	Displays the daily, weekly, or monthly performance trend of selected trace types in a graphical representation. From the menu arrow, select one of the following trace types: Browser Time, Server Time, Page Load Time, and Network Time. The Performance graph collects data from the installation of Yokohama patch 1. 
Page Load Time	Overall time to deliver the page by subtracting the time the user requests the page from the time the page is fully rendered in the browser.
Server Time	Time the server takes to process the transaction.
Network Time	Time the network takes to process the request. Calculated by subtracting the time of the user's request from the time the page starts loading in the browser, and then subtracting the server processing time.
Client Time	Time the browser takes to deliver the page by subtracting the time the page is fully rendered from the time the page starts loading in the browser.
Navigation	
Previous page	Shows the top pages from which users arrived to the selected page. Also, the percentage of sessions arriving from each page relative to the total number of navigations to it. Rare actions may be omitted.
Next page	Shows the top pages to which users arrived from the selected page. Also, the percentage of sessions

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Item	Description
	navigating to each page relative to the total number of navigations from it.

Filter options

You can filter the page by date range, user type, and country by default. Using the **Add filter** option, you can filter on other fields including Locale and Role.

Note:
The Add filter options use a logical AND operator. The results must meet both the criteria in the default filters AND the criteria in the additional filters to be included in the visualizations.

View page analytics

See user actions, performance and navigation analytics for each page.

Before you begin
Role required: admin

Procedure

1. Navigate to **All** > **Platform Analytics** > **User Experience Analytics**.
2. Select an application and then select **Data Foundation** > **Pages**.
   For mobile applications, select **Data Foundation** > **Screens**.
3. Scroll the pages list, or use the Search icon ( ) to locate and select a page.

Exporting data

You can export data records to CSV format. Exporting user and session lists, and other analytics data to CSV is available wherever you see the download icon ( ).

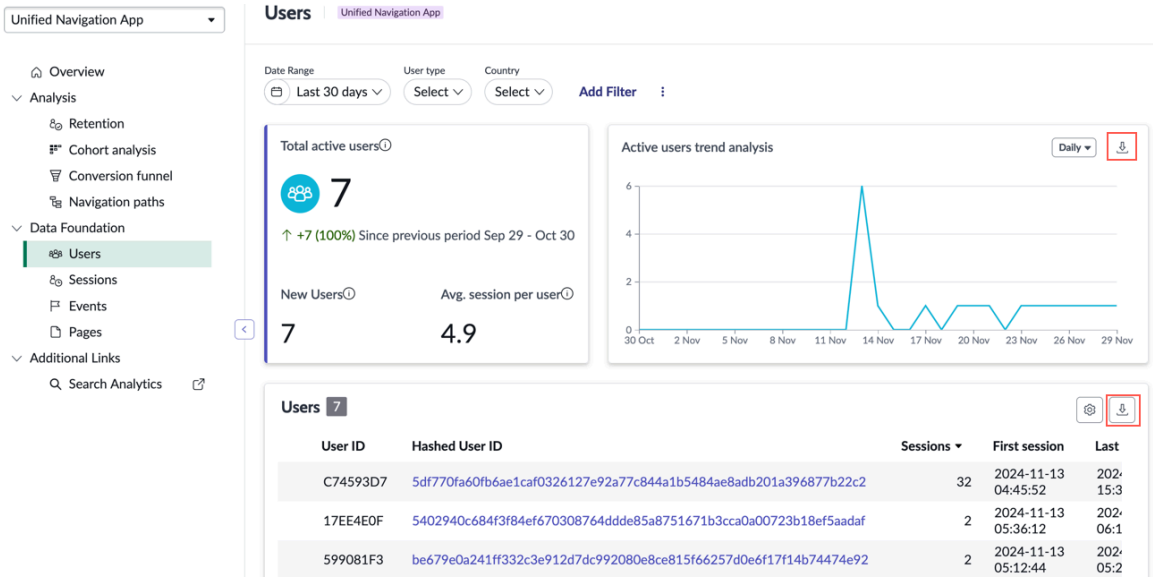
- **Note:**
  When you download raw data, keep in mind that the internal schema structure that User Experience Analytics uses can vary between product versions.

- **Note:**
  You cannot export data from visualizations that do not have the download icon. Use the Export data button on most Events pages to export data from the entire page in CSV format.

The Overview, Retention, Users, Sessions, Events, and Pages modules all contain visualizations with exportable data. Export of data from tables is limited to 10,000 records.

Select the ( ) to begin automatic export of the data. The download location is specified in your browser settings.

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User Experience Analytics reference

Roles and properties installed with User Experience Analytics.

Roles installed with User Experience Analytics

Several roles are installed to distinguish the activities different users can perform within User Experience Analytics.

User Experience Analytics uses these roles.

Note:
The Application Files table lists the components that are installed with this application. For instructions on how to access this table, see Find components installed with an application.

Analytics admin [analytics_admin]

View the settings within User Experience Analytics in the application navigator and control the User Experience Analytics settings for each mobile, web, and service portal application. Assigned users can create funnel and cohort reports within the User Experience Analytics application.

Contains Roles

List of roles contained within the role.

- analytics_viewer
- chat_analytics_admin
- mobile_analytics_admin
- sdk_analytics_admin
- web_analytics_admin

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- Can view the settings within User Experience Analytics in the application navigator.
- Can control the User Experience Analytics settings for each mobile, web, and service portal application.
- Have **admin** role permissions to be able to create funnel and cohort reports within User Experience Analytics.

Groups

Analytics admin [analytics_admin] is included in the Analytics settings managers group.

Special considerations

Note:
Avoid granting an admin role when more specialized roles are available.

Mobile analytics admin[mobile_analytics_admin]

View settings within User Experience Analytics in the application navigator and control the User Experience Analytics settings for each mobile application. Assigned users have admin role permissions to be able to create funnel and cohort reports within the User Experience Analytics application.

Contains Roles

Mobile analytics admin [mobile_analytics_admin] contains with Mobile analytics viewer [mobile_analytics_viewer] role.

Groups

Mobile analytics admin [mobile_analytics_admin] is included in the Mobile analytics settings managers group.

Special considerations

Note:
Avoid granting an admin role when more specialized roles are available.

For more information, see User Experience Analytics for mobile applications.

Web analytics admin[web_analytics_admin]

View the settings under User Experience Analytics in the application navigator and control the User Experience Analytics settings for each web application. Assigned users have admin role permissions to create funnel and cohort reports from within the User Experience Analytics application.

Contains Roles

List of roles contained within the role.

- core_ui_analytics_admin
- now_experience_analytics_admin
- portal_analytics_admin
- web_analytics_viewer

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Groups

List of groups this role is assigned to by default.

None.

Special considerations

Note:
Avoid granting an admin role when more specialized roles are available.

User experience analytics viewer [analytics_viewer]

View User Experience Analytics in the application navigator. Assigned users have viewer role permissions for User Experience Analytics for mobile and web applications.

Contains Roles

List of roles contained within the role.

- web_analytics_viewer
- mobile_analytics_viewer
- sdk_analytics_viewer
- chat_analytics_viewer

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

Mobile analytics viewer [mobile_analytics_viewer]

View User Experience Analytics in the application navigator. Assigned users have viewer role permissions for User Experience Analytics for mobile applications.

Contains Roles

List of roles contained within the role.

None.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

For more information, see User Experience Analytics for mobile applications.

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Web analytics viewer [web_analytics_viewer]

View User Experience Analytics in the application navigator. Assigned users have viewer role permissions for User Experience Analytics for web applications.

Contains Roles

List of roles contained within the role.

- portal_analytics_viewer
- core_ui_analytics_viewer
- now_experience_analytics_viewer

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

User Experience Analytics related properties

Use system properties to configure User Experience Analytics in Platform Analytics, ServiceNow Mobile Platform, Service Portal, and the Conversational Analytics area of Virtual Agent.

General User Experience Analytics related properties

Use the following system properties in Platform Analytics, ServiceNow Mobile Platform, Service Portal, and the Conversational Analytics area of Virtual Agent.

glide.analytics.enabled

Select whether to enable the option to track user analytics.

- Type: true | false
- Default value: false

glide.analytics.user.consent.script_timeout

Maximum time in milliseconds that a script can run during the User Experience Analytics consent policy mechanism, when triggering the provider's custom script. The minimum value is 100 ms. The maximum value is 5000 ms.

- Type: string
- Default value: 2000

User Experience Analytics related properties for Service Portal

Use the following system properties in the Service Portal only.

glide.analytics.tracking.force_allowed.portals

Turns off the user consent pop-up for specified portals.

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- Type: string
- Default value: none

glide.analytics.tracking.restricted.portals

Turns off user analytics tracking for specified portals.

This property overrides the *glide.sp.analytics.enabled.portals* property. You specify a portal by pasting its sys_id in the **Value** field. To specify multiple portals, enter a comma-separated list with no spaces.

- Type: string
- Default value: none

glide.sp.analytics.enabled.portals

Enables user analytics tracking for specified portals. By default, tracking is enabled for the base system Service Portal.

- Type: string
- Default value: 81b75d3147032100ba13a5554ee4902b

Note:
If you make certain key changes to portals, such as changing the sys_id, data is not carried over and you see a different dashboard.

Duration calculations

Durations in User Experience Analytics have specific calculations. Review these equations to understand the average duration per page and percentage time on site values.

Average duration per page

The average duration per page is calculated as the sum of the duration on a page divided by the count of impressions on that page minus the count of exits from that page.

For example, there are 10 appearances of the Dashboard Overview within the specified date range. They spend a total of 720 seconds on the page. On four of these appearances, the Dashboard Overview ended the session without interaction on the page. Therefore, the calculation for average duration is 720 / 10 - 4 = 120 seconds.

Percentage time on site

The percentage time on site is calculated as the sum of duration on a page divided by the sum of all page durations multiplied by 100.

For example, the Service Portal application contains three pages tracked by User Experience Analytics: Home, Knowledge, and Request. The total time spent on the Home page in the specified date range is 900 seconds; on the Knowledge page, 300 seconds; on the Request page, 300 seconds. The percentage time on the Home page is calculated as (900 / 900 + 300 + 300) * 100 = 60%

Process Mining

Process Mining helps analysts and process owners quickly analyze and optimize their business processes.

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Create automated business process flows from your data that enable you to monitor and more quickly discover inefficiencies in your processes. With Process Mining, you can:

- Visualize the execution of your processes or a customer journey, giving insight into adoption and user experiences. For more information see, Analyst Workbench.
- Identify bottlenecks and see their impact on your key performance indicators, enabling you to resolve root-cause issues. For more information see, Automated root cause analysis.
- Understand why SLAs are breached by mining multiple tables into one view. For more information see, Configure multi-dimensional mining.
- Apply filters to analyst workbench based on projects created by you, shared with you, or all. For more information see, Filtering project data.
- Audit processes to immediately detect critical changes and potential problems before they create negative consequences on the business.
- Integrate with ServiceNow® Performance Analytics and Continual Improvement Management to discover opportunities for improving your processes. For more information see, Integration with indicator data sources (PA) and Integration with Continual Improvement Management.
- Compare processes to investigate performance differences or deviations. For more information see, Comparing projects
- Link connected processes for a more comprehensive view of what impacts your main business. For more information see, Activate Process Mining content packs
- View activity transitions to see the top contributing activity transitions across specific metrics. For more information see, Apply a transition filter on an activity
- Perform advanced calculations with the scalability of machine learning and AI.
- Perform Machine Learning (ML) based Cluster Analysis to find similar groupings, or patterns, of instances or records. For more information see, Cluster analysis

Get started

Explore	Activate	Configure
		
Learn about Process Mining concepts and features	Learn how to activate Process Mining	Configure Process Mining

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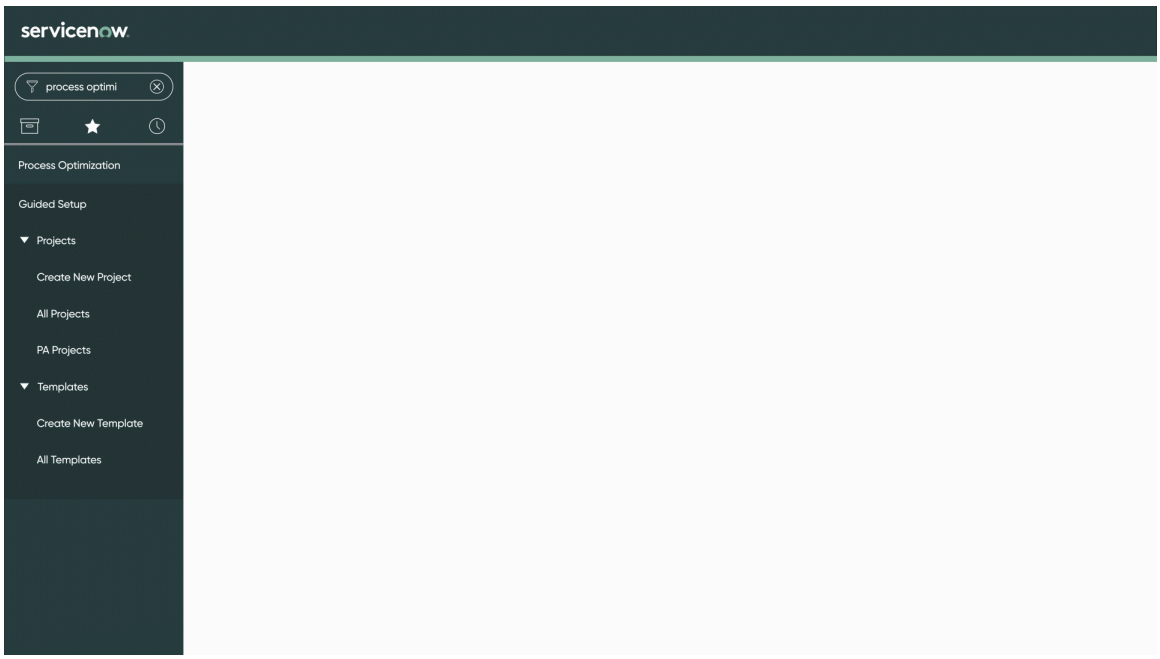
Use	Reference	
Learn how to use Process Mining	Get details about Process Mining like key terms and components installed information	

Exploring Process Mining

Use Process Mining to analyze and optimize business processes.

Process Mining enables you to find answers to process improvement questions such as:

- Where is the business spending or wasting the most time?
- What's the root cause behind slow-performing processes?
- Where should the business apply automation next in its process?
- Where is the rework occurring?
- What's the estimated cost and potential savings for each activity within a process?
- How much deviation is the business seeing in its process?



As an analyst, you can:

- Proactively assess and improve ITSM CSM, Financial Services Operations, and HR Service Delivery processes.
- Accelerate digital transformation. Find areas of improvement and automation based on data and your best practice content.

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As a process owner, you can:

- Get visibility into processes and start collaboration.
- Assess process bottlenecks, find areas of weakness, and find potential areas to optimize.

Key features of Process Mining

Some key features of Process Mining are listed in this topic.

Automated process discovery

Define a project by selecting a process table, and the activities and breakdowns that you want to mine. You can choose to edit a project in the Project Builder too.

Configure at least one activity definition for your business process. An activity defines the different steps that can occur as part of your business process.

You must configure a breakdown that acts as a filter and provides insights into the categorical volume, velocity, and conformance.

Summary and Insights page

Quickly understand process performance. From the Summary and Insights page, view key performance indicators, improvement opportunities overview, and list of improvement opportunities. For more information, see Summary and Insights page.

Analyst Workbench

Analyze business workflows visually with the interactive process map, explorative filter panel, and prebuilt performance metrics. You can see process variation, breakdowns, bottleneck analysis, and ML and smart rule-based insights. Also, all duplicate audits are removed, and that removes all self-loops in the graph. For more information, see Analyst Workbench.

Easy collaboration and sharing

Share projects with stakeholders and collaborate with notes and screenshots within a project. For more information on sharing projects, see Share a Process Mining project. For more information on creating notes, see Adding notes to a project.

Integrated continual optimization

Create and view statuses of improvement initiatives. For more information, see Integration with Continual Improvement Management.

Integration with Performance Analytics and Benchmarks

- Analyze low-performing indicators for root cause analysis with Performance Analytics integration. For more information, see Integration with indicator data sources (PA).
- Use best practice-based implementation. Predefined ITSM Process Mining projects and improvement initiatives provide you with faster time to value. For more information, see Content pack for ITSM.

Compare processes

Compare processes to investigate performance differences or deviations. For more information, see Comparing projects.

Multi-dimensional processes

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Multi-dimensional processes refer to mining a hierarchy of tables. It's a multi-table mining. It's used for a more comprehensive view into process dependencies. For more information, Configure multi-dimensional mining.

Bottleneck analysis

View activity transitions you've defined with the bottleneck analysis feature. For more information, see Viewing business insights.

Analyze processes using ML-based clustering

Group similar records into machine learning pattern-identified clusters. For more information, see Cluster analysis.

Quickly analyze the processes behind performance indicators and record lists

Easy-to-see process behind scenarios such as bad service level agreements or CSAT scores. Run the analysis from any platform list or report.

Evaluating Process Mining

Evaluate Process Mining with some supported business processes.

This section covers the following sections.

Process Mining evaluation project for Incident Management

Process Mining evaluation project for Incident Management is a limited version of Process Mining. It's shipped as part of the Process Mining plugin and available for customers that aren't entitled for Process Mining for ITSM. It enables you to familiarize with improving your process with Process Mining capability.

ITSM customers can evaluate Process Mining with their Incident Management business process in their production instance. You can do this because the Process Mining plugin (sn_po) is enabled by default in all your production instances. To evaluate Process Mining, a new project type is introduced that will enable you to become familiar with the product functionality with your own data.

Note:
With this new project type, you can evaluate Process Mining in your production instance with limited records using the ITSM Incident Management KPIs. However, you'll be able to evaluate and try Process Mining on your own project using the sample mining feature in your sub-production instances without any other functionality restrictions. These are the two alternative and complementary ways to evaluate the Process Mining functionality without a full license.

This evaluation version works on the data that you have stored in your production instance tables. Note the following about Process Mining evaluation project for Incident Management:

- Allows you to access an Incident Management preconfigured Process Mining project configuration limited to up to 3600 records that were resolved in the last seven days. If there are more than 3600 records resolved in the last seven days, the evaluation is restricted to the first 3600 records.
- The default activity definitions are: State and Assignment group (so you can analyze State and Assignment group).
- Includes multiple automated improvement opportunities such as ping-pong, rework, and others.
- Includes introduction videos, FAQs, Academy sessions, and use cases.

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If you have the required roles (itil, snc_internal), you can evaluate Process Mining for ITSM Incident Management via ITSM Incident Management Performance Analytics KPIs or through the Process Mining Workspace.

The Performance Analytics KPI details and analytics hub icon are available only for itil, sn_sd.success_dashboard_read, sn_sd.success_dashboard_details_read, and business_stakeholder roles. You can customize the roles to which the evaluation project is exposed on the KPI details and analytics hub by adding the promin.evaluation_pa_integration_roles to the sys_property table. It overwrites the default roles.

For more information, see Run Process Mining evaluation project.

Related topics

Create a dashboard with the in-line editor

Analytics Hub

Process Mining evaluation project for Customer Service Management

Process Mining evaluation project for Customer Service Management (CSM) is a limited version of Process Mining. It's shipped as part of the Process Mining plugin and available for customers that aren't entitled for Process Mining for CSM. It enables you to familiarize with improving your process with Process Mining capability.

CSM customers can evaluate Process Mining with their CSM business process in their production instance. You can do this because the Process Mining plugin (sn_po) is enabled by default in all your production instances. To evaluate Process Mining, a new project type is introduced that will enable you to familiarize with the product functionality with your own data.

Note:
With this new project type, you can evaluate Process Mining in your production instance with limited records using the CSM KPIs. However, you'll be able to evaluate and try Process Mining on your own project using the sample mining feature in your sub-production instances without any other functionality restrictions. These are the two alternative and complementary ways to evaluate the Process Mining functionality without a full license.

This evaluation version works on the data that you have stored in your production instance tables. Note the following about Process Mining evaluation project for CSM:

- Allows you to access a CSM preconfigured Process Mining project configuration limited to up to 3600 records that were resolved in the last seven days. If there are more than 3600 records resolved in the last seven days, the evaluation is restricted to the first 3600 records.
- The default activity definitions are: State and Assignment group (so you can analyze State and Assignment group).
- Includes multiple automated improvement opportunities such as ping-pong, rework, and others.
- Includes introduction videos, FAQs, Academy sessions, and use cases.

If you have the required roles (sn_customerservice_manager and sn_customer_service_agent), you can evaluate Process Mining for CSM via Performance Analytics KPIs or through the Process Mining Workspace.

For more information, see Run Process Mining evaluation project.

Related topics

Create a dashboard with the in-line editor

Analytics Hub

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Process Mining evaluation project for Human Resources

Process Mining evaluation project for Human Resources (HR) is a limited version of Process Mining. It's shipped as part of the Process Mining plugin and available for customers that aren't entitled for Process Mining for HR. It enables you to familiarize with improving your process with Process Mining capability.

HR customers can evaluate Process Mining with their HR business process in their production instance. You can do this because the Process Mining plugin (sn_po) is enabled by default in all your production instances. To evaluate Process Mining, a new project type is introduced that will enable you to familiarize with the product functionality with your own data.

Note:
With this new project type, you can evaluate Process Mining in your production instance with limited records using the HR KPIs. However, you'll be able to evaluate and try Process Mining on your own project using the sample mining feature in your sub-production instances without any other functionality restrictions. These are the two alternative and complementary ways to evaluate the Process Mining functionality without a full license.

This evaluation version works on the data that you have stored in your production instance tables. Note the following about Process Mining evaluation project for HR:

- Allows you to access a preconfigured Process Mining project configuration limited to up to 3600 records that were closed in the last seven days. If there are more than 3600 records closed in the last seven days, the evaluation is restricted to the first 3600 records.
- The default activity definitions are: State and Assignment group (so you can analyze State and Assignment group).
- Includes multiple automated improvement opportunities such as ping-pong, rework, and others.
- Includes introduction videos, FAQs, Academy sessions, and use cases.

If you have the following required roles, you will have the Process Mining for HR icon or the Performance Analytics KPIs icon:

- pa_threshold_admin
- sn_hr_core.admin
- sn_hr_core.manager
- sn_hr_core.report_creator
- sn_hr_onboarding.admin
- sn_hr_pa.admin
- sn_piwb_hr_content.admin

You can customize the roles to which the evaluation project is exposed on the KPI details and analytics hub by adding the promin.evaluation_pa_integration_roles to the sys_property table. It overwrites the default roles.

For more information, see Run Process Mining evaluation project.

Related topics

Create a dashboard with the in-line editor

Analytics Hub

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Run Process Mining evaluation project

Run Process Mining evaluation project to familiarize with improving your process with Process Mining capability.

Before you begin

Role required: None

The only criteria to run a Process Mining evaluation project is to have access to the table. You can run the evaluation project even without access to the table, however, then it would be an empty project.

You can run an evaluation project from Platform Analytics or Process Mining Workspace.

About this task

You can run an evaluation project from Platform Analytics or Process Mining Workspace.

Procedure

1. To run an evaluation project from Platform Analytics:
   a. Navigate to **All** > **Platform Analytics** > **KPIs**.
   b. Select a KPI.
   c. Select **Run process analysis**.
      If the KPI is related to ITSM, CSM, or HR, then the sample mining starts.

      You will be able to view the records of the last 7 days and a maximum of 3600 records.

      Note:
      To know more about the evaluation projects available in Process Mining, see Process Mining evaluation project for Incident Management, Process Mining evaluation project for Customer Service Management, and Process Mining evaluation project for Human Resources.

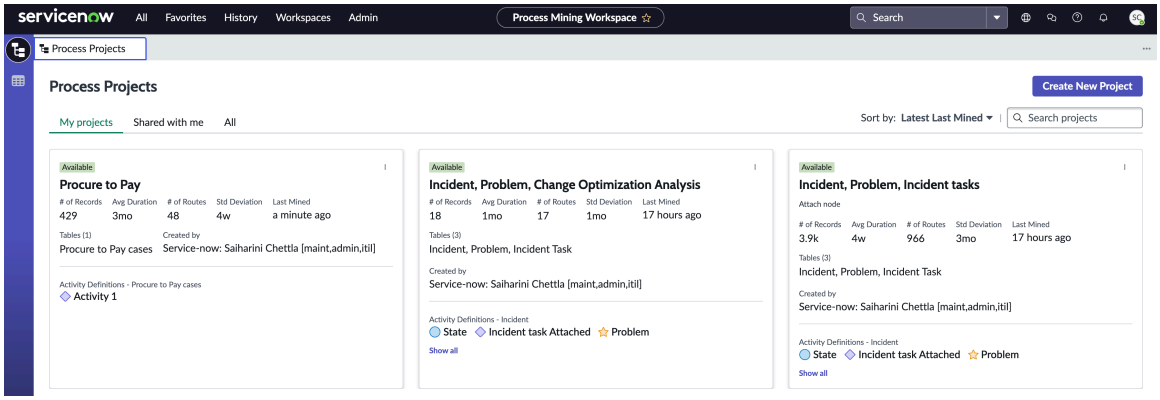
2. To run an evaluation project from Process Mining Workspace:
   a. Navigate to **Workspaces** > **Process Mining Workspace**.
   b. From the details button for the evaluation project, select **Run sample mining**.

Process Mining workspace

See your business processes and workflows as visualizations from the Process Mining workspace.

The Process Mining workspace displays your projects, along with details, summaries, and visualizations to help you analyze and optimize your business processes. Access the Process Mining workspace from your instance filter navigator to get started.

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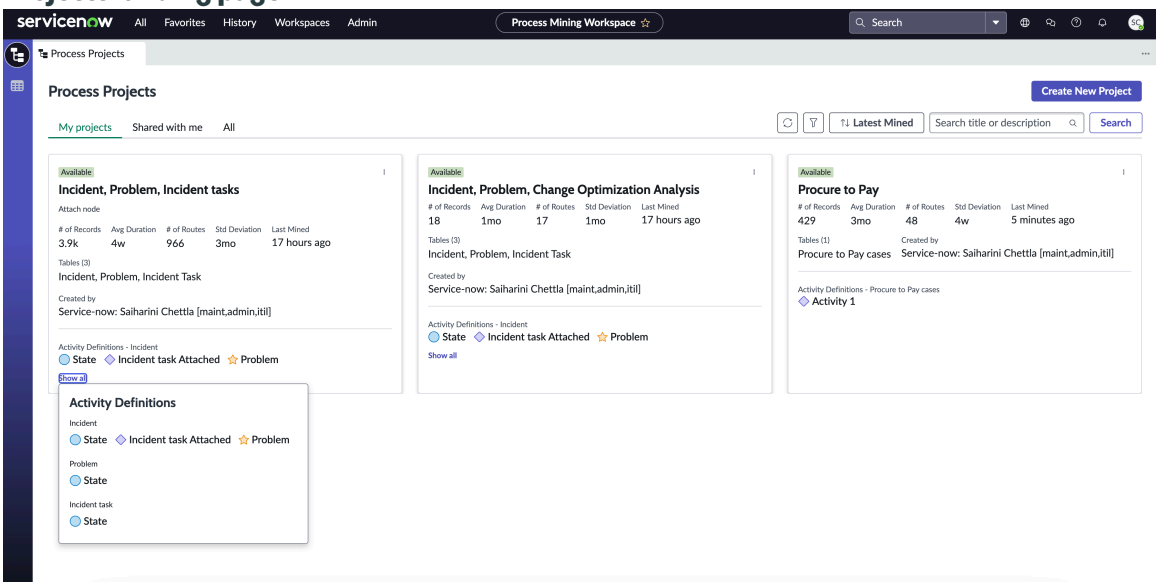
The Process Mining workspace includes the following features.

Projects landing page

From the projects landing page for Process Mining, you can access generated projects, business process insights, and the Analyst Workbench.

The projects landing page shows project cards for projects that have been created by or shared with you for viewing. A project that has been created but not yet generated shows a warning icon ⚠ next to its grayed out title. The warning indicates that the project isn't available to view.

Projects landing page



Project cards show overview details of mined projects. You can filter them by table, created by, project, activity definition, name, or short description.

Project card details

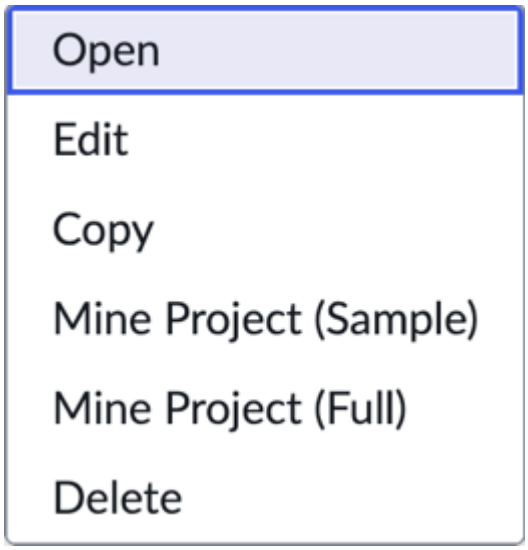
Field	Description
Project name	The name of the project. You can select a project name to open the Analyst Workbench and access business findings.
Status	Designation of usage status of the project.
Short description of the project.	Brief description provided about the project.
Created by	The user who created the project.

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Project card details (continued)

Field	Description
Tables	The selected table the project reports on.
Last mined	When the project's data was last mined, in days.
# of records	The number of records that apply to the selected data table and filter configurations for the project.
Process Variation	The percentage profile of uncertainty in process steps. Example: Users taking multiple routes versus the ideal path to a goal. The percentage is calculated by the number of variants divided by the number of records.
Average Duration	The average time across all closed filtered records from the time of their being opened to being closed.

From a project card, relevant user roles can perform the following tasks by selecting a card's menu.



Project card menu

Menu item	Description
Open	Select to open a project.
Edit	Select to edit a project.
Copy	Select to copy the configuration and create a project definition.
Mine Project (Sample)	Mines a sample project using limited data instead of performing a full data extraction.
Mine Project (Full)	Mines a full data extraction for a project.
Delete	Deletes a project.

Process details page

The process details page for Process Mining provides access to high level insights and opportunities in addition to the interactive visualized process map.

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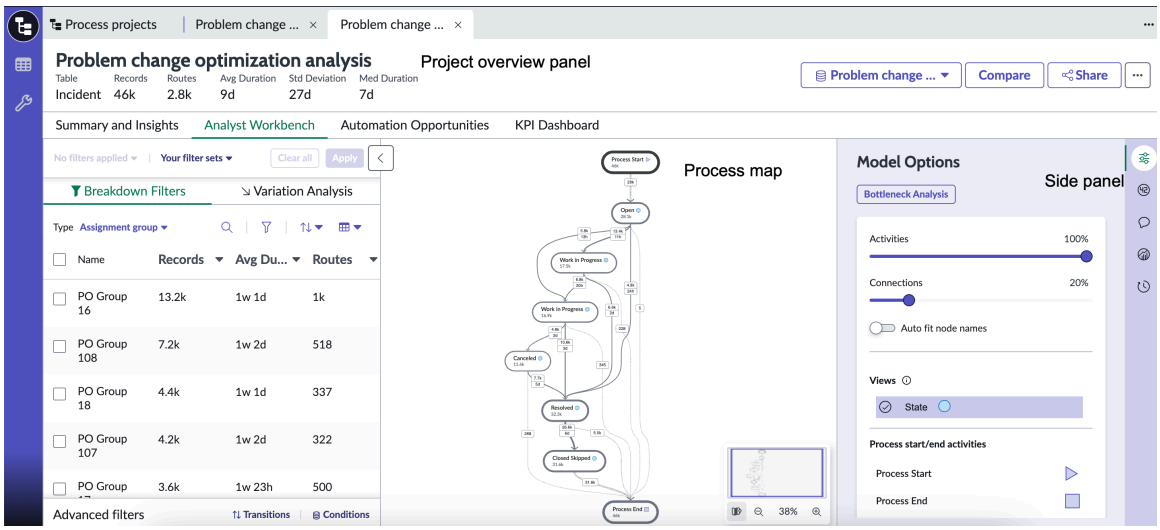
From the process details page, you can do the following:

- Select the **Summary and Insights** tab to see the speed, quality, and cost insights impacting your process.
- Select the **Analyst Workbench** tab to access the project dashboard, where you can view the visualized process map for your project.
- Select the **Automation Opportunities** tab to find automation opportunities using machine learning and process-based analysis.
- Select the **KPI Dashboard** tab to see any KPI dashboard that you have configured in the project configuration.

Note:
To go back to the projects landing page where you can see all the project cards, select the **Process Projects** tab.

Overview panel

When you mine and open a project, the Analyst Workbench opens.



The project's overview panel displays the following overview details and brief context menu.

UI element	Description
Overview details	Important information about a project. • Project name • Table that the data reports on • Total records in project's scope according to the filters applied • Number of routes represented within the records • Average number of days it took the records to close

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UI element	Description
	• Standard deviation variation from route duration average value • Median duration value
Menu icon (...)	Access the menu for additional options: **Edit project** Select this option to edit the current project. For more information, see Create a project or template using Project Builder. **Edit Versions** Select this option to change the name of a project version. For more information, see Change a project version name. **Create CIM** Select this option to create a new improvement initiative. For more information, see Create an improvement initiative from Process Mining.

Project panel

Within the project view, the project panel provides business insights, filter tools to refine the data view, and access to route details.

UI element	Description
Summary and Insights tab	See business goals, summary insights for your key performance indicators, transitions, and route variation. For more information, see eSummary and Insights page.
Analyst Workbench tab	Select this tab to access the following: • **Breakdown Filters** tab: Create and delete filter sets, and set advanced filter conditions. • **Variation Analysis** tab: View the routes distributed over the records in the data set. For more information, see Analyst Workbench.
Automation Opportunities tab	Helps to identify automation opportunities for your workflows. Only available for ITSM. For more information, see Automation opportunities page.
KPI Dashboard tab	Displays any KPI dashboard that you have configured in the project configuration.

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Process map

The process map shows the visualized project and routes, and provides the following tools for filtering and drilling into its view. You can access the process map through the Analyst Workbench tab.

UI element	Description
Metrics	The primary and secondary metrics to show on the process map.
Refine	Tune activities and connections on the map. Select this tab to access the following: • **Activities** tab: Increase or reduce the detail view of activities on the process map. • **Connections** tab: Increase or reduce the detail view of the connections between activities on the process map.
Show Records	View the records for one or more selected routes.
Model Statistics	Use statistics for the process model that help provide perspective when comparing to the overall model statistics. This tab shows the following statistics for the filtered records or selected variant route: • Metric: Indicates total, project-specific, or difference in metric values between compared projects. • Records: Number of filtered records that follow the selected route. • Routes: The number of routes that the filtered records followed. • Avg duration: The average number of days it took the filtered records or records in a selected route to close. This value compares with the average number of days duration across all records in the model. • Std Deviation: The variation from the route average duration value. • Med Duration: The middle duration value for routes.
Bottleneck Analysis	View the top transitions based on the metric filters you specify.
Activity Legend	The defined project activities that display on the process map with symbols connoting activity categories.
Process map	Interactive map from which you can view metrics for a process, add activity conditions to filter by, and perform other actions.
Any analysis	You can do a transition analysis, work notes analysis, root cause analysis, or cluster analysis from any transition or node from the graph.
Zoom	Enlarge or shrink the view of the process map.

Notes, initiatives, and scheduled tasks panel

The notes, initiatives, and scheduled tasks panel provides tools for creating and viewing notes, snapshots, and improvement initiatives. You can also see the status of mining tasks you've scheduled.

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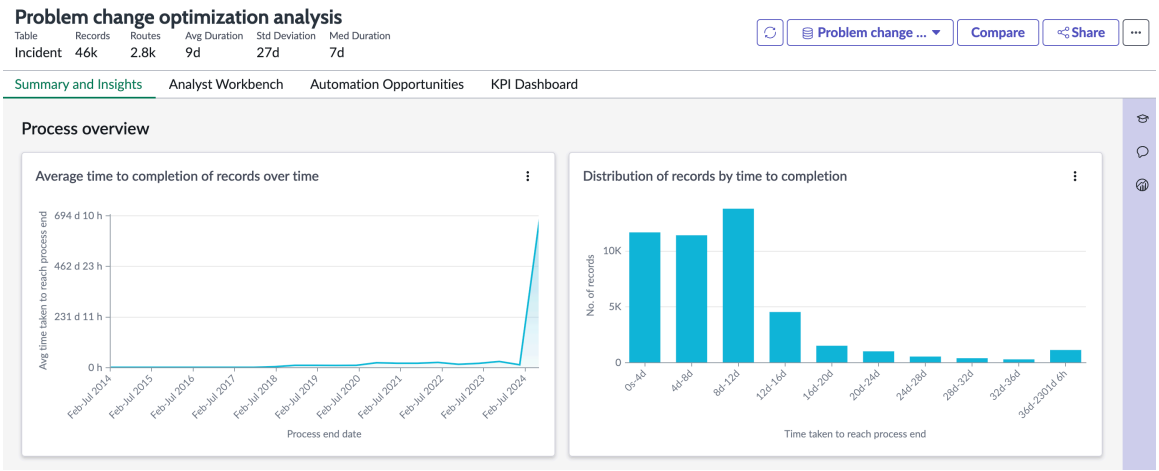
UI element	Description
Model options icon ( )	View and use of the bottleneck analysis.
Global metrics icon ( )	View the primary and secondary metrics.
Notes icon	View the notes list, create a note, and edit or delete a note.
Improvement initiatives icon ( )	View the initiatives list, create a new initiative, link to an existing initiative, or remove an initiative.
Scheduled tasks icon ( )	View the status of scheduled mining, filtering, and requested cluster analysis tasks.

Summary and Insights page

The Summary and Insights page enables you to view opportunities for optimizing your process. Access the dashboard from a Process Mining project.

You can view the Process overview dashboard where you see some initial information about your mined data. This is showcased in two graphs:

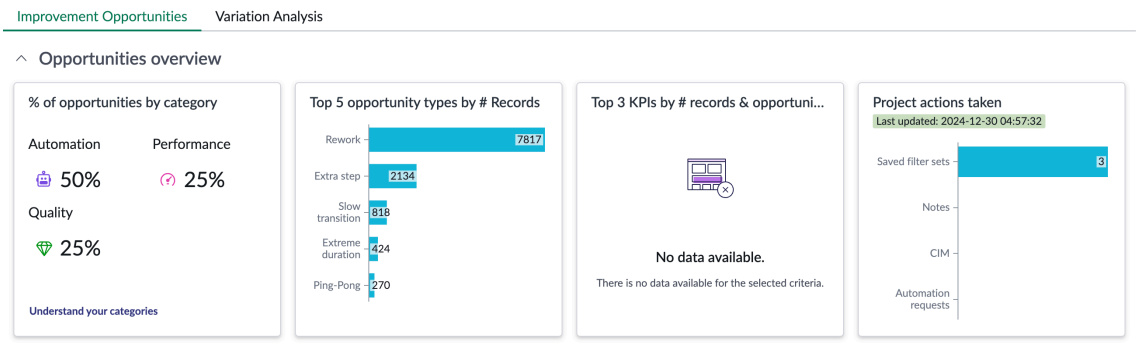
- Time series graph: Trendline to show the average time taken for completion of records over time.
- Histogram: Distribution of records by the time taken to reach the process end.



Improvement opportunities overview

On the Summary and Insights page, see the Improvement opportunities overview. Here you find an overview of project-related statistics that are generated on the project.

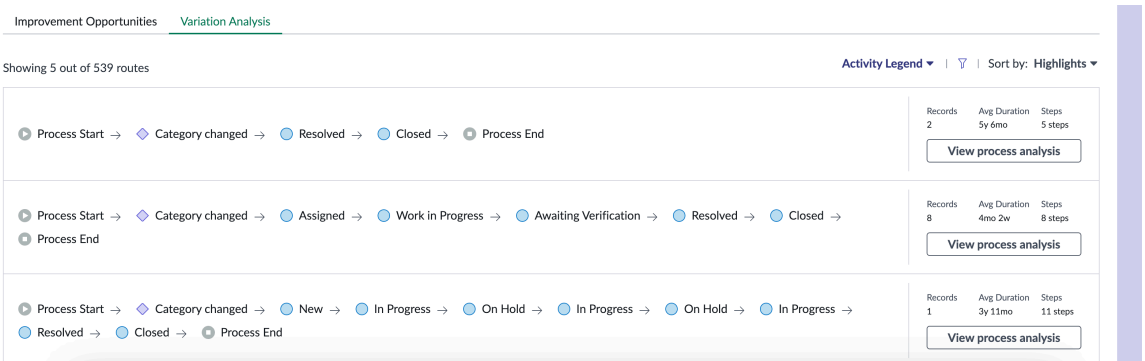
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Variation Analysis

On the Summary and Insights page, you can also see the variation analysis of your data.

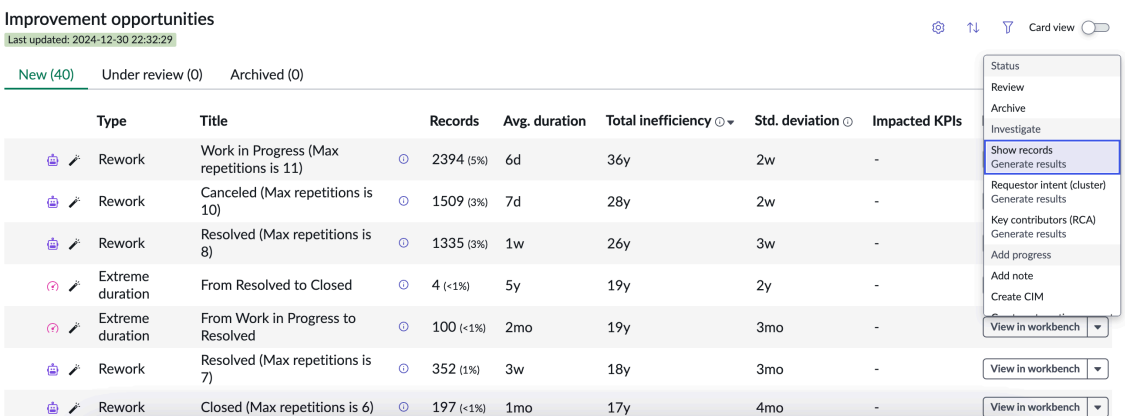
Variation analysis enables you to compare different variants of a mined project and view the analysis of a selected variant.



- Filter the routes using the filter icon.
- Sort the results using the **Sort by** list.
- Select **View process analysis** to view the graph for the selected variant in the Analyst Workbench.

Opportunities

In the Opportunities section, you can view a list of rule-based and automated improvement opportunities associated with the project.



You can view the following details:

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- Improvement opportunities that are new, under review, and archived.
- List of improvement opportunities associated with the project with all the details.
- Select  beside the title to see the details about the Improvement opportunities.
- Select the list beside **View in Workbench** to get more options.
  - The states, New, Under review, and Archived, are available to track your progress taken on the improvement opportunities listed there. Any new improvement opportunity on which no work is done is in the New state. If an action is taken, then the improvement opportunity is moved to Under review. If some action has been taken in the background, you can manually set the improvement opportunity to Under review. If something is not relevant anymore, you can archive it. However, if an improvement opportunity is in the Archived state, you can only move it to New. Also, when you add a note, CIM, or Automation request to an improvement opportunity that is in the New state, then the improvement opportunity automatically moves to Under review.
  - You can start any investigative actions, such as running a root cause analysis.
  - You can also add a note, create a CIM, or create an automation request.
- Select  to hide or show columns.
- Select  to sort the columns.
- Select  to filter the list of improvement opportunities.
- Select the **Card view** toggle to view the improvement opportunities in card view.

Integration with Performance Analytics dashboards

Integrate Performance Analytics dashboards to include the KPIs and visualizations you want to see. Using the dashboard builder, you can create your own dashboards with custom widgets/KPIs specifically for your project. These dashboards can be linked at the project or process configuration level.

Analyst Workbench

View the visualized process map with tools for managing visualizations and perform analysis tasks from a project's page.

Access the Analyst Workbench

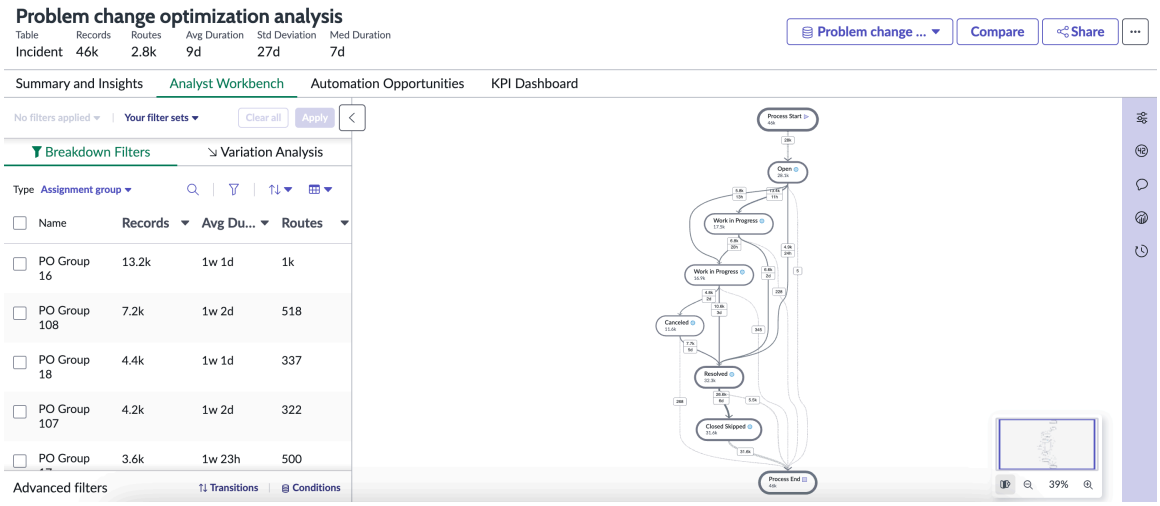
From the Analyst Workbench, you can access visualized process workflow data and tools for analyzing the data.

To access the Analyst Workbench:

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Open a project, and navigate to Analyst Workbench.

   When you open a project, by default the Analyst Workbench opens.

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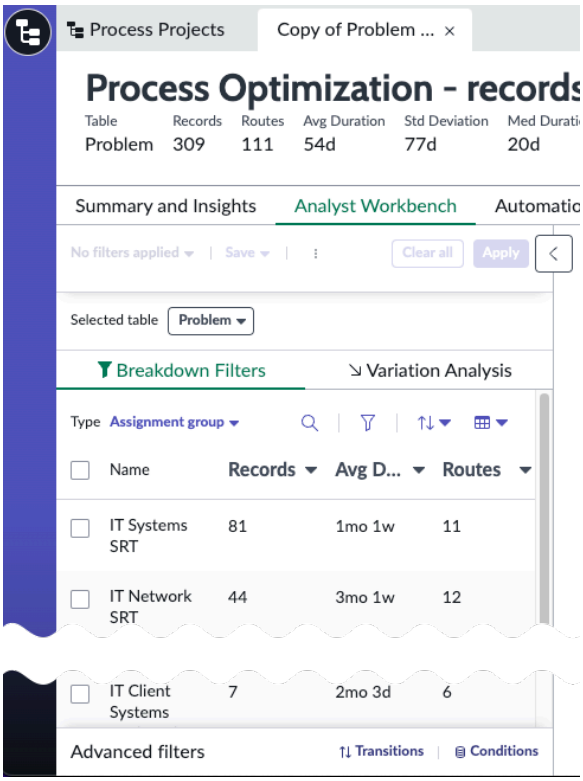


Breakdown filters

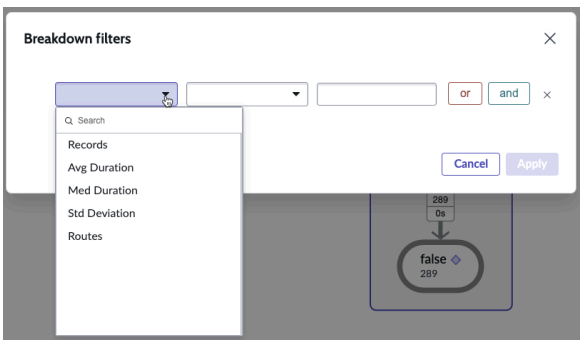
Use the **Breakdown Filters** tab to create and delete filter sets, and set advanced filter conditions.

View breakdowns for different elements using the **Selected table** drop-down, or selecting elements within the process map.

Note:
You can apply breakdown filters only on parent tables. However, the breakdown statistics are available on both child and parent tables.

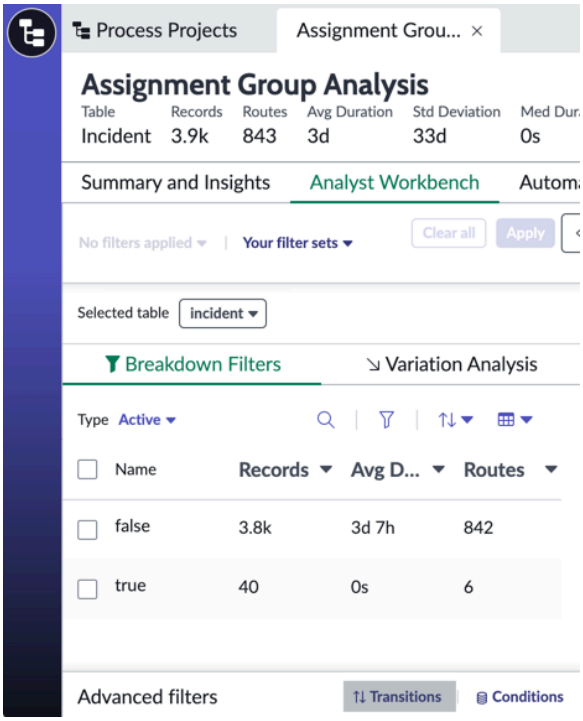


Use the **Filter Breakdown** icon ( ) to filter your breakdowns based on criteria you select in the



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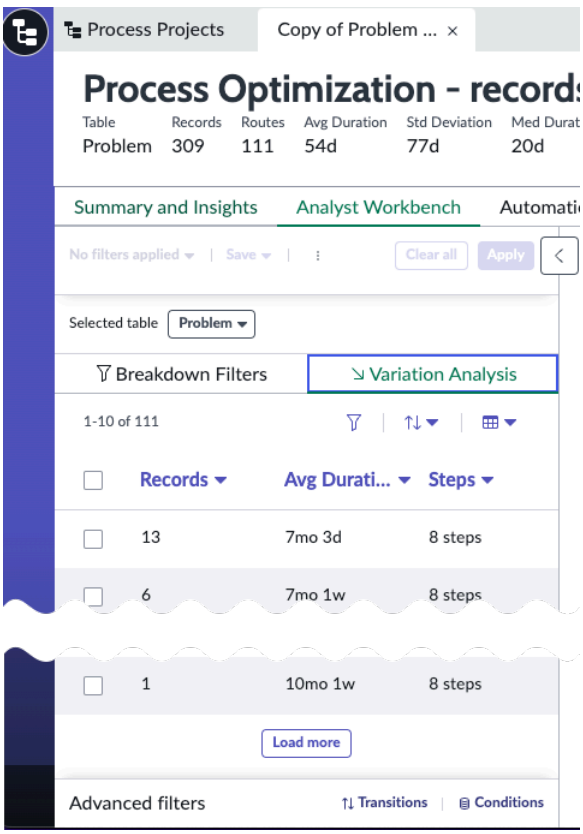
Use the **Transitions** button to define advanced filters on your transitions. For details on this process, see Apply a transition filter on an activity.



Variation analysis

Use the **Variation Analysis** tab to view the routes taken by your records, the number of cases, average duration, and number of steps involved in each route. Select a route to highlight the route in the process map.

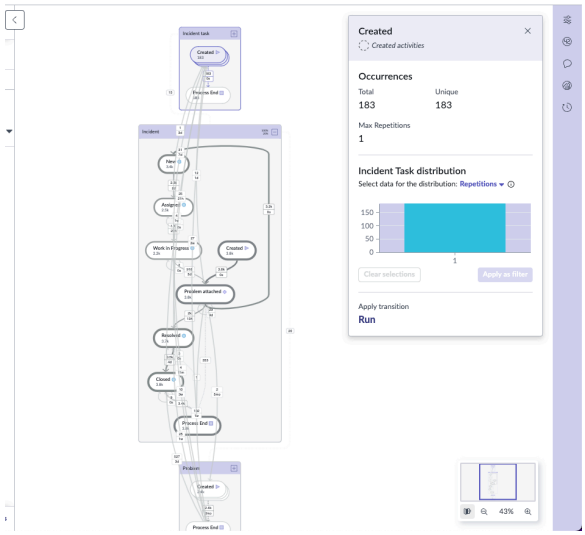
View analysis for different elements using the **Selected table**, or selecting elements within the process map.



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Process map

Use the **Process map** to view a visualized map of your project. Within the map, you can drill down into your business process to better understand and optimize them. The process map also displays routes according to the KPIs you want to view or measure.



Select a node or transition line within the map to view additional details about the selected item in a modal window.

These windows contain bar chart histograms displaying additional information.

- Select a node to view distribution or repetition information.
- Select a transition line to view duration or repetition information.

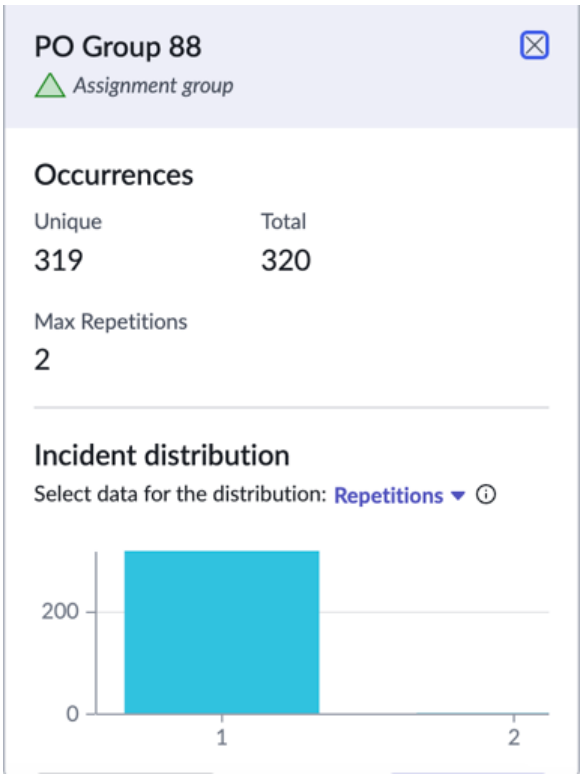
Select a bar, and select **Apply as filter** to filter by these results.

For more information on using this tool, Refining a process map.

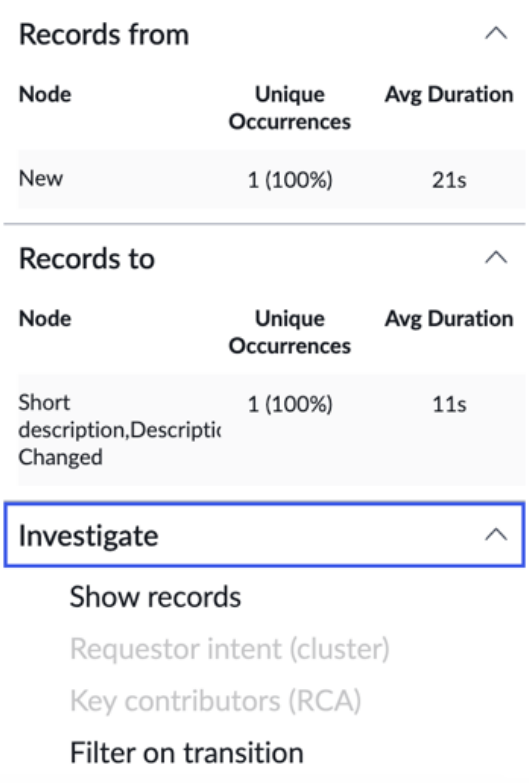
When you select a node, the modal window displays the outgoing and incoming distribution of records via the selected node.

This information is displayed in the **Records from** and **Records to** collapsible sections.

From the **Investigate** drop-down, you can also view the relevant records, run cluster analysis, root cause analysis, or apply a transition. These tasks are run using scheduled tasks that run in the background.



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When you select a transition line, the modal window displays the occurrences, repetitions, and duration for the transition.

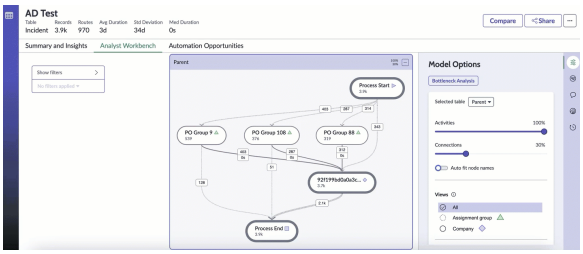
From the **Investigate** drop-down, you can also view the relevant records, work notes analysis, run cluster analysis, root cause analysis, or apply a transition. These tasks are run using scheduled tasks that run in the background.

For information on each analysis, see the following topics:

- Cluster analysis
- Work notes analysis
- Automated root cause analysis



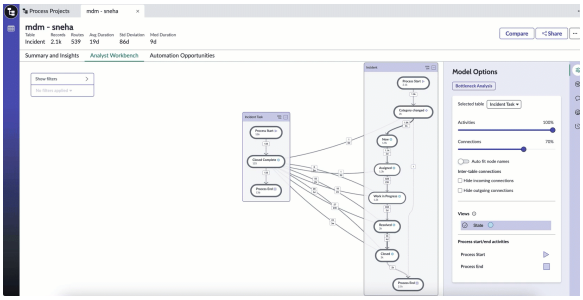
If a node name is long and is being truncated, you can view its full name. From the Modal Options window, **Auto fit node names** option.



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You can chose to hide only incoming arcs, only outgoing arcs, or both.

From **Modal Options**, select **Hide incoming connections**, **Hide outgoing connections**, or both to view the connections as per your need.

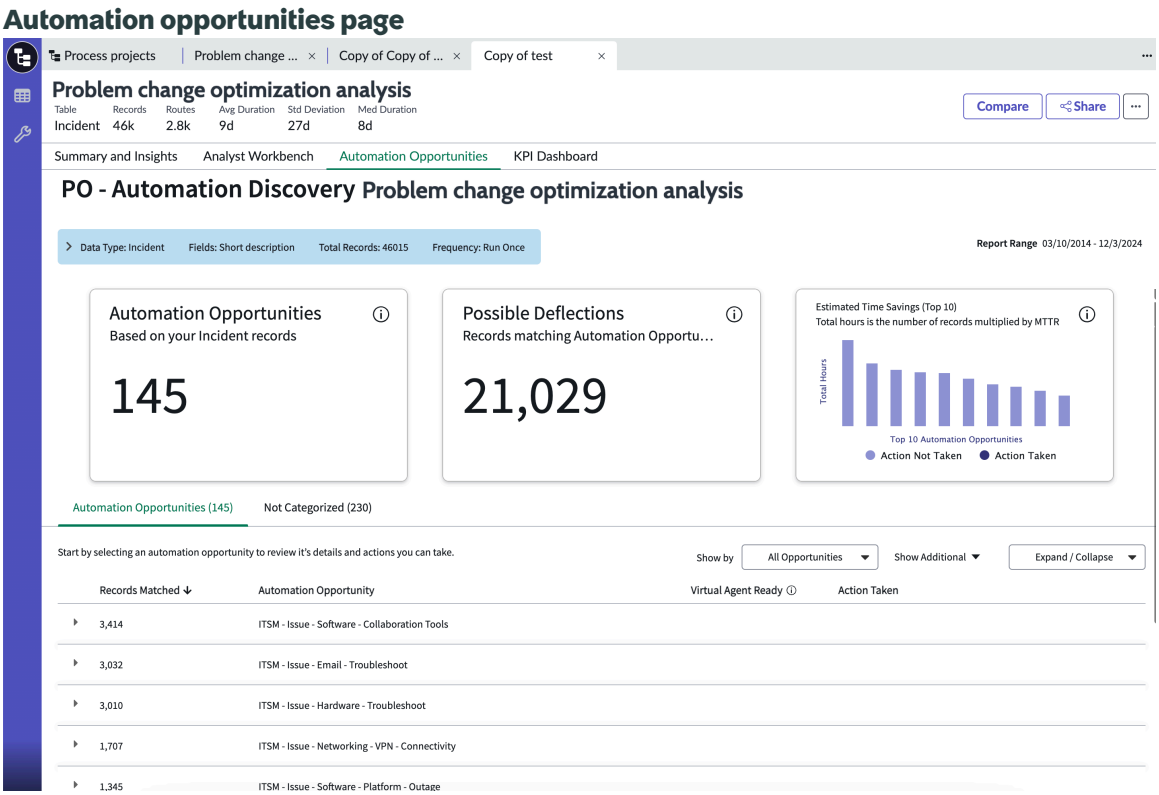


Note:
This option is available only for multi-table projects.

Note:
You can reproduce most of the functionality of a process map in a dashboard on a configurable workspace. For more information, see Configure a Process Mining map on a dashboard.

Automation opportunities page

Use the automation opportunities page to find automation opportunities using machine learning and process-based analysis.



Summary cards

The cards displayed at the top of the page give you a quick overview of the discovered opportunities. The overview displays how many records are affected, and an estimate of the time you can save by using these automation opportunities.

Automation Opportunities

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The **Automation Opportunities** card displays a count of discovered by automation discovery. See the discovered opportunities in the **Automation Opportunities** list below this card section.

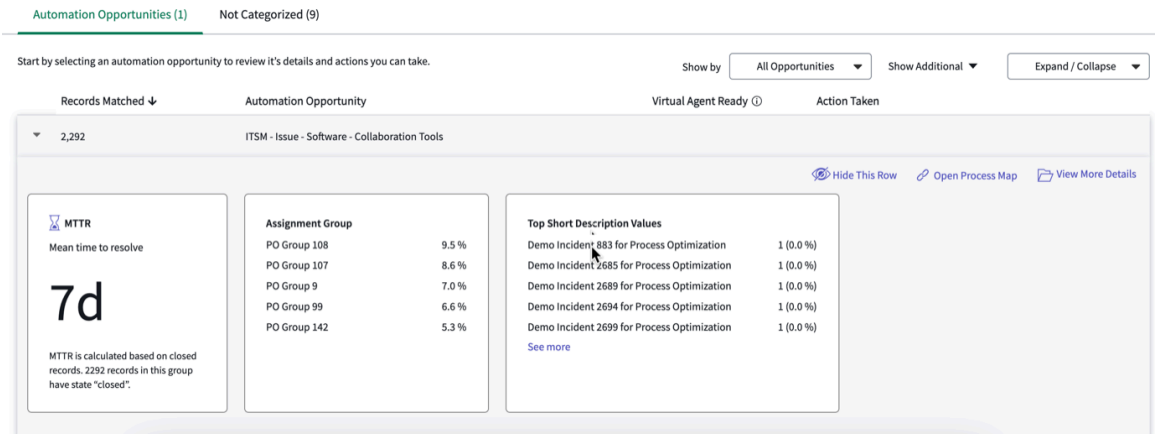
Possible Deflections

The **Possible Deflections** card displays a count of the records covered by the automation opportunities discovered. This count is also visible in the **Automation Opportunities** list below this card section.

Opportunity Volume

The **Opportunity Volume** card gives the total records in the top 10 automation opportunities.

Automation opportunities list



Use the **Automation opportunities** list to see an overview of your opportunities, the estimated mean time to resolve, and what actions you can take to implement these automations.

Note:
Automation taxonomy is only available for ITSM.

KPI dashboard

On the **KPI Dashboard** tab, see any KPI dashboard that you have configured for your project.

When a dashboard is configured for your business process and user needs, you can see quick snapshots from these dashboards.

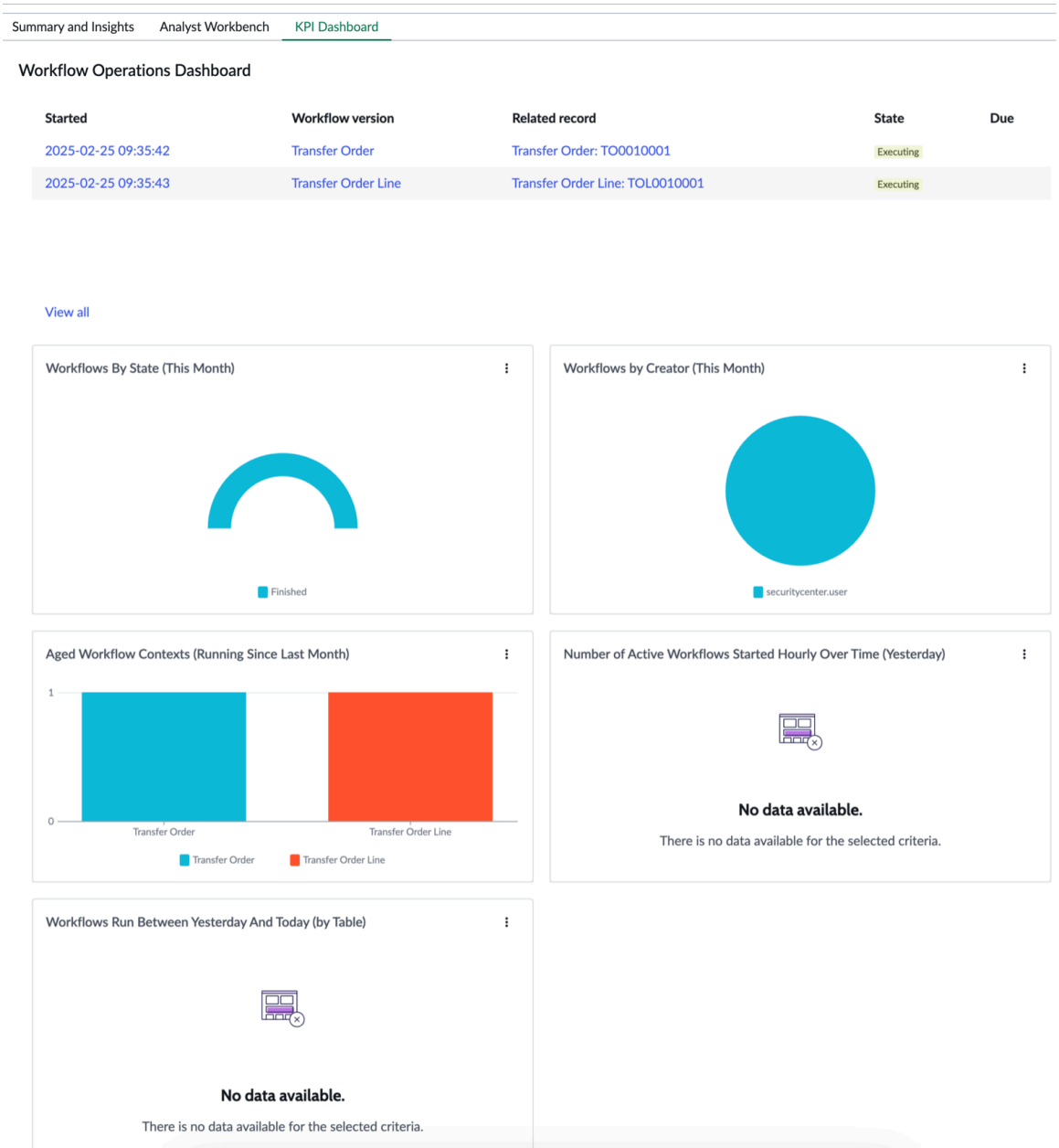
You can configure KPI dashboards from two places:

- From the project configuration: The KPI dashboards configured for your project are available only for the particular project. For more information, see Set objectives.
- From the process configuration: The KPI dashboards configured for a process table are available for all projects based on that table, by default. For more information, see Configure impact metrics.

Note:
If you have configured a KPI dashboard from the project configuration, then that will take precedence over the one configured in the process configuration.

The following figure shows the Analyst PM Dashboard, which was set up in the project configuration.

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Activating Process Mining

Activate Process Mining to use the application and benefit from it.

Access Process Mining

Process Mining is available with ServiceNow AI Platform. With the free version, you can do only sample mining. You need a license to do full mining.

To purchase a subscription, contact your account manager.

Note:
Before purchasing a subscription, you can evaluate the features using the Process Mining evaluation projects available for ITSM, CSM, and HR. For more information, see Evaluating Process Mining.

For information on components installed with Process Mining, see Components installed with Process Mining.

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Important:
You may explore content packs that will provide you with pre-defined template for projects, process configuration, improvement opportunities, and so on. To download and import the content packs, see Creating process configurations using content pack templates.

If you plan to activate and explore Process Mining in a sub-prod or clone instance, then clone from production with copy audit and logs data. You can do this by deselecting the **Exclude audit and log data** when cloning. Taking this step ensures that audit logs are available to create a full process map using Process Mining.

Request Process Mining for external data

Request Process Mining for external data application to import external data and work with it within ServiceNow® instance.

Before you begin
Role required: admin

Procedure

1. Navigate to the **All** > **System Application** > **All Available Applications** > **All**.
2. Find the application using the filter criteria and search bar.

   You can search for the application by its name or ID. If you cannot find an application, you may have to request it from the ServiceNow® Store.
3. Select **Install**.

Activate Process Mining content packs

Activate Process Mining content packs to access pre-built projects for specific areas of your business.

Jumpstart Process Mining with content packs

Process Mining content packs contain pre-built projects that include process model definitions, process finding definitions, and pre-built process improvement insights for specific areas of your business.

Note:
Activating Process Mining content packs is an optional procedure. You must perform this task if you want to use any of the content packs available with Process Mining.

Available content packs

Content pack	Description
Content pack for ITSM	The ITSM Process Mining content pack provides preconfigured Process Mining models and improvement initiatives for IT Service Management (ITSM) processes.
Content pack for SPM	The Strategic Portfolio Management Process Mining Content Pack for demands provides a preconfigured Process Mining project that helps analysts and process owners understand the effectiveness of their demand

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Available content packs (continued)

Content pack	Description
	processes, and also provide opportunities for continued performance improvement.
Content pack for Financial Services Operations	Using the Process Mining content pack with Financial Services Operations (FSO) enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with FSO cases.
Content pack for Customer Service Management	Using the Process Mining content pack for Customer Service Management enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with customer service cases.
Content pack for Telecommunications orders	Using the Process Mining content pack for Order Management for Telecommunications and Media enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with Telecommunications orders.
Content pack for HR Service Delivery	Using the Process Mining content pack for HR Service Delivery enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with customer service cases.
Content pack for Security Incident Response	Using the Process Mining content pack for Security Incident Response enables you to analyze processes relevant to your security incident, and identify bottlenecks associated with them.

Activate a content pack

Activate a content pack from the application list on your instance

Before you begin

Role required: sm_cim_requestor, administrator

- Ensure that the application and all of its associated ServiceNow Store applications have valid ServiceNow entitlements. For more information, see Get entitlement for a ServiceNow product or application.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the Process Mining content pack you want to install using the filter criteria and search bar.

   You can search for the application by its name or ID. If you cannot find the application, you might have to request it from the ServiceNow Store.

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Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

3. In the Application installation dialog box, review the application dependencies.

   Dependent plugins and applications are listed if they will be installed, are currently installed, or need to be installed. If any plugins or applications need to be installed, you must install them before you can install the content pack.

4. **Optional:** If demo data is available and you want to install it, select the **Load demo data** check box.
   Demo data are sample records that describe application features for common use cases. Load the demo data when you first install the application on a development or test instance.
5. Select **Install**.

Content pack for ITSM

The ITSM Process Mining Content Pack provides preconfigured Process Mining projects and improvement initiatives for IT Service Management (ITSM) processes.

Request apps on the Store

Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

The ITSM Process Mining content pack (sn_itsm_po) adds pre-built Process Mining project definitions for these ITSM processes:

- Incident Management
- Problem Management
- Change Management
- Request Management

The pack also includes the predefined Continual Improvement Management (CIM) initiative for incident and change processes. The improvement initiative and Process Mining projects are automatically linked.

To enable this content pack, go to the ServiceNow Store. For more detail, see Activate Process Mining content packs.

Dashboards

You can use the default KPI dashboard for projects in the ITSM Process Mining Content Pack. You can also create dashboards and add elements to them as per your requirements.

Cluster analysis configurations for ITSM work items

The Process Mining application provides solution definitions for incidents, problems, change requests, and requested items. You can use these definitions to configure cluster analysis for those work items.

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Important:
This feature is available with the ServiceNow Store Process Mining ITSM content pack v1.2. Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

Clustering solution definition configurations

A Process Mining administrator (sn_process_optimization_admin) can access the ITSM work item solution definition configurations by navigating to **Predictive Intelligence** > **Clustering** > **Solution Definitions**.

Note:
By default, these solution definitions are configured as follows:

- The **Fields** field is configured to Short description.
- The **Minimum number of records per cluster** field is set to a value of 150.
- The **Word Corpus** field is configured to the corresponding word corpus record, For example, the Incident clustering definition is configured to the incident word corpus record. Each of the word corpus record gathers all description and short description data for the last 12 months.

The clustering solution definitions also contain the purity fields listed in the table below.

Clustering Solution Definition	Purity Fields
Incident	• Assignment Group • Category • Configuration item • Service
Problem	• Assignment Group • Category • Configuration item • CMDB CI • Business service
Change request	• Assignment Group • Category • Model • Risk • Type
Requested item	• Assignment Group • Category item

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Clustering Solution Definition	Purity Fields
	• Requested for • Assigned to

For information on how to perform a cluster analysis from the Process Mining application, see Perform a cluster analysis.

Configure KPIs for ITSM work items in the Process Mining dashboard

Add the desired Key Performance Indicators (KPIs) to monitor the performance of the ITSM work items in the Process Mining Summary and Insights page. Remove the indicators that you no longer want to use.

Before you begin

Important:
This feature is available with the ServiceNow Store Process Mining ITSM content pack v1.2. Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

Role required: administrator

Procedure

1. Enable the plugins for the ITSM work item applications for which you want to view the KPIs. The Incident Management plugin is enabled by default.

2. Add the desired indicator data source to the Summary and Insights page. The KPIs listed in the table below are available by default.

Work item	Key performance indicator
Incident	○ Average time to resolve incidents ○ % of incidents resolved on first assignment
Problem	○ Average close time of problems ○ % of problems closed on first assignment
Change request	○ Average close time of changes ○ % of new emergency changes
Requested item	○ Average close time of requested items ○ % of rejected requested items

Configure insights for ITSM work items in the Process Mining dashboard

Configure rule definitions for incidents, problems, change requests, or request items to discover insights in the Summary and Insights page.

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Before you begin

Important:
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Role required: sn_process_optimization_power_user

About this task

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.
2. Configure the desired finding definitions.
   The insights filters listed in the table below are available by default.

Insights filters for ITSM work items

Work item	Insights filters
Incident	○ Multihop issue ○ Solution rejection issue ○ Misuse of On Hold state ○ SLA missed issues
Problem	○ Problem was canceled ○ Problem risk was accepted ○ Resolved problem was re-analyzed ○ Problem fix not completed ○ Problem reopened
Change requests	○ Model is changed in the process ○ Pre-approved change requests ○ Failed change requests
Requested items	○ RITM state is closed incomplete or closed skipped ○ Multihop: RITM going through two or more reassignment

   When the finding rules are updated, you can view that in the Insights section in the dashboard.

3. On the Summary and Insights page, for the selected insight:
   - To perform process analysis, select **Process Analysis**. You can view the Process Mining map with the applied filters.
   - To perform cluster analysis, select **Cluster Analysis**. Select **View cluster** to view the results. For more information, see View a cluster analysis.

Content pack for SPM

The Strategic Portfolio Management Process Mining Content Pack for demands provides a preconfigured Process Mining project that helps analysts and process owners understand

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the effectiveness of their demand processes, and also provide opportunities for continued performance improvement.

Request apps on the Store

Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

Dashboards

You can use the default KPI dashboard for projects in the SPM Process Mining Content Pack. You can also create dashboards and add elements to them as per your requirements.

Cluster analysis configurations for SPM work items

The Process Mining application provides solution definitions for demands, that you can use to configure cluster analysis.

Important:
This feature is available with the ServiceNow Store Process Mining SPM content pack v1.0. Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

Clustering solution definition configurations

A Process Mining administrator (sn_process_optimization_admin) can access the SPM work item solution definition configurations by navigating to **All** > **Predictive Intelligence** > **Clustering** > **Solution Definitions**.

Note:
By default, these solution definitions are configured as follows:

- The **Fields** field is configured to description.
- The **Minimum number of records per cluster** field is set to a value of 150.
- The **Word Corpus** field is configured to the corresponding word corpus record, For example, the demand clustering definition is configured to the demand word corpus record. Each of the word corpus record gathers all description and short description data for the last 12 months.

The clustering solution definitions also contain the purity fields for demands, which are department, business_unit, and priority.

Configure KPIs for SPM work items in the Process Mining dashboard

Add the desired Key Performance Indicators (KPIs) to monitor the performance of the SPM work items in the Process Mining Summary and Insights dashboard. Remove the indicators that you no longer want to use.

Before you begin

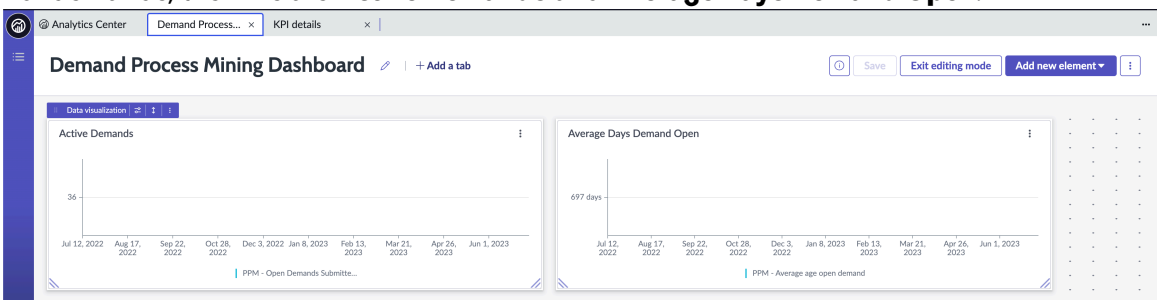
Important:
This feature is available with the ServiceNow Store Process Mining SPM content pack v1.0. Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

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Role required: administrator

Procedure

1. Ensure that you have the **Project Portfolio Management Standard** plugin installed.
2. Add the desired indicator data source to the Summary and Insights page.
   For demands, the KPIs are **Active Demands** and **Average Days Demand Open**.



Configure insights for SPM demands in the Process Mining dashboard

Configure rule definitions for demands to discover insights in the Summary and Insights dashboard.

Before you begin

Important:
This feature is available with the ServiceNow Store Process Mining SPM content pack v1.0. Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

Role required: sn_process_optimization_power_user

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.
2. Configure the desired finding definitions.
   The insights filters available for a demand by default are defined in the following table:

Demand insights for Process Mining

Finding Definitions	Demands that have been approved without being qualified
	Demands that have been moved to the next stage without being approved
Automated Finding Definitions	Rework

   When the finding rules are updated, you can view that in the Insights section in the dashboard.
3. On the Summary and Insights dashboard, for the selected insight:
   - To perform process analysis, select **Process Analysis**. You can view the Process Mining map with the applied filters.
   - To perform cluster analysis, select **Cluster Analysis**. Select **View cluster** to view the results. For more information, see View a cluster analysis.

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Content pack for Security Incident Response

Using the Process Mining content pack for Security Incident Response, you can analyze inefficiencies through the lifecycle of your security incidents. You can use this information to optimize the processes for your security incidents.

For more information about enabling the Process Mining Content Pack for SIR, see Activate Process Mining content packs.

End user and roles

If you have the required roles, you can use Analyst Workbench to access the visualized security incident workflow data, and tools for analyzing the data related to security incidents. For more information, see Analyst Workbench.

- Process Mining role: sn_process_optimization_analyst
- Security Incident Response role: sn_si_read

Content pack for Financial Services Operations

Using the Process Mining content pack with Financial Services Operations (FSO) enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with FSO cases.

Important:
Starting with the Vancouver release, the Process Optimization application has been renamed to Process Mining.

For information about enabling the FSO Process Mining Content Pack, see Activate Process Mining content packs.

Optimization projects

The content pack adds pre-built Process Mining project model definitions for these Financial Services Operations applications.

- Financial Services Business Deposit Operations
- Financial Services Business Loan Operations
- Financial Services Business Lifecycle
- Financial Services Card Operations
- Financial Services Client Lifecycle
- Financial Services Complaint Management
- Financial Services Payment Operations
- Financial Services Personal Loan Operations
- Financial Services Personal Deposit Operations
- Financial Services Treasury Operations
- Individual Life Servicing
- Group Life Servicing
- Commercial Lines Claims
- Personal Lines Claims
- Intelligent Servicing for Fraud

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You can also configure a new process project that is based on a pre-built project. For more information, see Create a project or template using Project Builder.

Roles

Based on the Financial Services Operations application that you're using the Process Mining application for, you need the following roles.

Financial Services Operations required roles for Process Mining

Financial Services Operations application	Required role
Financial Services Card Operations	Dispute management: sn_bom_credit_card.dispute_manager and sn_process_optimization_analyst
Financial Services Payment Operations	sn_bom_payment.payments_manager and sn_process_optimization_analyst
Financial Services Business Loan Operations	sn_bom_loan_b2b.manager and sn_process_optimization_analyst
Financial Services Personal Loan Operations	sn_bom_loan.b2c_manager and sn_process_optimization_analys
Financial Services Business Lifecycle	sn_bom_clo_b2b.manager and sn_process_optimization_analyst
Financial Services Client Lifecycle	sn_bom_clo_b2c.manager and sn_process_optimization_analyst
Financial Services Complaint Management	sn_bom_compl.manager and sn_process_optimization_analyst
Financial Services Business Deposit Operations	sn_bom_deposit_b2b.manager and sn_process_optimization_analyst
Financial Services Personal Deposit Operations	sn_bom_deposit_b2c.manager and sn_process_optimization_analyst
Commercial Lines Claims	sn_ins_claim_cml.manager and sn_process_optimization_analyst
Personal Lines Claims	sn_ins_claim_pers.manager and sn_process_optimization_analyst
Financial Services Treasury Operations	sn_bom_treasury.admin and sn_process_optimization_analyst
Individual Life Servicing	sn_ins_indiv_life.manager and sn_process_optimization_analyst
Group Life Servicing	sn_ins_group_life.manager and sn_process_optimization_analyst
Intelligent Servicing for Fraud	sn_bom_fraud.manager and sn_process_optimization_analyst

Related topics

Example of Process Mining for Financial Services Operations

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Example of Process Mining for Financial Services Operations

Analyze a process for financial services cases and identify bottlenecks to minimize delays in the case flow for a better customer experience.

Say you are a process analyst in your financial institution where you must submit analysis on current processes associated with financial services cases. You can use the Analyst Workbench to access the mined processes for the project definition for financial services payment operations, loan operations, and complaint management.

You can analyze the case process flow and suggest ways to improve the processes by using the following workflow, for example, for **Loan deferment in B2C** project definition:

1. Select **View in Workspace** from the selected project. The Analyst Workbench opens in a new tab.

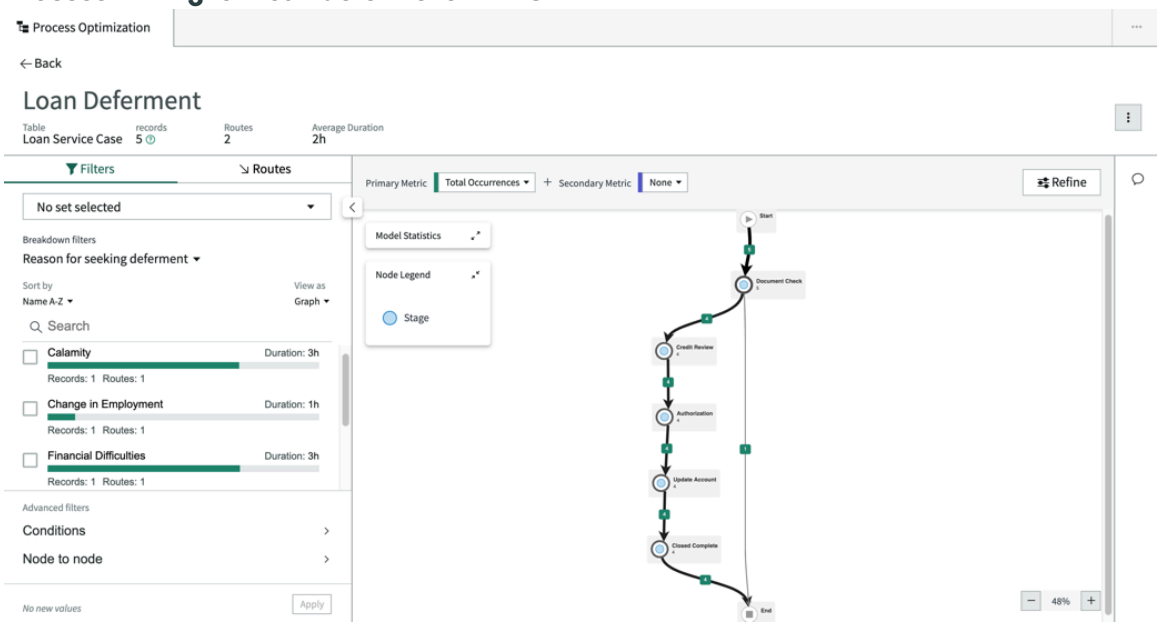
   You can observe the average duration that a Loan deferment case record takes to be closed.

2. View metrics of the process map by setting the Primary Metric and Secondary Metric lists to **Unique Occurrences** and **Average Duration**, respectively.
3. Refine the process map by selecting **Refine** and selecting a connection width to see the full list of metrics.

   You can observe the state transitions and their duration.

4. In the **Filters** tab, set up the Breakdown filters list for categories and use the activity transitions filters to filter out the records.
5. In the **Variation Analysis** tab, you can view the routes taken by the records, number of case in a route, the average duration and the number of steps involved in the route. Selecting a route highlights the route in the map.
6. Add notes to the project by selecting the notes icon ( ) and submit an analysis.

Process Mining for Loan deferment in B2C



Related topics

Analyzing and getting process insights

Content pack for Financial Services Operations

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Content pack for Customer Service Management

Using the Process Mining content pack for Customer Service Management enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with customer service cases.

For more information about enabling the Process Mining Content Pack for CSM, see Activate Process Mining content packs.

End user and roles

If you have the required roles, you can use Analyst Workbench to access the visualized process workflow data, and tools for analyzing the data related to customer service cases. For more information, see Analyst Workbench.

The following combinations of roles are required for using the Process Mining application with Customer Service Management.

Combinations of roles

Process Mining role	Customer Service Management role
sn_process_optimization_admin	sn_customerservice_manager
sn_process_optimization_power_user	sn_customerservice_manager
sn_process_optimization_analyst	sn_customer_service_agent

Optimization project for customer service cases

The Process Mining Content Pack for CSM (sn_csm_po) adds a pre-built project that includes a predefined **Customer Service Cases** project definition for customer service cases. By default, the **Customer Service Cases** project filters customer service cases for the last two quarters. You can also configure a new process project based on the pre-built project. For more information, see Create a project or template using Project Builder.

The **Customer Service Cases** project includes default activity definitions and breakdown definitions for customer service cases that you can use as they are or modify them for a custom configuration.

- Use activity definitions to understand state transitions such as cases transitioning from the work in progress state to the solution proposed state and analyze the linked processes such as Problem (PRB) records.
- Use breakdown definitions to filter records and analyze a process map by categories. For example, you can filter the customer service case data by different channels, products, assignment groups, and locations.

Continual Improvement Management initiative for customer service cases

If the Continual Improvement Management (CIM) application is enabled, you can also use the CIM project from the Analyst Workbench to track the progress of improvement initiatives for customer service cases. The improvement initiative and Process Mining projects are automatically linked. For more information, see Integration with Continual Improvement Management.

Performance Analytics for customer service cases

If the Performance Analytics application is enabled, you can also use the available template configurations to open the Process Mining application from a Performance Analytics (PA)

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indicator based on the customer service case data. For more information, see Integration with Performance Analytics.

Related topics

Example of Process Mining for CSM

Example of Process Mining for CSM

Analyze a process for customer service cases and identify bottlenecks to minimize delays in the case flow for a better customer experience.

Say you are a process analyst in the ACME corporation where you must submit analysis on current processes associated with customer service cases. You use the Analyst Workbench to access the mined processes for the **Customer Service Cases** project.

You would analyze the case process flow and suggest ways to improve the processes by using the following workflow:

1. Select **View in Workspace** from the **Customer Service Cases** project definition. The Analyst Workbench is opened in a new tab.

   You observe that the customer service case records take an average duration of 16 days to close a case.

2. View metrics of the process map by setting the Primary Metric and Secondary Metric lists to **Unique Occurrences** and **Average Duration**, respectively.
3. Refine the process map by selecting **Refine** and selecting a connection width to see the full list of metrics.

   You observe that the **Work In Progress - Awaiting Info** transition state is taking more than two days.

4. In the **Filters** tab, set the Breakdown filters list to **Assignment group** and use the activity filter to view the process flow between the **Work In Progress - Awaiting Info** and **Work In Progress** activities.
5. In the **Routes** tab, you want to see all the records that took longer than average duration of two days between the selected activities so you select **Most records** in the Sort by list. You then select any process paths to view the cases in that route.

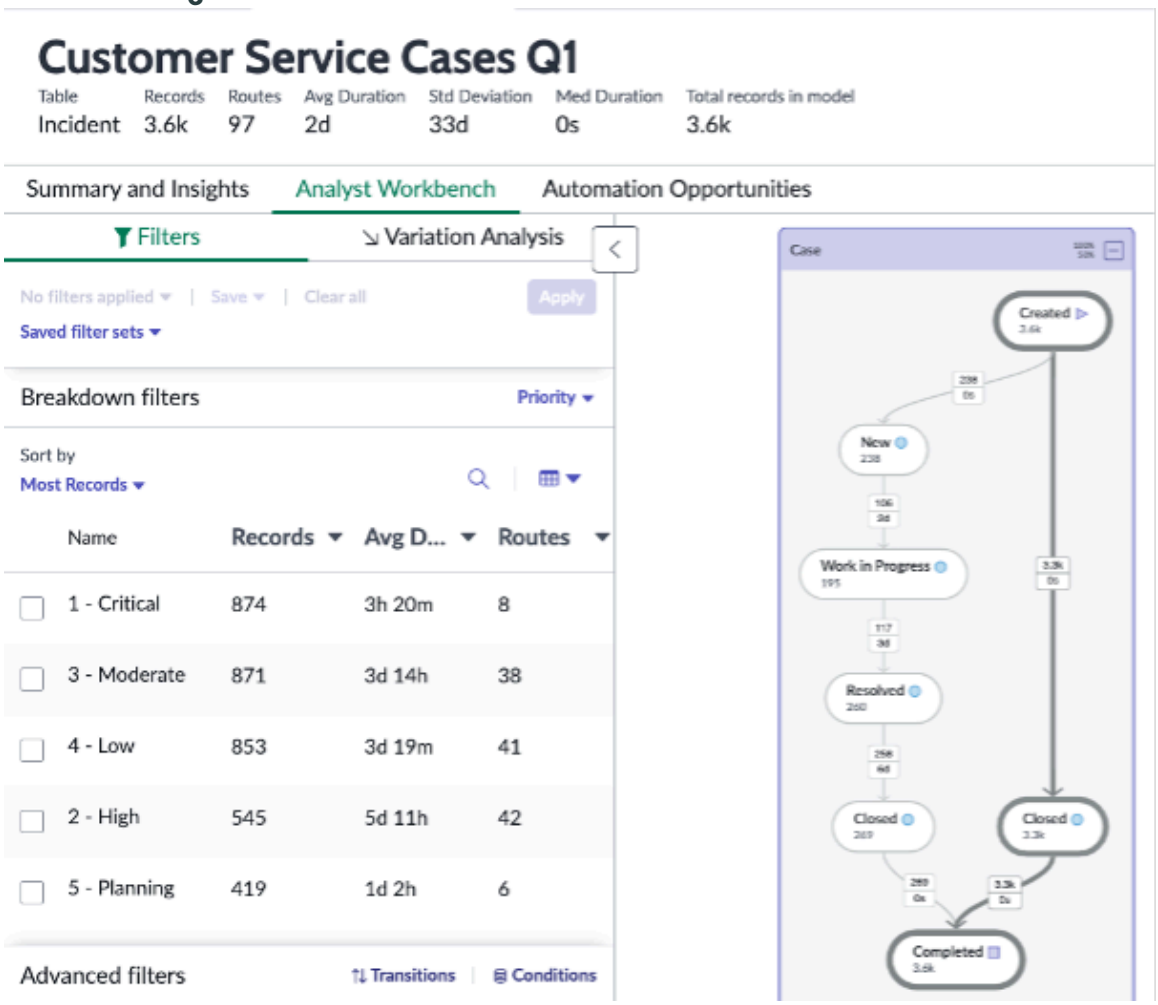
   You observe that most of the cases are related to emails.

6. Add notes to the project by selecting the notes icon ( ) and submit an analysis.

   In your notes, you suggest using a standardized template for improving the email transactions between agents and customers.

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Process Mining for customer service cases



Related topics

- Analyzing and getting process insights
- Content pack for Customer Service Management

Content pack for Telecommunications orders

Using the Process Mining content pack for Order Management for Telecommunications and Media enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with Telecommunications orders.

For information about enabling the Process Mining for Telecommunications, see Activate Process Mining content packs.

End user and roles

If you have the required roles, you can use Analyst Workbench to access the visualized process workflow data, and tools for analyzing the data related to telecommunications orders. For more information, see Process Mining workspace.

Based on the Telecommunications application that you're using the Process Mining application for, you need the following roles:

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- For Telecommunications Product Orders: sn_process_optimization_admin, sn_process_optimization_analyst, and sn_process_optmization_power_user
- For Telecommunications Service Orders: sn_process_optimization_admin, sn_process_optimization_analyst, and sn_process_optmization_power_user
- For Telecommunications Resource Orders: sn_process_optimization_admin, sn_process_optimization_analyst, and sn_process_optmization_power_user
- For Telecommunications Order Tasks: sn_process_optimization_admin, sn_process_optimization_analyst, and sn_process_optmization_power_user

Optimization projects for Telecommunications application

The content pack adds pre-built process optimization project definitions for these Order Management for Telecommunications and Media application entities:

- Product Orders
- Service Orders
- Resource Orders
- Order Tasks

You can also configure a new process project that is based on a pre-built project. For more information, see Create a project or template using Project Builder.

Related topics

Example of Process Mining for Telecommunications

Example of Process Mining for Telecommunications

Analyze a process for telecommunications orders and identify the bottlenecks to minimize delays in the case flow for a better customer experience.

Say you were a process analyst in your telecommunications service provider where you must submit an analysis on current processes that are associated with telecommunications orders. You can use the Analyst Workbench to access the mined processes for the project definition for telecommunications product orders, service orders, resource orders, and order tasks.

You can analyze the case process flow and suggest ways to improve the processes by using the following workflow for the product orders in telecommunications project definition:

1. Select **View in Workspace** from the selected project. The Analyst Workbench opens in a new tab.

   You can observe the average duration that a telecommunications customer order takes to be fulfilled.

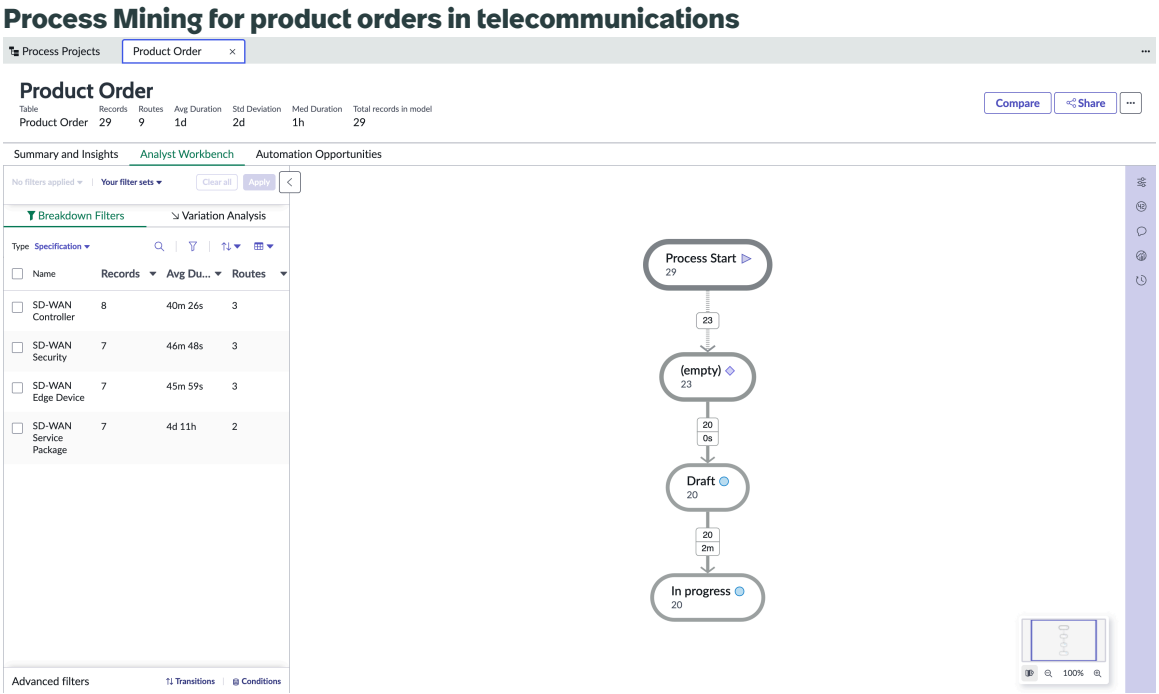
2. View the metrics of the process map by setting the Primary Metric and Secondary Metric lists to **Unique Occurrences** and **Average Duration**, respectively.
3. Refine the process map by selecting **Refine** and selecting a connection width to see the full list of metrics.

   You can observe the state transitions and their duration.

4. In the **Filters** tab, set up the Breakdown filters list for categories, and use the activity transitions filters to filter out the records.

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5. In the **Variation Analysis** tab, you can view the routes that are taken by the records, the number of case in a route, the average duration, and the number of steps that are involved in the route. Selecting a route highlights the route in the map.
6. Add notes to the project by selecting the notes icon ( ) and submit an analysis.



Related topics

- Process Mining workspace
- Analyzing and getting process insights
- Content pack for Telecommunications orders

Content pack for HR Service Delivery

Using the Process Mining content pack for HR Service Delivery enables you to analyze processes relevant to your KPIs, and identify bottlenecks associated with customer service cases.

Request apps on the Store

Visit the ServiceNow Store website to view all the available apps and for information about submitting requests to the store. For cumulative release notes information for all released apps, see the ServiceNow Store version history release notes.

For more information about enabling the HRSD Process Mining Content Pack, see Activate Process Mining content packs.

End user and roles

If you have the required roles, you can use Analyst Workbench to access the visualized process workflow data, and tools for analyzing the data related to customer service cases. For more information, see Analyst Workbench.

The following combinations of roles are required for using the Process Mining application with HR Service Delivery.

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Combinations of roles

Process Mining role	HR Service Delivery role
sn_process_optimization_admin	sn_hr_core.admin
sn_process_optimization_power_user	sn_hr_core.case_writer
sn_process_optimization_analyst	sn_hr_core.basic

Optimization project for HR cases

The HRSD Process Mining Content Pack (com.sn_hr_process_optimization) adds a pre-built project that includes predefined HR service cases and, if installed, Lifecycle Events cases project definitions. By default, the project filters cases for the last two quarters. You can also configure a new process project based on the pre-built project. For more information, see Create a project or template using Project Builder.

The project definition includes default activity definitions and breakdown definitions for cases that you can use as they are or modify for a custom configuration.

- Use activity definitions to understand state transitions such as cases transitioning from the work in progress state to the solution proposed state and analyze the linked processes such as Problem (PRB) records.
- Use breakdown definitions to filter records and analyze a process map by categories. For example, you can filter the case data by different channels, products, assignment groups, and locations.

Continual Improvement Management initiative for HR cases

If the Continual Improvement Management (CIM) application is enabled, you can also use the CIM project from the Analyst Workbench to track the progress of improvement initiatives for HR cases. The improvement initiative and Process Mining project are automatically linked. For more information, see Integration with Continual Improvement Management.

Performance Analytics for HR cases

If the Performance Analytics (PA) application is enabled, you can also use the available template configurations to open the Process Mining application from a Performance Analytics indicator based on the customer service case data. For more information, see Integration with Performance Analytics.

Example of Process Mining for HR Service Delivery

Analyze a process for your HR service or, if installed, Lifecycle Events cases and identify bottlenecks to minimize delays in the case flow for a better user experience.

Say you are an HR onboarding process analyst who wants to improve the speed or quality of your service delivery and you must submit analysis on your current case processes. You can use the Analyst Workbench to access the mined processes for the HR service and, if installed, Lifecycle Events cases project definitions.

You can analyze the case process flow and suggest ways to improve the processes by using the following workflow, for example, for a standard HR Service case model definition, you can:

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1. Select **View in Workspace** from the selected project. The Analyst Workbench opens in a new tab.

   On the **All by HR Service** tab, you can observe how long it takes for an HR service case record to be closed.

2. View metrics of the process map by setting the Primary Metric and Secondary Metric lists to **Total Occurrences** and **Avg Duration**, respectively.
3. Refine the process map by selecting **Refine** and selecting a connection width to see the full list of metrics.

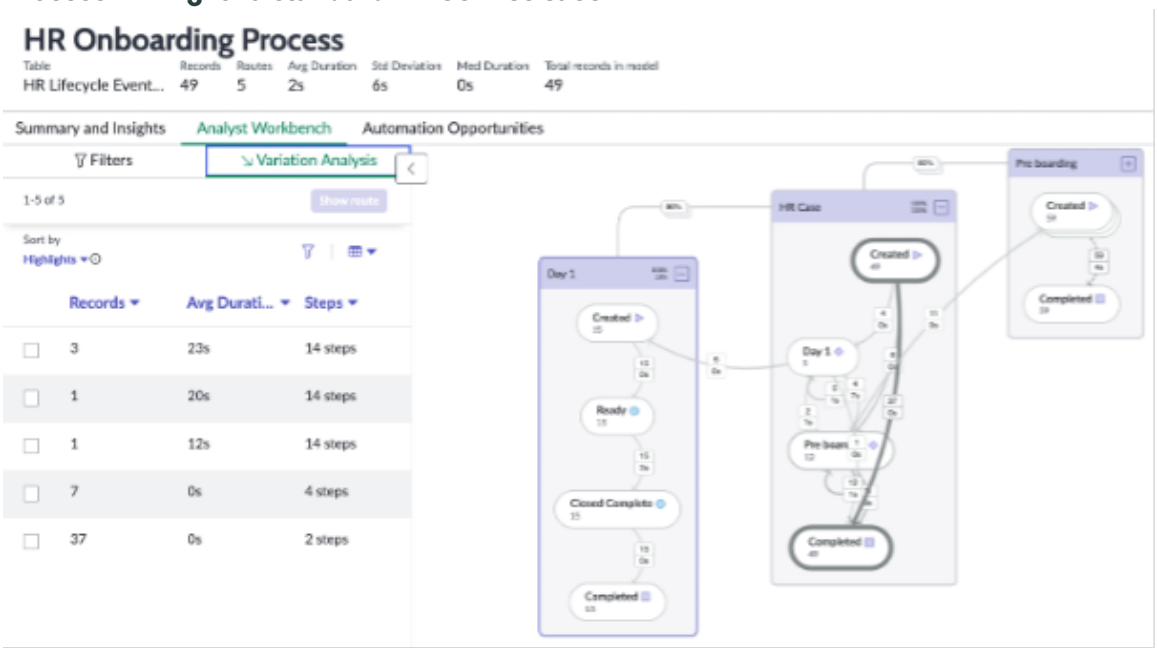
   You can observe the state transitions and their duration.

4. In the **Breakdown** tab, set up the Breakdown filters list for categories and use the activity transitions filters to filter out the records.
5. In the Variation Analysis tab, you can view the routes taken by the records, number of case in a route, the average duration and the number of steps involved in the route. Selecting a route highlights the route in the map.

   Note:
   After applying one of more routes, the breakdowns listed in the **Breakdown Filters** tab display only those breakdowns applicable to those routes.

6. Add notes to the project by selecting the notes icon ( ) and submit an analysis.

Process Mining for a standard HR Service case



Example of content pack for FSM

Analyze a process for work order tasks and identify bottlenecks to minimize delays in the work flow for a better customer experience.

In this example, you are a process analyst in the ACME corporation where you must submit an analysis on current processes associated with work order tasks. You use the Analyst Workbench to access the mined processes for the **Work order tasks** project definition.

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You would analyze the work order process flow and suggest ways to improve the processes by using the following workflow:

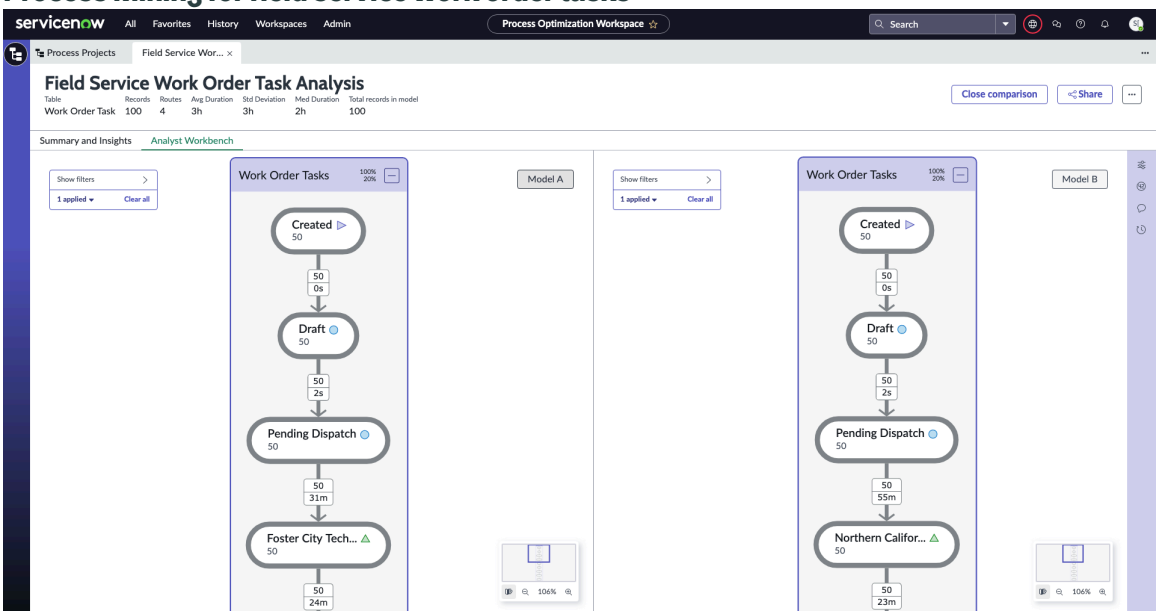
1. Select **Analyst Workbench**. The Analyst Workbench appears in a new tab.
2. View standalone analysis of all the records in the process map by setting the **Breakdown filters** list to **Assignment group**, and select **Apply**.
3. Refine the process map by selecting **Refine** and selecting a connection width to see the full list of metrics.

   You observe and analyze that the reason for the delay in scheduling the tasks.
4. Filter the data to view the records by selecting **Show records** > **View**.

   You observe that most of the tasks are related to installation.
5. Add notes to the project by selecting the notes icon ( ) and submit an analysis.

   In your notes, you suggest review the reason for higher dispatch time in the installation tasks.

Process Mining for field service work order tasks



Related topics

Process Mining for Field Service Management

Integrating Process Mining

Use Process Mining throughout the continuous improvement life cycle to consistently and accurately analyze processes.

An administrator can integrate Process Mining with other ServiceNow applications such as Continual Improvement Management, Performance Analytics, ITSM, Customer Service Management, and Financial Services Operations.

Find improvement opportunities and monitor process changes and progress through these stages.

1. Identify: Use Process Mining to proactively assess a current process and find improvement opportunities.
2. Plan and execute: Find root causes of problem areas, and uncover new tasks or missing steps.

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3. Measure: Monitor the latest process data.
4. Show the outcomes: Reanalyze the process, and show measurable outcomes.



Integration with Continual Improvement Management

Integrating with the ServiceNow® Continual Improvement Management application enables you to create a request once you have identified an improvement opportunity.

Integration with the ServiceNow® Continual Improvement Management (CIM) application enables you to request and view process improvement-related initiatives and add tasks to existing initiatives.

The Process Mining plugin (com.sn_po) provides an integration between the Process Mining and Continual Improvement Management applications. Continual Improvement Management integrates with activation of the CIM (com.sn_cim) plugin.

From Process Mining: When you create an improvement initiative from Process Mining, a reference to the project is added to the continual improvement record.

From Continual Improvement Management: Launch the Process Mining Analyst Workbench from CIM.

Roles

Integration with Continual Improvement Management doesn't add any additional roles to the Process Mining roles. To enable Continual Improvement Management features, you must add the agent_workspace_user role to the users who need this capability.

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Related topics

- Example of Continual Improvement Management using Process Mining
- Continual Improvement Management
- Request Continual Improvement Management

Launch Process Mining from CIM

Launch Process Mining from the CIM workbench to analyze the existing process and find new opportunities for improvement.

Before you begin

Role required: improvement_manager

Activate the Continual Improvement Management plugin (com.sn_cim) and the Process Mining plugin (com.sn_po).

Procedure

Navigate to the **Process Mining** workbench in any one of the following ways.

Example of Continual Improvement Management using Process Mining

Understand how you can create or track an improvement request.

As an improvement manager, you use your Continual Improvement Management Workbench dashboard daily to view operational work and initiatives in progress. You have an open initiative to optimize the incident process and reduce mean time to resolve (MTTR).

From the initiative form, you select **Go to Process Mining**. The action navigates you to a generated project in the Process Mining Analyst Workbench showing cases that were closed in the last three months.

Make Continual Improvement part of your routine through integration with Process Mining

Integration with Benchmarks

Integrating with ITSM Benchmarks enables you to analyze processes relevant to your KPIs, and create and view associated incidents.

Related topics

- Example of Benchmarks using Process Mining
- Content pack for ITSM

Launch Process Mining from the Benchmarks dashboard

Launch Process Mining from the Benchmarks dashboard to analyze a process related to a low-performing KPI.

Before you begin

Role required: sn_bm_client.benchmark_recommendation_viewer

Activate the Process Mining plugin (com.sn_po).

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Procedure

1. Navigate to **All** > **Benchmarks** > **Dashboard**.
2. Select the **Go to Process Mining** icon ( ).

> **Note:**
> If the process model required in your KPI is not available, the dashboard creates it automatically.

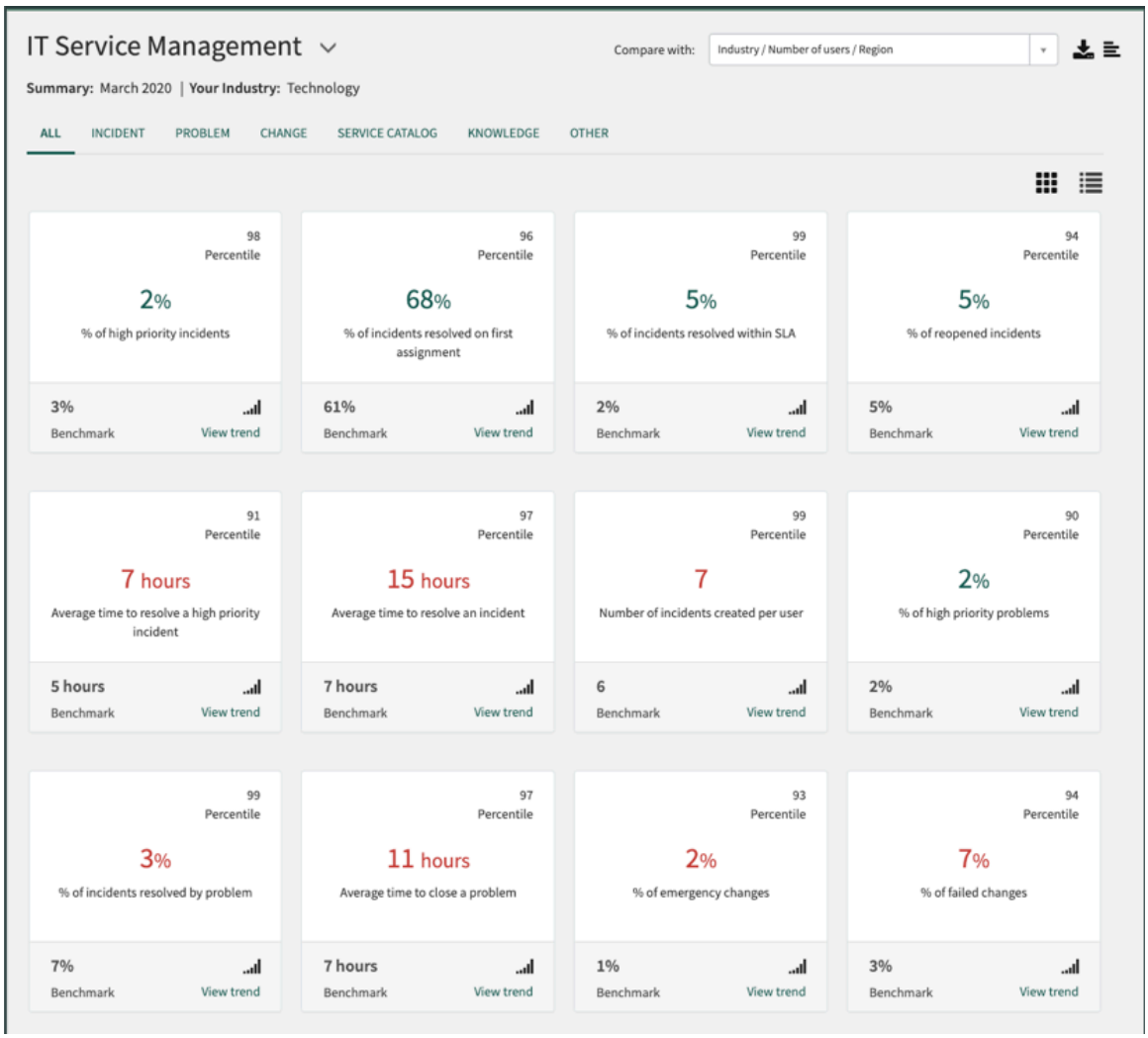
Example of Benchmarks using Process Mining

Understand how you can analyze a process relevant to a KPI. Create or view the status of an associated incident.

Identify, analyze, and enact: Process Mining simplified on the ServiceNow AI Platform

An IT analyst looks at their monthly Benchmarks report. They notice that the 'MTTR for high priority incident' KPI is performing negatively compared to industry peers. Their CIO wants to understand the reasons why.

The analyst selects the **Go to Process Mining** icon from a Benchmarks KPI. The action navigates them to the Process Mining Analyst Workbench in a new tab. They quickly discover an area needing improvement, and submit a CIM initiative. Once the CIM initiative is completed, they can see the improvement on the Benchmarks industry peer comparison chart.



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Integration with indicator data sources (PA)

Using Process Mining with Platform Analytics indicator data sources enables you to perform data extraction from an indicator and analyze processes associated with KPIs such as Time to resolve.

The Process Mining plugin (com.sn_po) provides an integration between Process Mining and indicator data sources. Integration occurs automatically when you enable the Process Mining plugin. Afterwards, you can open the Process Mining workbench from KPI Details for an indicator.

The Process Mining plugin provides template configurations for indicator sources that use the following tables:

- Customer service case [sn_customerservice_case]
- Incident [incident]
- Problem [problem]
- Change [change]
- Requested Item [sc_req_item]

To support indicators based on other tables, create templates for those tables. For more information, see Set up a table configuration.

Note:

- Process Mining supports only automated indicators. From KPI Details for a formula indicator, you can still open Process Mining, but you must choose one of the contributing automated indicators in the formula.
- Process Mining does not support indicator sources that are based on database views.

Roles

Integrating with indicators does not add any roles to Process Mining roles. To enable the integration features, you must add the PA viewer role (pa_viewer) to the Process Mining users who need this capability. Similarly, add the appropriate Process Mining role to any users who manage indicators and need Process Mining capability.

Launch and use Process Mining

Integrating with indicators adds the **Run process analysis** option to the KPI Details menu. Users can:

- Open Process Mining for a specific indicator from KPI Details.



- Schedule data extraction from a Performance Analytics indicator.

When you initiate data extraction for an indicator, you see the extraction progress. Once it completes, you can view the project from the Process Mining Analyst Workbench. If you initiate an extraction at a later time on the same indicator settings, but on a different date, you will see a new PA project created in the **Process Mining** > **Projects** > **PA Projects** list.

Related topics

Example of an indicator using Process Mining

Exploring indicators with KPI Details

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Example of an indicator using Process Mining

Understand how you can extract data from an indicator that is based on incident, problem, change, customer service case, or request process data.

As a process analyst, you view your dashboard and see that the 'Number of resolved incidents' indicator has decreased over the last two months. You understand that a decrease in this kind of metric causes lower customer satisfaction, and increases business costs. To dig deeper into the numbers, you open KPI Details for the indicator.

KPI Details for the Number of resolved incidents indicator



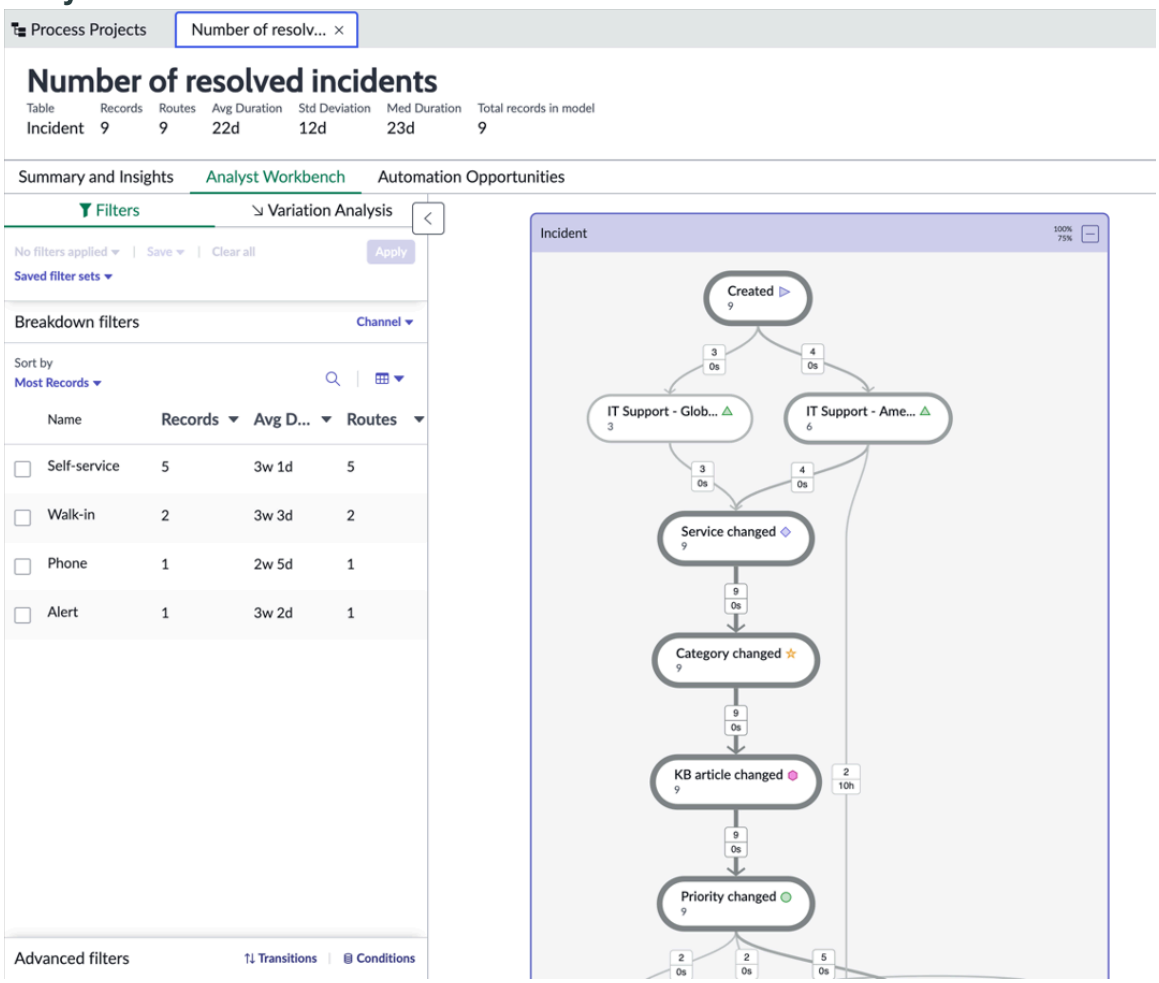
Among the many analytical tools in KPI Details, you have the ability to open the Process Mining workbench. With Process Mining, you may be able to resolve this increase in incidents.

You select the **Open in Process Mining** icon.

The action automatically creates a process map in the context of the indicator. You navigate to the Process Mining Analyst Workbench to investigate the root cause.

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Analyst Workbench for the Number of resolved incidents indicator



Related topics

Integration with indicator data sources (PA)

Integration with Automation Discovery

Run Automation Discovery from within Process Mining.

Summary usage

Automation Discovery analyzes your records to help you identify opportunities for automation.

With the app, you can run discovery reports that analyze a specified dataset of records against a pre-built taxonomy. The project identifies over 180 possible opportunities for automation from your records. Think of the opportunities as intents that the system can respond to your users' queries automatically.

The report groups records by the predicted opportunity for automation. For uncategorised records, the report groups the records together in related clusters.

For applications such as Virtual Agent, Automation Discovery helps you implement automation opportunities that can lead to deflections and faster incident resolutions.

For details on Automation Discovery, see Automation Discovery.

Configure Automation Discovery

Automation Discovery helps you analyze your records and identity opportunities for automation.

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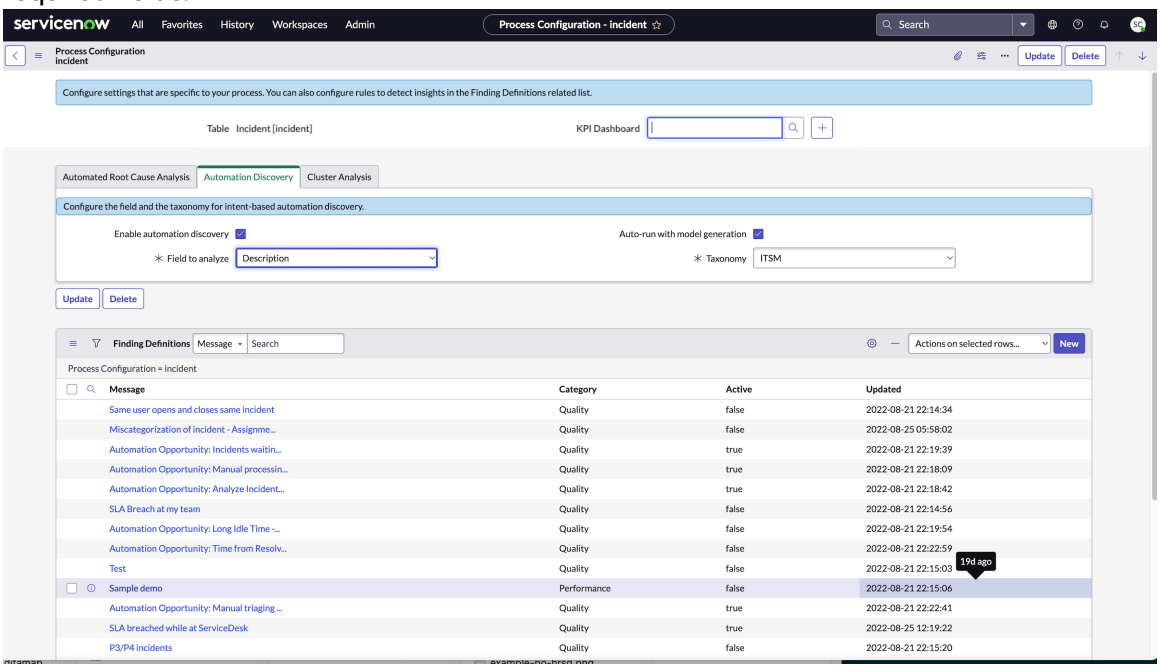
Before you begin

You must install the Automation Discovery application (sn_auto_discovery) before configuring. For more information, see Install Automation Discovery.

Role required: administrator

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configuration**.
2. Select the Incident table [incident].
3. **Optional:** Use the **KPI Dashboard** field to select a KPI dashboard to associate with this process configuration.
4. Navigate to the **Automation Discovery** tab.
5. Select **Enable automation discovery** and **Auto-run with model generation**, and complete the required fields.

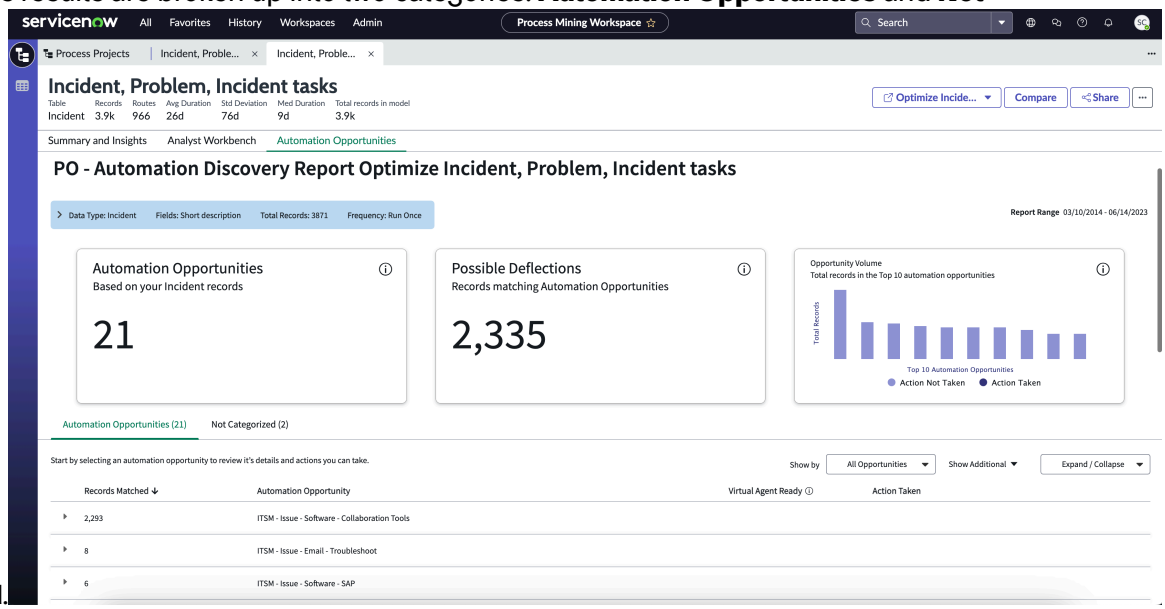


Your project runs automation discovery with model generation automatically when both options are selected.

6. Select **Update**.
7. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
   The Process Mining Workspace page opens.
8. Open the project, and select **Automation Opportunities**

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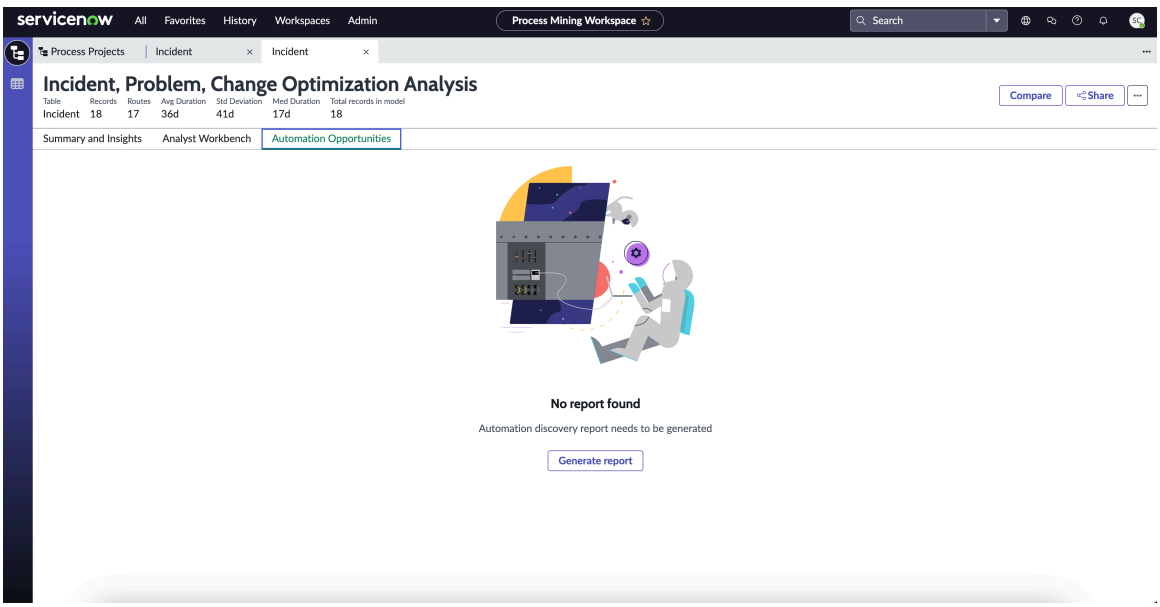
Your project's results are broken up into two categories: **Automation Opportunities** and **Not Categorized**.



9. Select a record for additional information.

   Point to **Open process map** to trigger additional mining.

   If you decide not to select **Enable automation discovery** or **Auto-run with model generation**, your Automation Opportunities don't display. From the **Analyst Workbench**, select **Generate report** to create a report.



   Fill out the required fields to create your report.

Integration with Automation Center

Integration with Automation Center enables you to access the automation requests from the Automation Center Workspace.

From Process Mining, you can create automation requests that you want to view in Automation Center Workspace.

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Submit an automation idea

Discover, prioritize, and manage automation requests from different sources through the Automation Center workspace.

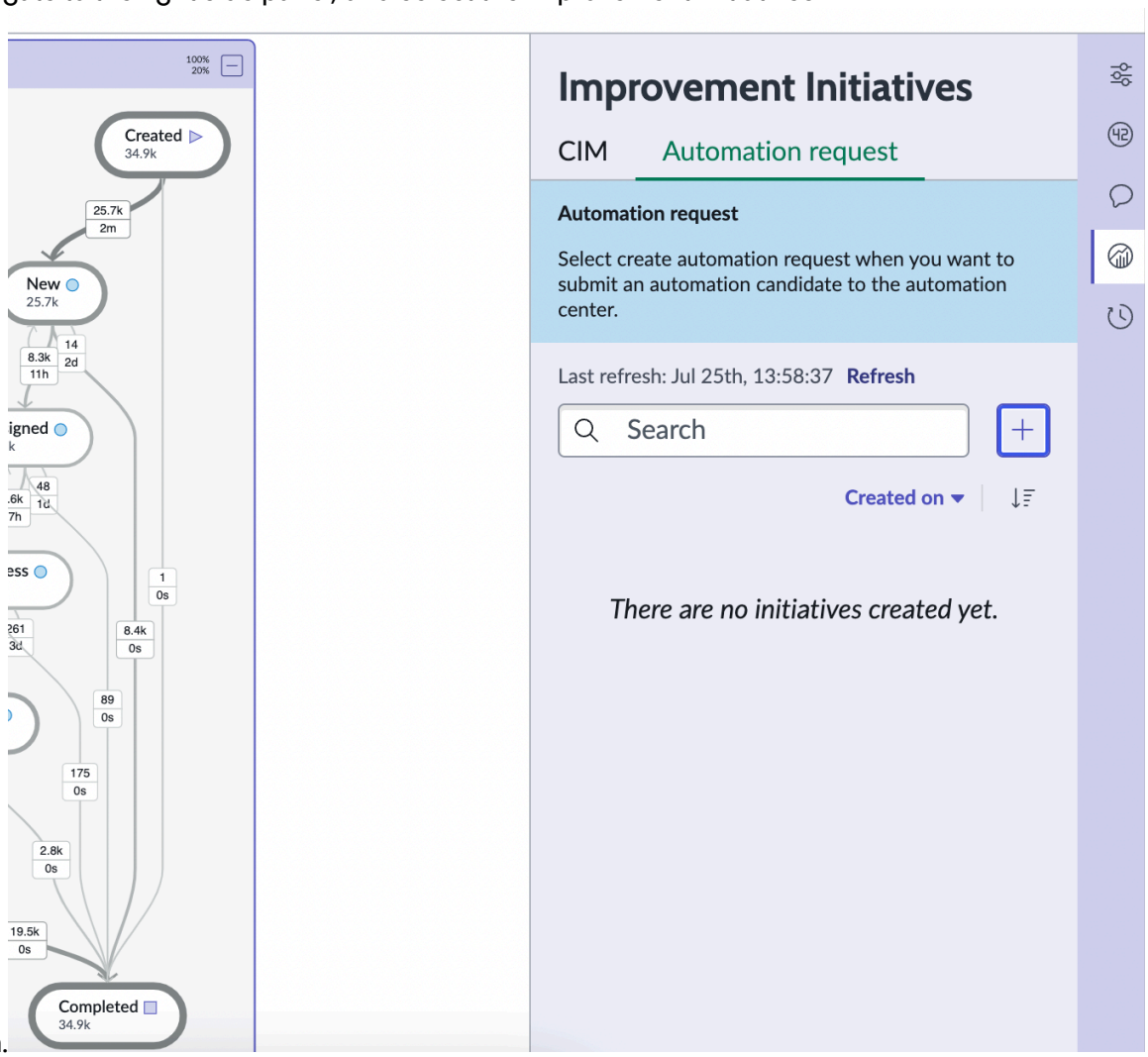
Before you begin

You must install and configure the Automation Center plugin before configuring. See Install Automation Center for more information.

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

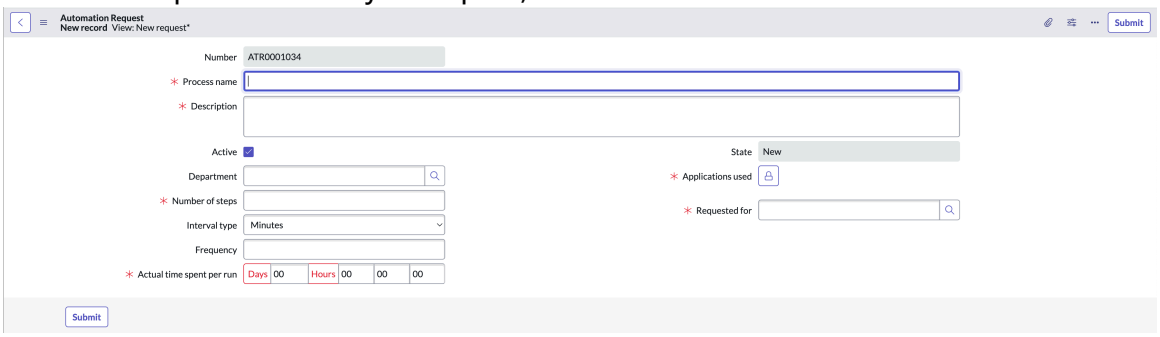
1. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
2. Select a project.
   The Automation Center feature appears under the Summary and Insights or Analyst Workbench tab.
3. Navigate to the right side panel, and select the Improvement Initiatives icon.



4. Select the plus sign to create an automation idea.
   A new Automation Request page opens.

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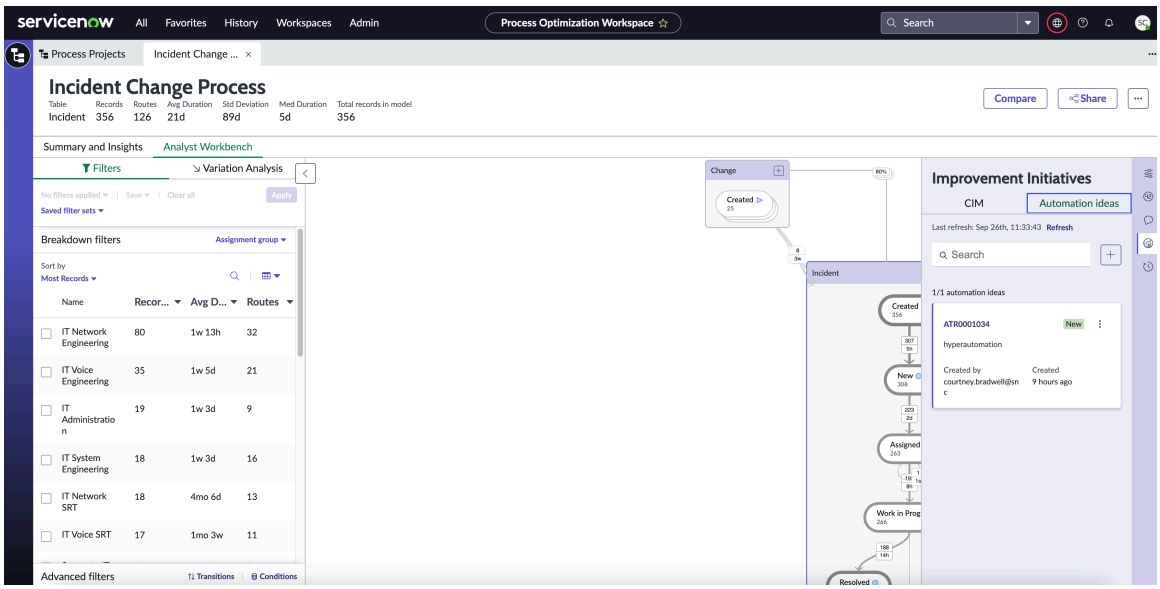
5. Fill out the required fields for your request, and select **Submit**.



For more information, see Automation request form from Automation Center.

Result

Your new request appears in the Improvement Initiatives panel.



Configuring Process Mining

An administrator can set up Process Mining so that analysts and managers can access the Analyst Workbench, and create and manage projects.

Note:
Process Mining is supported for on-premise instances only if the instances have Predictive Intelligence set up. For information on self-hosted environments, see KB article KB0782052.

To set up Process Mining:

- Activate the Process Mining (com.sn_po) plugin.
- Assign roles to enable users to create projects from the application navigator, and view or manage projects from the Analyst Workbench.
- (Optional) When integrating Process Mining with the other applications, such as ITSM, Customer Service Management, Financial Services Operations, and so on, activate the respective content pack.

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Domain separation is supported

This application supports domain separation. For more information, see Domain separation and Process Mining.

Access control

When generating or sharing a project, Process Mining honors the access control rules (ACLs) for the table.

When generating a project, Process Mining honors the ACLs on the table that a project reports on, and ignores ACLs on the audit table. Users with the promin_viewer role have read-only access.

When sharing a project:

- All visible data in the Analyst Workbench is visible to any user who has access to the project.
- All mining operations are performed as per the project creator's [sys_created_by] access. This includes mining performed by roles with higher permission levels, which can result in less data being mined.

Summary and Insights page:

- KPIs are visible to any user who has the required permission to access related KPIs.
- Insights are visible to any user who has access to the project.

Process Mining properties

The Process Mining properties page provides configuration options for Process Mining.

Data cleanup properties

Set properties that determine how long Process Mining projects are maintained before being deleted by the scheduled cleanup job.

Properties for Process Mining data cleanup

Property	Description
Define the number of days to persist PA Projects (Project Definition) from the last updated date **promin.persist.pa_model**	Set the number of days that Process Mining projects will be kept after the last date it was updated. • Type: integer • Default value: 30 days • Location: Process Mining > **System** > **Properties**
Define the number of days to retire projects due to inactivity **promin.auto_retire_days**	Set the number of days of inactivity after which the projects will be retired. • Type: integer • Default value: 90 days • Location: Process Mining > **System** > **Properties**

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Properties for Process Mining data cleanup (continued)

Property	Description
Define the number of days to clean up retired projects **promin.auto_clean_days**	Set the number of days post retirement after which the projects will be cleaned up. However, the project configuration will be retained. • Type: integer • Default value: 90 days • Location: Process Mining **System Properties**

Related topics

Example of an indicator using Process Mining

Schedule job for version cleanup

Schedule a job to delete older backup versions and clean up cluster analysis records by executing the scheduled script **ProminVersionCleanup**.

Before you begin
Role required: administrator

About this task
When regenerating projects, the **ProminVersionCleanup** job deletes obsolete, cached statistics. The older statistics move into a previous version, while the new version is created for the updated project.

When regenerating or deleting projects, this job cleans records created during cluster analyses.

Procedure
1. Navigate to **All** > **Process Mining** > **Background Jobs**.
2. Select the scheduled job **ProminVersionCleanup**.
3. Check or set the following.
   a. Enable the **Active** check box.
   b. Check if the Run field is **Daily**.
   c. Set the Time in hours.
4. Select **Execute Now**.

Result
Backup version and cluster record cleanup execute daily.

Root cause analysis properties

Set properties that determine the thresholds for root cause analysis.

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Properties for Process Mining root cause analysis threshold

Property	Description
Number of top leading influencers to be displayed **promin.rca.result-count**	Set the number of influencers that are required for a project to have the root cause analysis enabled for a project. • Type: integer • Default value: 20 • Location: Process Mining > **System** > **Properties**
Minimum % of records (1 to 100) needed to show in the leading influencers list **promin.rca.min_condition_and_effect**	Set the minimum percentage of records to be displayed in the leading influencers list. For example, if the value specified is 10% and there are 100 total records, then 10 records will be displayed. • Type: integer • Default value: 10 • Location: Process Mining > **System** > **Properties**
Minimum required odds ratio **promin.rca.min_odds_ratio**	Set the minimum value that decides the odd ratio when doing the root cause analysis. • Type: integer • Default value: 1 • Location: Process Mining **System Properties**

Analyst Workbench properties

Set properties that determine the kind of data you want to view in Analyst Workbench.

Properties for Process Mining root cause analysis threshold

Property	Description
Primary Metric in Analyst Workbench **promin.primary_metric**	Specify the primary metric that is used in displaying the result in the analyst workbench. • Type: string • Default value: Unique Occurrences • Location: Process Mining > **System** > **Properties**
Secondary Metric in Analyst Workbench **promin.secondary_metric**	Specify the secondary metric that is used in displaying the result in the analyst workbench. • Type: string • Default value: Avg Duration • Location: Process Mining > **System** > **Properties**

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Activity recommendations properties

Set the property to enable or disable activity field recommendation when creating a project.

Properties for Process Mining root cause analysis threshold

Property	Description
Property to enable/disable Activity field recommendations in Process mining **promin.activity.recommendation.enabled**	Select this filed to enable the recommendations to be displayed when setting activity definitions for a project. • Type: Boolean • Default value: True • Location: Process Mining > **System** > **Properties**

Work notes analysis properties

Set properties that determine when the work notes analysis will be available.

Properties for Process Mining root cause analysis threshold

Property	Description
Set the minimum transition records to trigger work notes analysis **promin.worknotes.min_records**	Set the minimum transition records to trigger work notes analysis. If the transition records are below the provided value, work notes analysis will not be available. • Type: integer • Default value: 50 • Location: Process Mining > **System** > **Properties**
Minimum percentage transition threshold (X%) for eligible work notes **promin.work_notes.min_percentage_transition_threshold**	Set the minimum percentage as a threshold for eligible work notes. For example, if the value specified is 10% and there are 100 total records, then 10 records will be displayed. • Type: integer • Default value: 20 • Location: Process Mining > **System** > **Properties**
Minimum number of eligible work notes **promin.work_notes.min_eligible_records**	Set the limit for minimum eligible work notes. Work notes are eligible when they meet the criteria that is set when creating process configuration (such as,

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Properties for Process Mining root cause analysis threshold (continued)

Property	Description
	time range for work notes, length range of work notes analysis, and so on). For more information, see Configure investigative features. • Type: integer • Default value: 25 • Location: Process Mining **System Properties**

Blocked table

Select the tables that you do not want to be used for projects in Process Mining.

Properties for Process Mining root cause analysis threshold

Property	Description
Define the tables that must be blocked from mining, activity definition, and breakdown **promin.blocked.tables**	Provide the tables that must be blocked from being used in Process Mining. • Type: String • Default value: None • Location: Process Mining > **System** > **Properties**

Configure Process Mining map in PAR dashboard

Configure a Process Mining map to view the process graph in the PAR dashboard.

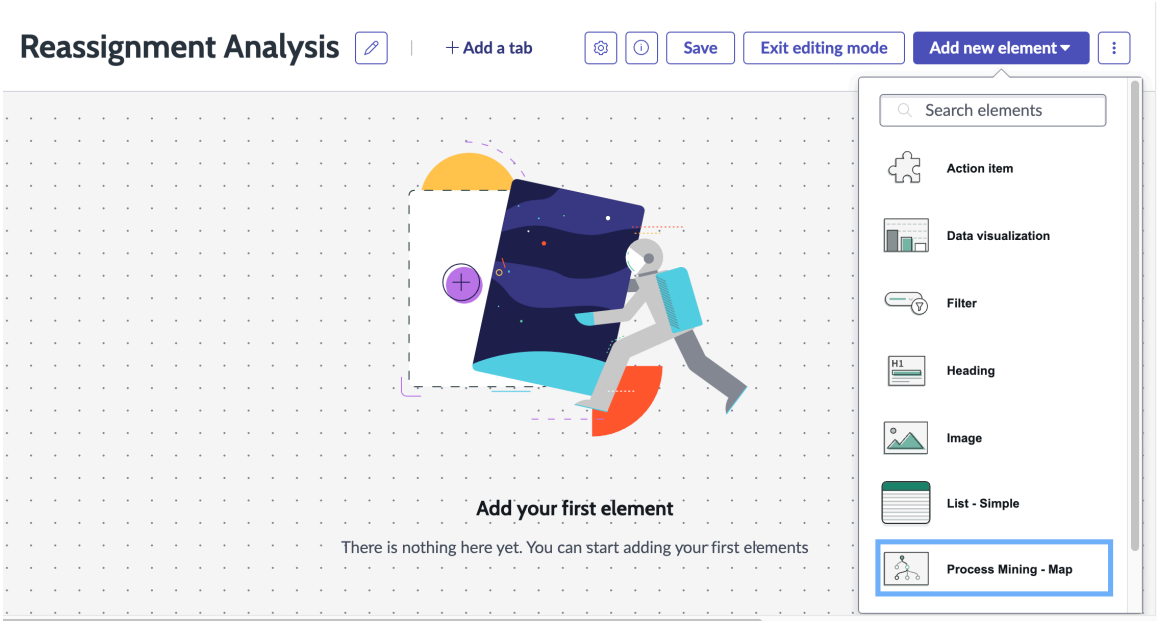
Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

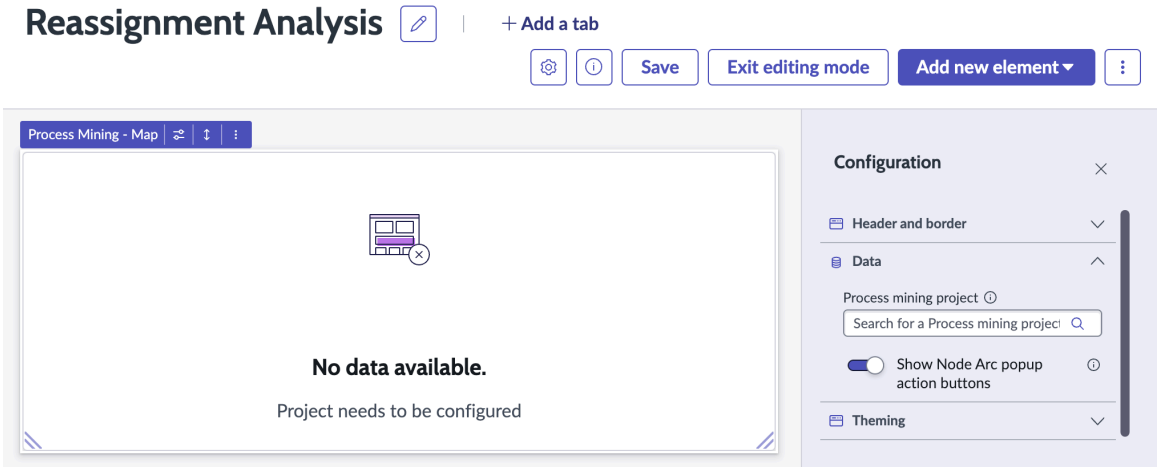
Procedure

1. Navigate to your PAR dashboard.
2. Configure a Process Mining map.
   a. Select **Add new element**.
   b. Select **Process Mining - Map** from the list.

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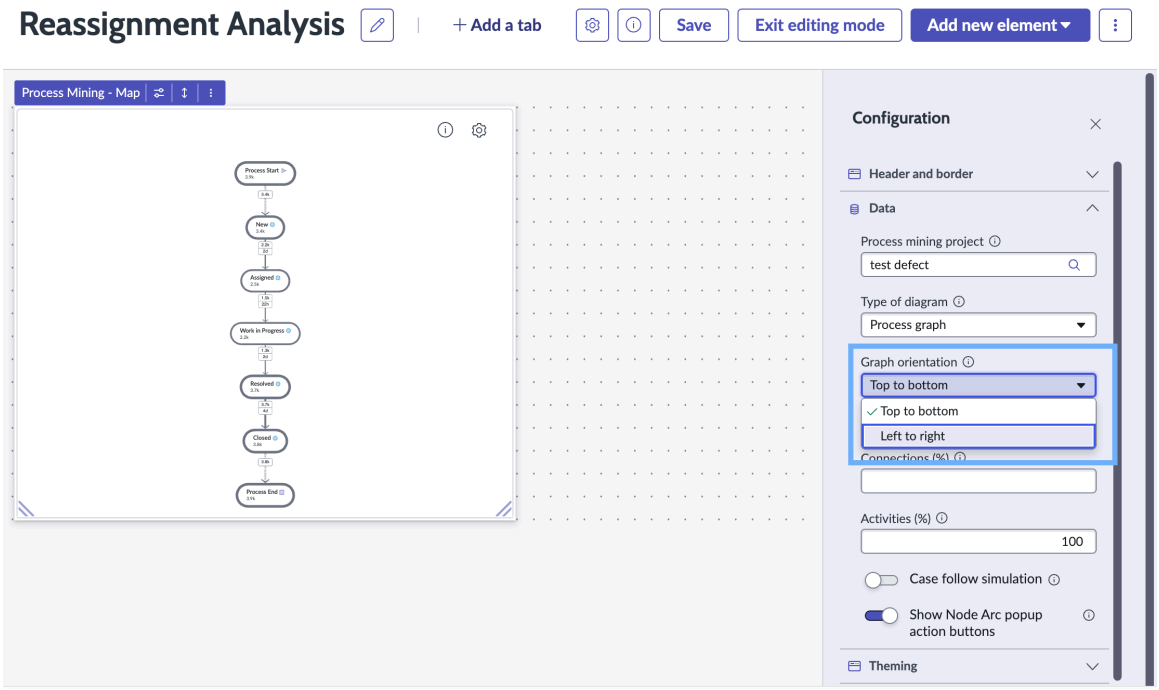


3. Configure a Process Mining project for the map.
   a. Select a Process Mining project from the **Process mining project** list in the **Configuration** area.

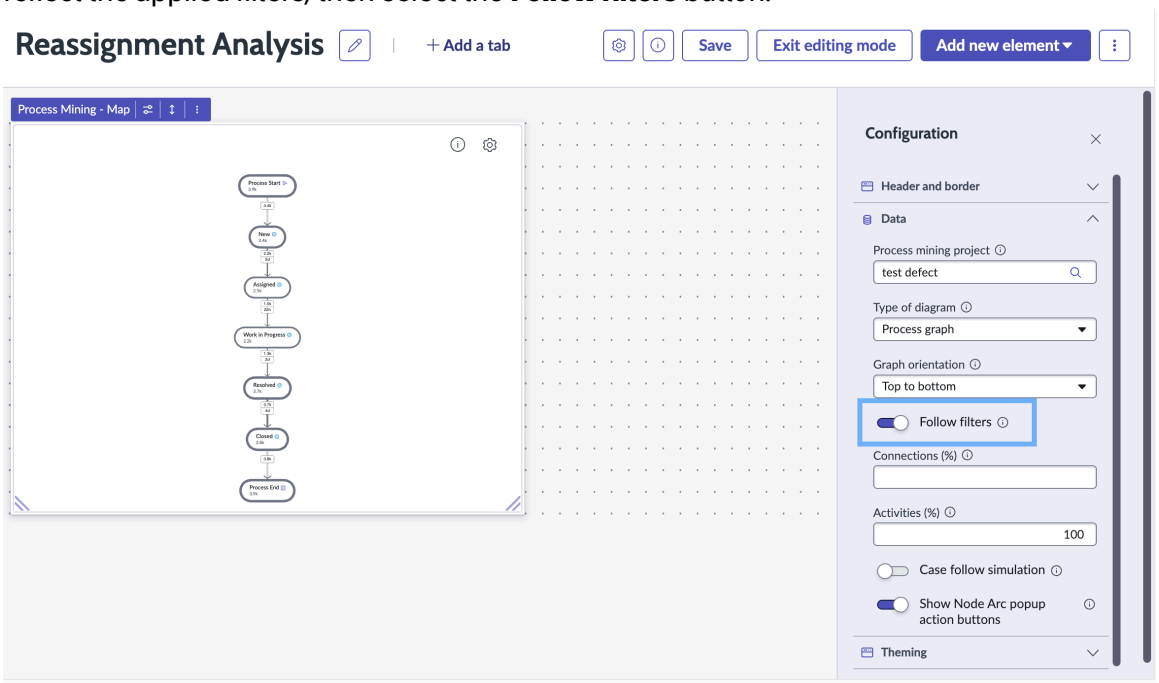


4. Customize the orientation of the outline of the process graph set for the current project workbench for nodes within the graph.
   For example, when using a vertically oriented widget, you might prefer the graph and star diagram to be displayed in a vertical layout rather than a horizontal one.

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5. If you have configured filters in your dashboard, and you want the Process Mining map to reflect the applied filters, then select the **Follow filters** button.

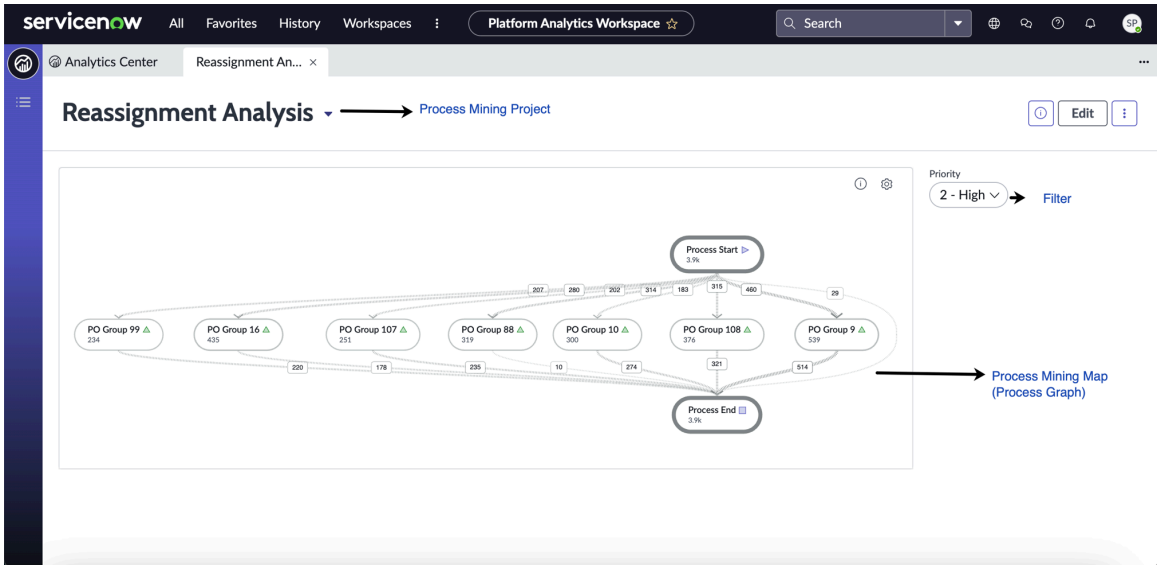


6. Select **Save** and **Exit editing mode**.

Result

The Process Mining map is available in the PAR dashboard.

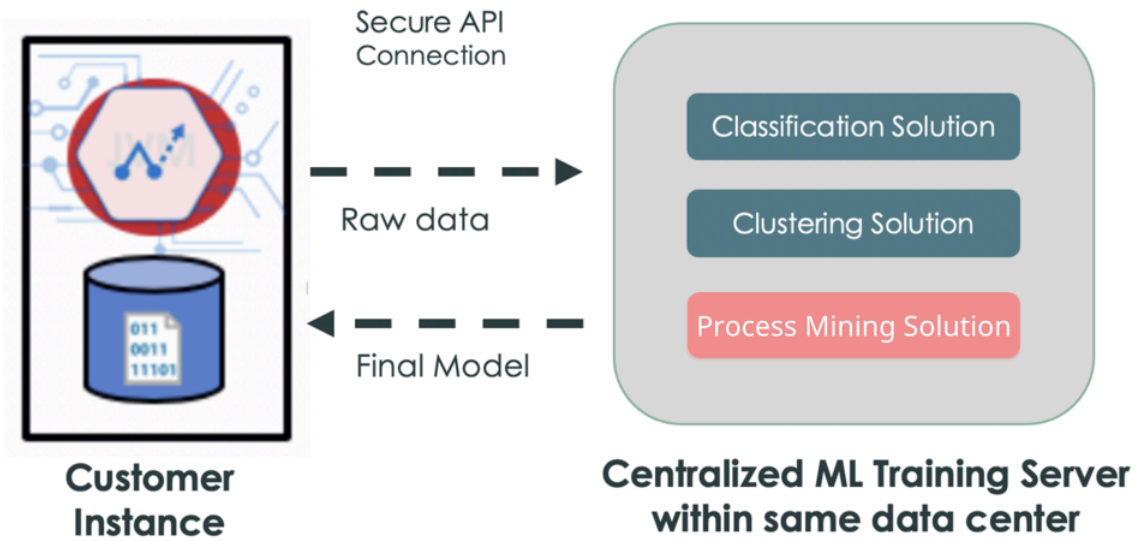
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Process Mining architecture

Understand the basic attributes of the Process Mining architecture.

- The Process Mining mining engine extracts data from the audit history based on the project settings. The data file is then uploaded to a centralized training server (ServiceNow® Predictive Intelligence) within the same datacenter. The centralized training server enables advanced computing of new metrics. The centralized server supports more data for scalability without causing any performance load on your instance.
- When the Process Mining project is ready, the training server sends the final project back to your instance and deletes all of your project data from the server. The data is transferred using secured and encrypted APIs.
- The most recent version of the project is then visualized through the Analyst Workbench UI on your instance.



Related topics

Predictive Intelligence

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Using Process Mining

Choose a process to optimize, generate process data, and then get visualized and actionable insights.

As you seek to improve your business processes in areas such as eliminating redundancies, forecasting changes, and streamlining workflows, Process Mining helps you achieve those goals. Process Mining helps you gain end-to-end visibility, reduce risk, stay market compliant, and more.

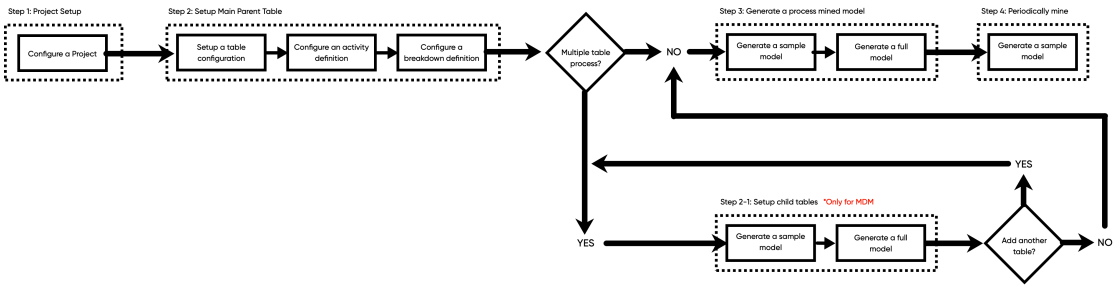
Planning your implementation

Plan these steps to maximize Process Mining efforts:

- **Identify**: Identify a problematic process area that needs optimizing.
- **Visualize**: Identify key elements that should be part of the process. Understand the goal, the start and end, the activities, and the users that should be part of the process.
- **Analyze**: Analyze areas for optimization to determine where and why they don't meet the desired goals.
- **Optimize**: Remove steps that aren't essential to your process.
- **Monitor**: Keep monitoring process performance, and refine it until areas meet the desired goals.

The Process Mining workflow

The following flowchart displays the steps that you use to set up a project for Process Mining. Some of these steps are optional, or depend on whether you take advantage of the multidimensional mining feature.



Creating process configuration

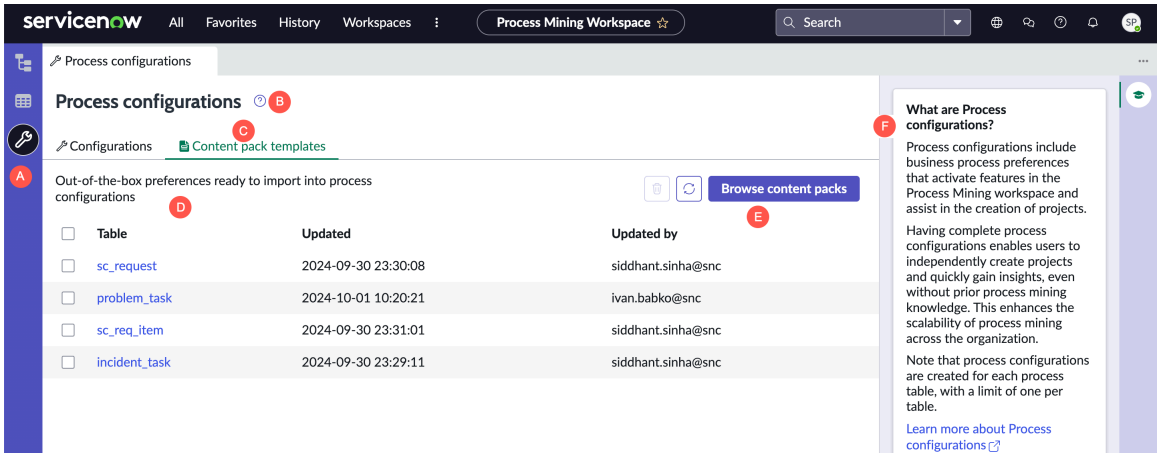
Process configurations include process preferences that activate features in the Process Mining workspace and assist in the creation of projects. Having complete process configurations enables you to independently create projects and quickly gain insights, even without prior process mining knowledge. This enhances the scalability of process mining across the organization.

You can create a process configuration from various places in Process Mining.

Creating process configurations using content pack templates

Create a process configuration using content pack templates. Selecting content packs helps to use the default configuration to create your projects.

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The page displays the following information:

- A :Process configurations icon
- B : Process configurations help icon
- C : Read-only process configuration templates from content pack applications
- D : List of tables for which the configuration is created
- E : Button that enables you to create a new configuration
- F : Information displayed after selecting the information icon (B)

This section covers the following topics:

Install Process Mining content pack

Install the content pack to copy the process configurations set for the content pack to your process configuration.

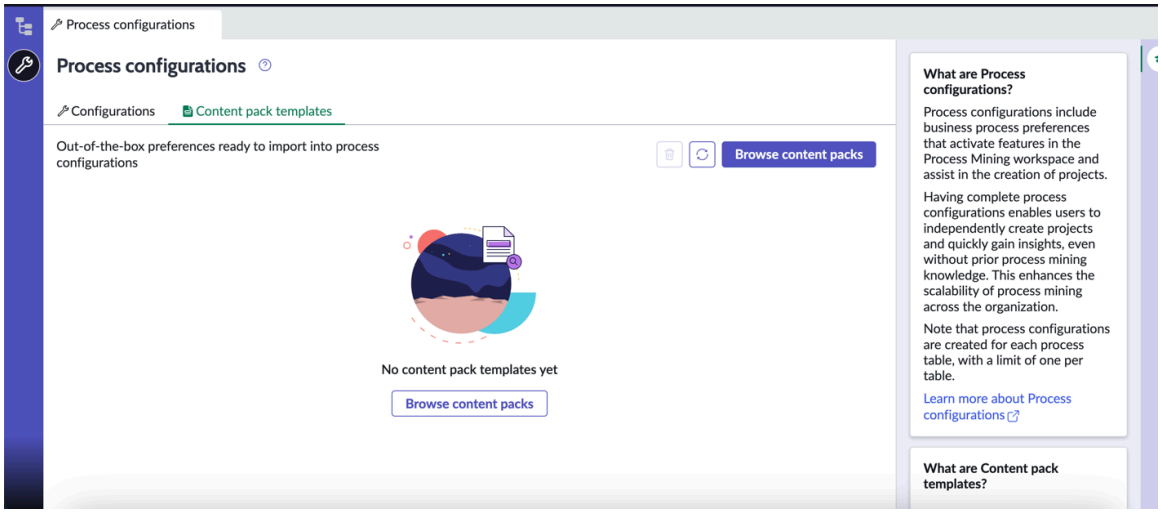
Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

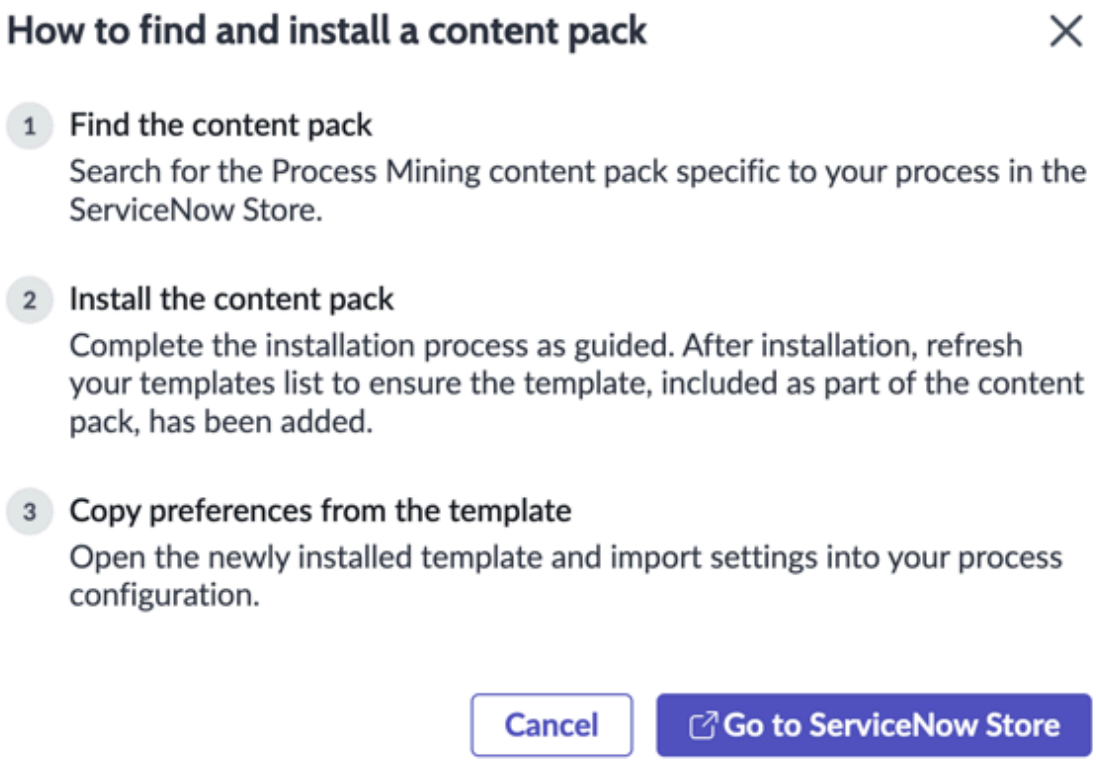
Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the Process configurations icon ( ).
3. Select the **Content pack templates** tab.
4. Select **Browse content packs** if you want to install a content pack template.

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5. Select **Go to ServiceNow Store**.



6. Find the content pack you need, install it, and copy the preferences from the template. You can see the table name listed under **Content pack templates** tab. The table that is displayed here is the one on which the content pack is based.

Create process configurations using content packs

Create process configurations using content packs to use the configuration already created for the content packs.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

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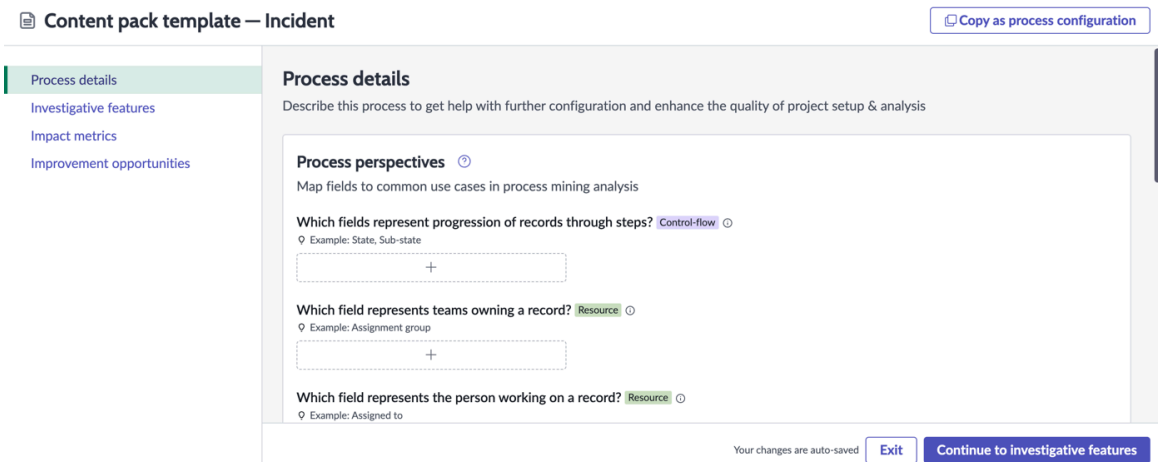
Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the Process configurations icon ( ).
3. Select the **Content pack templates** tab.

   Note:
   Ensure that the content pack is installed from which you want to use the configurations.

4. Open the table from the list.

   Note:
   You will get the list of tables on which the content packs are created for all the content packs that are installed.



5. Select the **Copy as process configuration** button.

   Note:
   Content pack configurations are not editable. You can copy them to your process configuration, but you cannot edit the content pack itself.

6. Select **Create** on the dialog box that appears.
7. Select the import button .
   If the content pack has any configuration, it is imported. When you select the import button, you are guided to first remove your original configuration for that particular field. Only then you can import the configurations from the content pack template. However, if in that section some fields are populated and some are not, then it will be clearly mentioned which values will be imported.

   Note:
   The content pack template does not overwrite your prior configuration for that table automatically.

8. Configure the process table using the content pack template from the Process Configuration Builder.

   For more information, see Create process configuration using Process Configuration Builder.

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Create process configuration using Process Configuration Builder

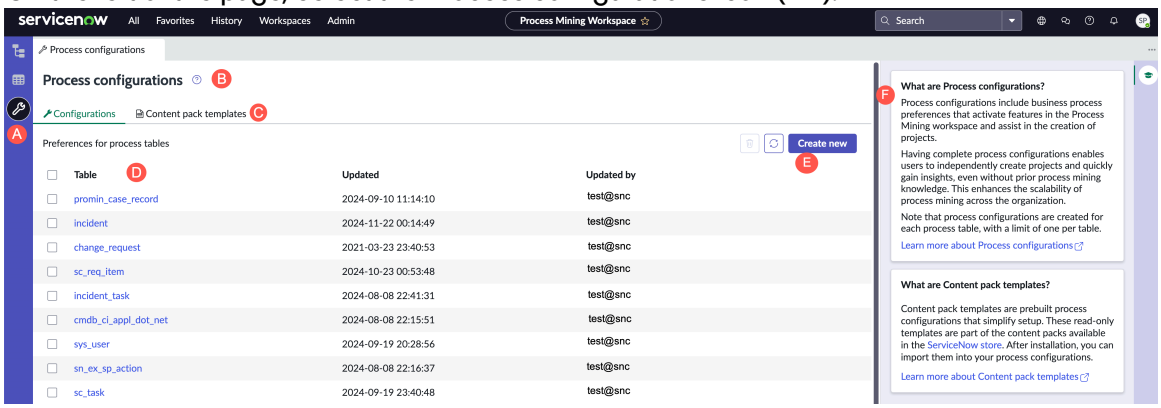
Process configurations include process preferences that activate features in the Process Mining workspace and assist in the creation of projects. Having complete process configurations enables you to independently create projects and quickly gain insights, even without prior process mining knowledge. This enhances the scalability of process mining across the organization.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the Process configurations icon ( ).



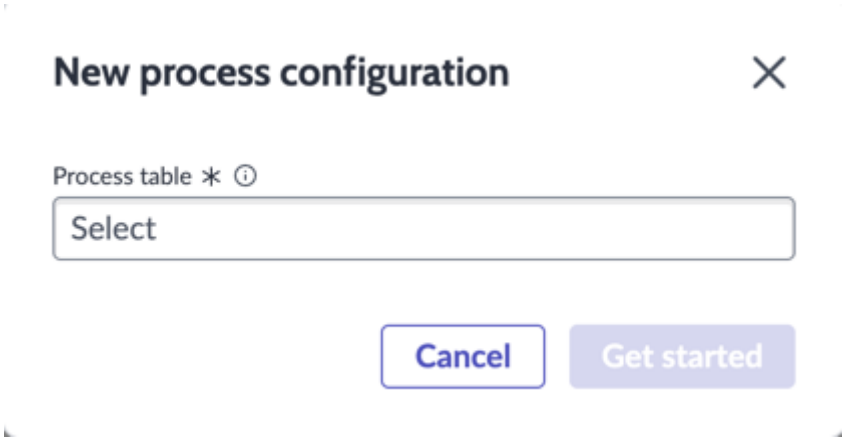
   The page displays the following information:

   - A: Process configurations icon
   - B: Process configurations help icon
   - C: Read-only process configuration templates from content pack applications
   - D: List of tables for which the configuration is created
   - E: Button that enables you to create a new configuration
   - F: Information displayed after selecting the information icon (B)

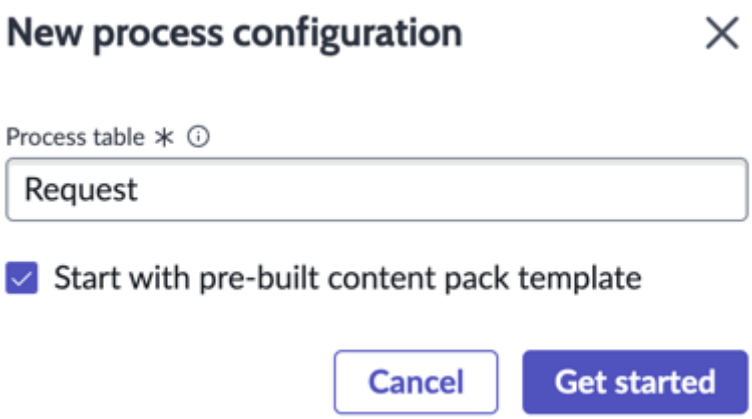
3. Select **Create New**.

   The New process configuration dialog box is displayed.

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If a content pack application is installed for a process, the following dialog box is displayed.



4. Select a table.
5. **Optional:** Select the **Start with pre-built content pack template** option if you want to use the content pack template.

   Note:
   This option is available only if a content pack application is installed for a process.

   For more information about process configurations using content packs, see Create process configurations using content packs.
6. Select **Get started**.

   Important:

   Only one process configuration is allowed per table. Before creating a process configuration for a table, ensure that process configuration isn't yet created for that table. If a configuration is available for the table, use the configuration. You can edit the configuration by opening the table from the **Configurations** list.

   The **Process details** page is displayed.

Configure process details

Describe the process to get help with further configuration and enhance the quality of the project setup and analysis.

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Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the Process configurations icon ( ).
3. Open a table from the **Configurations** tab.

   The **Process details** page is displayed. This page has three sections:

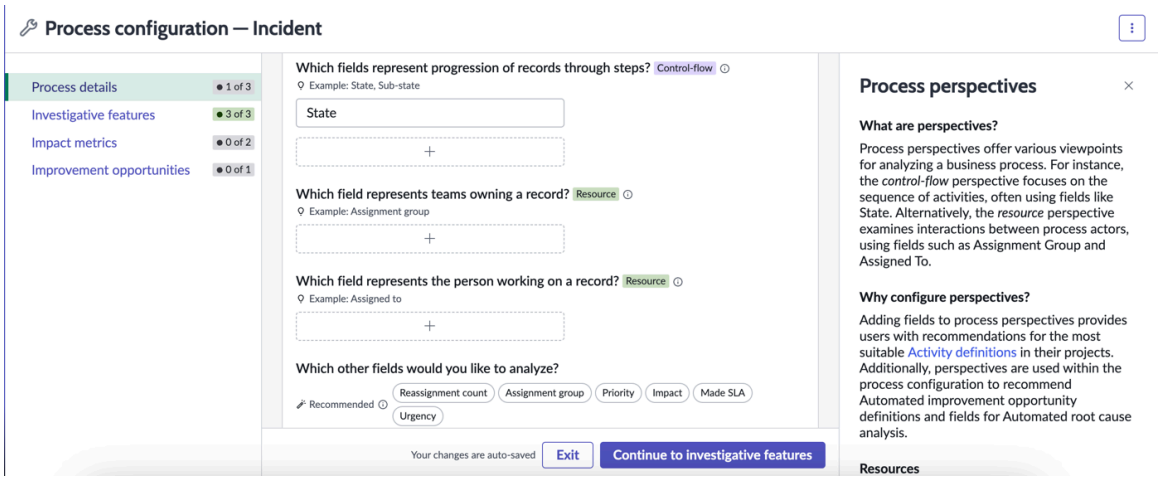
   - Process perspectives
   - Breakdown fields
   - Child tables

   Note:
   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

4. Fill the details in the **Process perspectives** section.

   Process perspectives provide varied viewpoints for analyzing a business process. Adding fields to process perspectives provides you with recommendations for the most suitable activity definitions when creating a project. For more information about how the recommended fields are displayed when setting activity definitions, see the table in the Set activity definitions section.

   Additionally, perspectives are used within the process configuration to recommend automated and rule-based improvement opportunity definitions and fields for automated root cause analysis. To see how the recommendations are made when setting the automated root cause analysis, see automated root cause analysis section in the Configure investigative features section. To see how recommendations are made when setting the improvement opportunities, see Configure improvement opportunities.



5. Select the **+** sign under each section.
   The **Add field** dialog box is displayed.
   a. Select a field.
   b. Select **Save**.

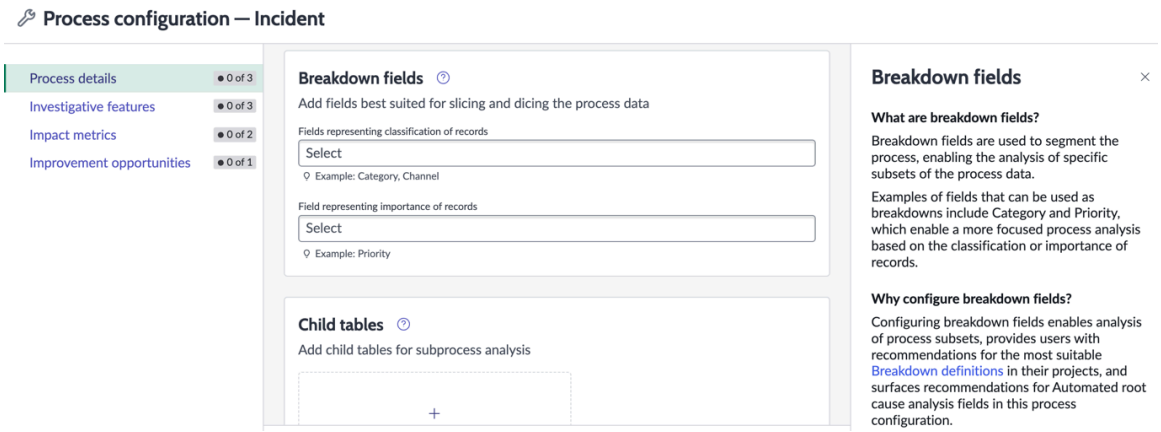
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Process perspectives

Field	Description	Example
Which fields represent progression of records through steps?	Select the fields that describe the order in which the activities are executed. It's usually the starting point for a process mining analysis. This is also known as control-flow perspective.	State, substate
Which field represents teams owning a record?	Select the fields that describe the resources (such as teams) required for the execution of a process and how they interact with each other. The fields selected here are used as recommendation for automated root cause analysis during process configuration. This is also known as resource perspective.	Assignment group
Which field represents the person working on a record?	Select the fields that describe the resources (such as people) required for the execution of a process and how they interact with each other. This is also known as resource perspective.	Assigned to
Which other fields would you like to analyze?	Any other field of your choice. You can choose from the recommended fields. These fields are recommended for their high frequency of changes in your process.	Priority

6. Fill the details in the **Breakdown fields** section.

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Breakdown fields are used to segment the process, enabling the analysis of specific subsets of the process data. Configuring breakdown fields enables analysis of process subsets, provides you with recommendations for the most suitable breakdown in your projects, and surfaces recommendations for automated root cause analysis fields in this process configuration.

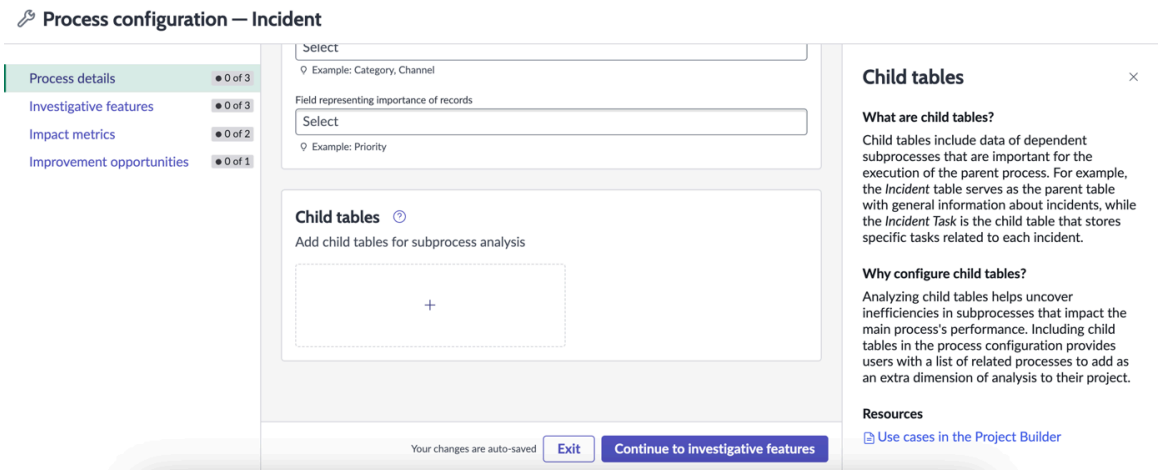
For information about how these recommendations are provided when setting the breakdown definitions in a project, see Set breakdown definitions.

Breakdown fields

Field	Description	Example
Fields representing classification of records	Select the fields that describe how records are classified. The limit for dot-walking is 3 levels. For example: CI.BusinessService.assignment group. The fields selected here are used as recommendation for automated root cause analysis during process configuration.	Category, Channel
Field representing importance of records	Select the fields that describe the importance of the records.	Priority

7. Fill the details in the **Child tables** section.

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Child tables include data of dependent subprocesses that are important for the execution of the parent process. Analyzing child tables helps uncover inefficiencies in subprocesses that impact the main process's performance. Including child tables in the process configuration provides you with a list of related processes to add as an extra dimension of analysis to your project.

For example, the Incident table serves as the parent table with general information about incidents, while the Incident Task is the child table that stores specific tasks related to each incident.

For more information about how these settings are available in the child tables when creating a project, see Set use cases.

a. Select the **+** sign in the field.
The **Add child table** dialog box is displayed.

b. Select a table.

c. Select a **Source field** value to identify the relationship.

d. The **Target field** is populated by default.

8. Select **Continue to investigative features**.

Configure investigative features

Configure investigative features to set advanced analytics features for a process.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

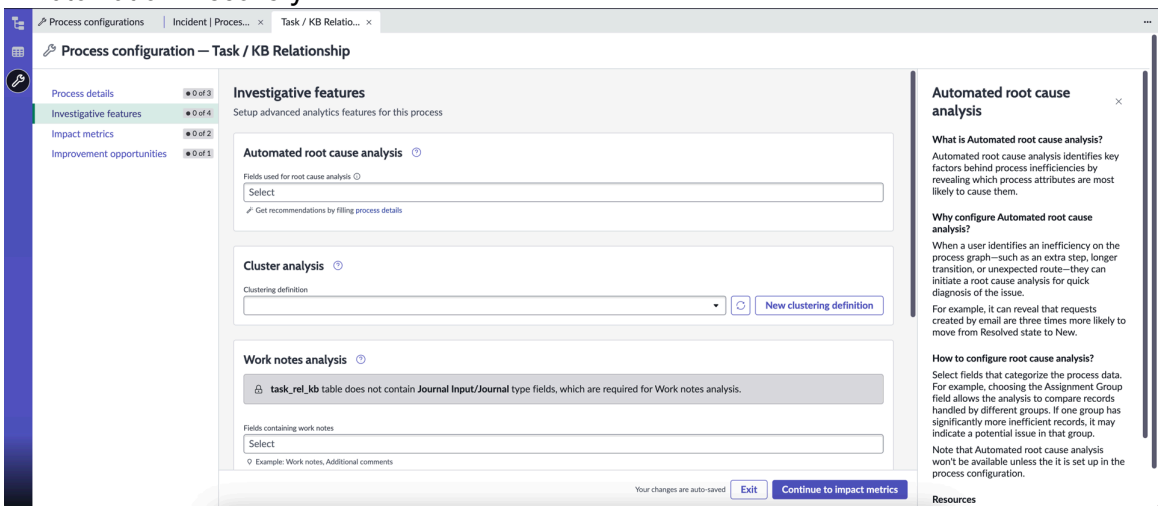
1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the side of the page, select the Process configurations icon ( ).
3. Open a table from the **Configurations** tab.
The **Process details** page is displayed. Select **Investigative features** from the left bar.

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If you're proceeding from the **Process details** page, then you come to this page. For more information, see Configure process details.

The **Investigative features** page has four sections:

- Automated root cause analysis
- Cluster analysis
- Work notes analysis
- Automation Discovery



4. Add fields that you want for automated root cause analysis in the **Automated root cause analysis** field.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

   Based on your inputs in the **Process perspectives** section on the **Process details** page you'll get recommendations for automated root cause analysis.

   When you set up the automated root cause analysis, you can initiate a root cause analysis in your project that is based on this table. For more information on running root case analysis, see Run automated root cause analysis reports.

   Note:
   The automated root cause analysis won't be available if it is not set up in the process configuration.

5. Select an existing clustering definition in the **Cluster analysis** field.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

   For more information about running a cluster analysis, see Perform a cluster analysis.

   If there are no clustering analysis, select **New clustering definition**.

   Provide a name for the clustering analysis and provide fields that you want to use for your cluster analysis, and then select **Configure**.

   Note:
   Cluster analysis won't be available unless the clustering definition is selected in the process configuration.

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For more information, see Configure a process for a clustering solution.

6. **Optional:** Select **New clustering definition** if no clustering analysis is available.
   The **New clustering definition** dialog is displayed.

   a. Provide a name for the clustering analysis.

   b. Select fields that you want to use for your cluster analysis.
   Remember that records are grouped based on similarity of text in the selected fields.

   c. Select **Configure**.

7. Fill the details in **Work notes analysis** section.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

   For information on running work notes analysis, see Perform work notes analysis.

   Note:
   Work notes analysis won't be available unless it is set up in the process configuration.

   Work notes analysis

Field	Description	Example
Fields containing work notes	Select the fields that contain the work notes.	Work notes
Exclude notes from these users	Select the users you do not want the notes from.	System users and bots
Work note time range	Select the time duration during which the work note must occur to be related to a process step. The default value is 120.	100
Min work note length	Select the length less than which the work notes will be disregarded in the analysis The default value is 5 words.	10
Max work note length	Select the length greater than which the work notes will be disregarded in the analysis. The default value is 100 words.	50

8. Fill the details in the **Automation Discovery** section.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

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Note:
This section is available only when Automation Discovery is available.

Automation Discovery helps to identify automation opportunities within your processes. You can use the automation discovery reports to implement or improve automation solutions like Virtual Agent (VA) or Agent assist. These reports are available on the **Automation Opportunities** tab in the Process Mining workspace.

For information on configuring Automation Discovery, see Configure Automation Discovery.

Automation Discovery

Field	Description
Turn on automation discovery	Select the field if you want to use the Automation Discovery feature.
Field used to surface automation opportunities	Select the fields for automation opportunities.
Taxonomy	Select a taxonomy that will categorize your records using pre-built automation opportunities rather than grouping them into clusters.
Auto-run with mining	Select this field if you want to automatically run the automation discovery job every time you mine a project.

9. Select **Continue to impact metrics**.

Configure impact metrics

Configure the Key Performance Indicators (KPIs) for this process.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

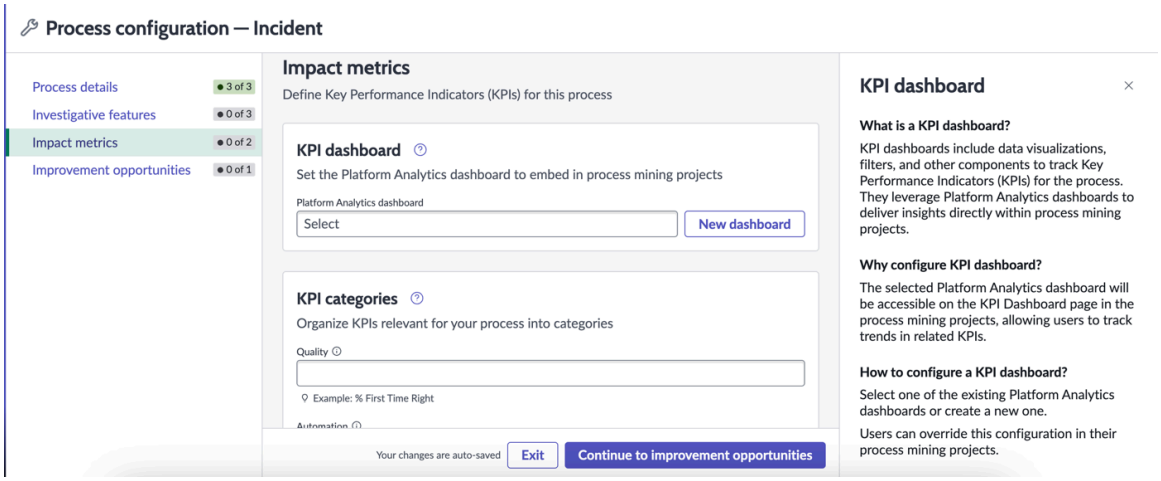
1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the side of the page, select the Process configurations icon ( ).
3. Open a table from the **Configurations** tab.
   The **Process details** page is displayed. Select **Impact metrics** from the left bar.

   If you're proceeding from the **Investigative features** page, then you come to this page. For more information, see Configure investigative features.

   The **Impact metrics** page has two sections:

   - KPI dashboard
   - KPI categories

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4. Select a Platform Analytics Key Performance Indicators (KPIs) dashboard.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

   If you want to create a new KPI dashboard, select **New Dashboard**. For more information, see Create a dashboard with the in-line editor.

5. Provide values for each KPI categories.

   Select the help icon (?) to view details about how and why these details must be set. You also get a list of resources.

   Note:
   The KPI categories are dynamic and are retrieved from the sys_choice table, which includes category order and hint information.

6. Select **Continue to improvement opportunities**.

Configure improvement opportunities

Create a library of inefficiencies to identify the improvement opportunities for your project.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the side of the page, select the Process configurations icon ( ).
3. Open a table from the **Configurations** list.
   The **Process details** page is displayed. Select **Improvement opportunities** from the left bar.

   If you're proceeding from the **Impact metrics** page, then you come to this page. For more information, see Configure impact metrics.

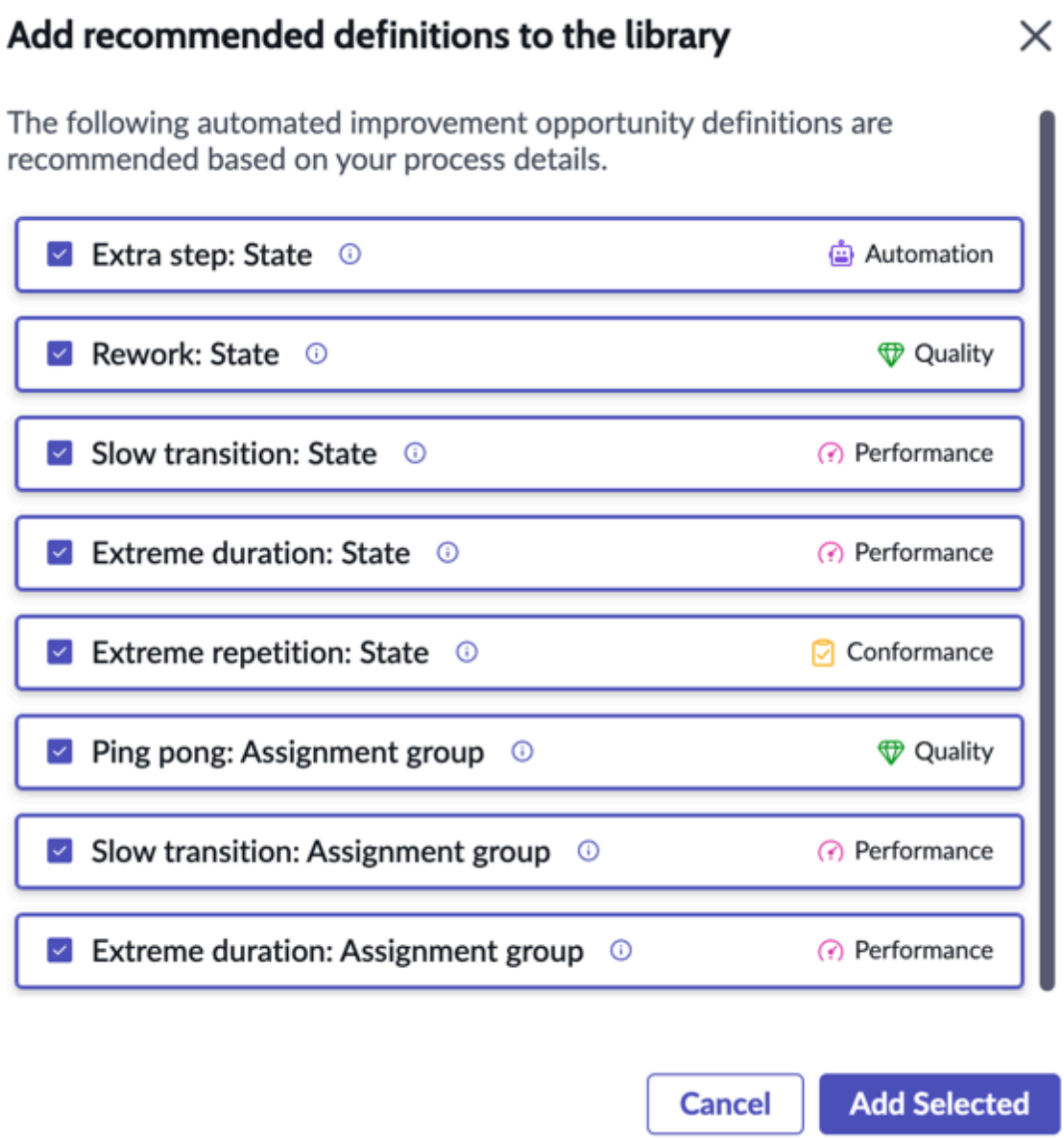
   The **Improvement opportunities** page displays:

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- Automated improvement opportunities: The improvement opportunities are displayed based on the default patterns that are already available for selection.
- Rule-based improvement opportunities: These improvement opportunities consist of one or more rule chains executed in a sequence. The records that match the logic of these specifications are classified as a match for the improvement opportunities.

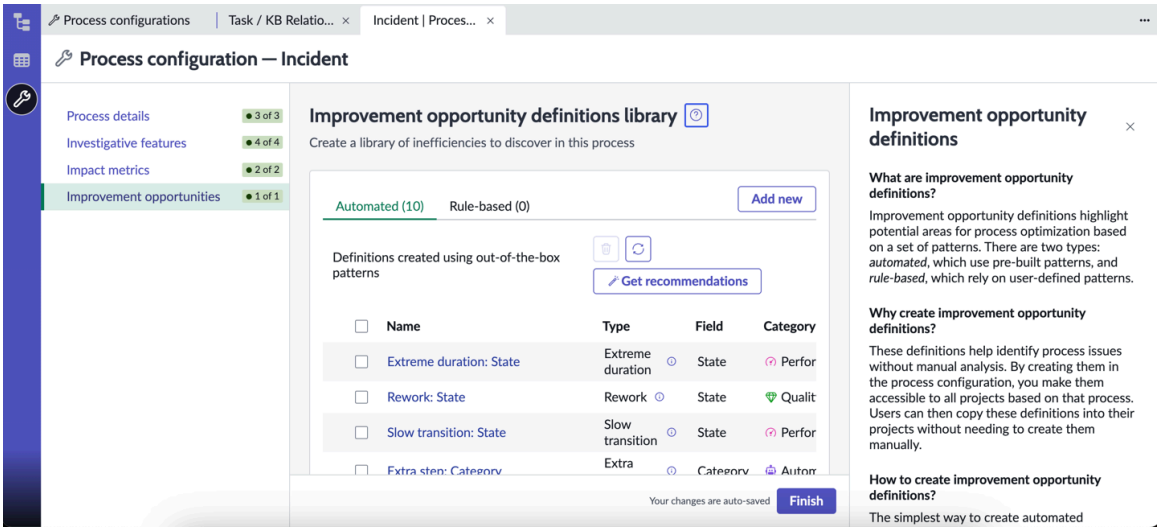
Improvement opportunity definitions highlight potential areas for process optimization based on a set of patterns.

4. Select from the list of the recommended automated improvement opportunities.
The recommendations are displayed based on your inputs in Process perspectives section of the Process details page. To understand how you set the process perspectives, see Configure process details.



5. Select the improvement opportunities that you want to include in your process configuration, and select **Add Selected**.

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6. **Optional:** Select **Add new** to create a new improvement.
   The improvement opportunity definition page is displayed. For more information, see Set rule-based improvement opportunity and Automated improvement opportunities.

   Select the **Get recommendations** button to get recommendations for the automated improvement opportunities based on the configuration you have set in the Process perspectives section of the Process details page.

7. Select **Finish**.
   The process configuration is complete.

Create process configuration using Classic view

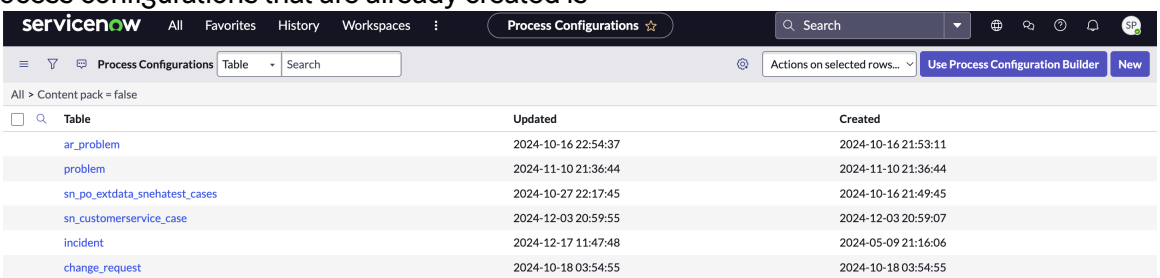
Create a process configuration for a table to use the same default configuration whenever you use the table to create your projects.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations** > **All configurations**.
   A list of process configurations that are already created is displayed.



2. Select **New** to create a process configuration for a table.

   Note:
   You can have only one process configuration per table.

   Try using the process configuration builder to leverage additional features and get guidance on configurations. Select **Use Process Configuration Builder** to create a process configuration

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using the Process Configuration Builder. For more information, see Create process configuration using Process Configuration Builder.

3. On the form, fill in the fields.

Process Configuration form

Field	Description
Table	Select a table for which you want to create a configuration.
KPI Dashboard	Select a KPI dashboard.
Automated Root Cause Analysis	Select to set the automated root cause analysis. For more information, see Automated root cause analysis.
Automation Discovery	Select to set the automation discovery. For more information, see Configure Automation Discovery.
Cluster Analysis	Select to set the cluster analysis. For more information, see Cluster analysis.
Finding Definitions	Select to set the rule-based improvement opportunities either from the Classic view or from the Finding Builder. For more information, see Set improvement opportunities for process tables.
Automated Finding Definitions	Select to set the automated improvement opportunities either from the Classic view or from the Finding Builder. For more information, see Set improvement opportunities for process tables.

4. Select **Update**.

Create a project or template using Project Builder

Create and mine a project using the Project Builder to analyze and optimize your business processes. Create a template to reuse it when you want to use the same project conditions multiple times. In the Project Builder, the entire process is broken down into three sections and an overview to make the task easier and more efficient.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

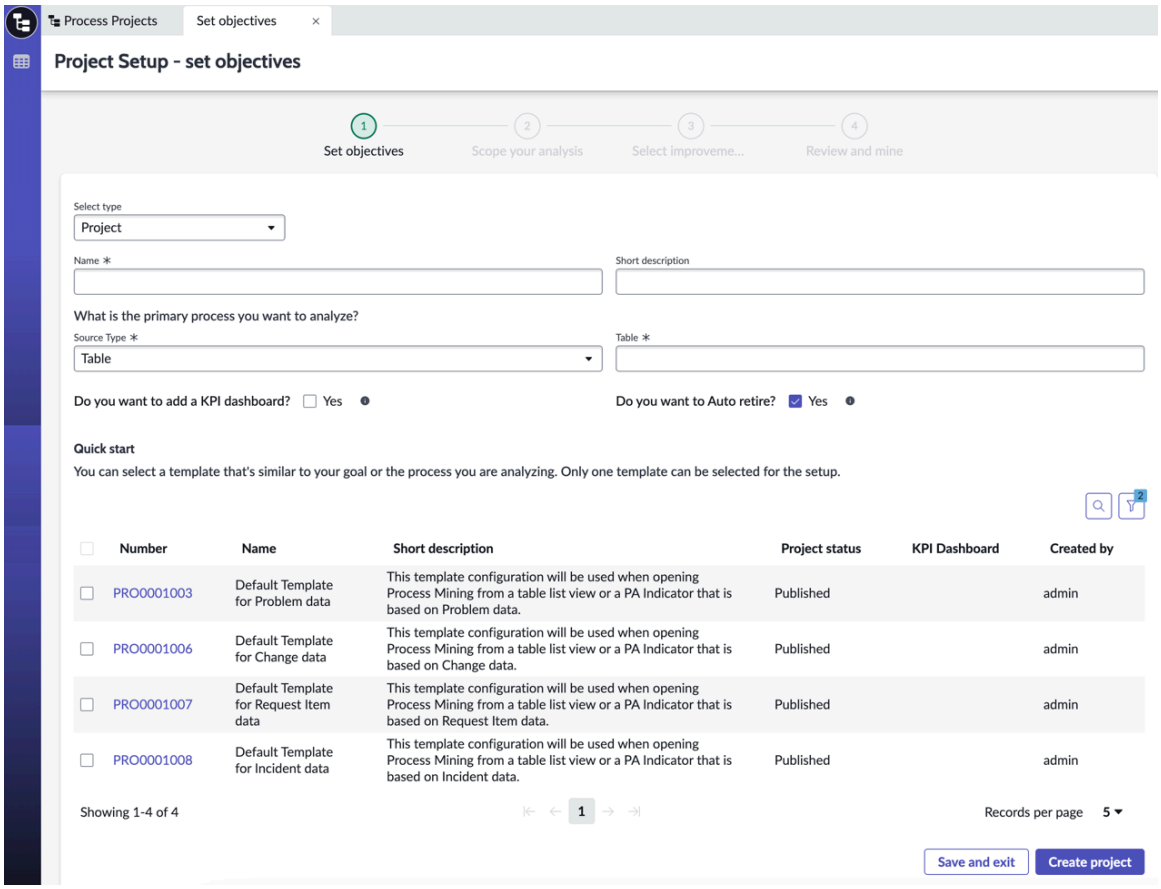
To mine a project, ensure that you have enabled Audit Log for the parent table of the project.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select **Create New Project** in the upper right corner.

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The Project Setup page is displayed.



What to do next

Perform the following steps.

Set objectives

Define the kind of data or process that you want to view and analyse in your graph. You must select a specific table (parent table) that has the data that you want to analyse.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. When you select **Create New Project**, you're taken to the **Set objectives** tab.
2. Provide the following details.
3. Select **Create project**.
   You're taken to the **Scope your analysis** tab.
4. **Optional:** You can also select a template to create your project.
   If you select an existing template, then after you select the template, you're taken to the **Review and Mine** page.

Scoping your analysis

Define the data that you want to view in the graph.

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You've selected the table from where you want to view data. You probably want to focus on one aspect of the data. The filters that display only the data you want to view in the graph sets the scope of your project.

The following sections have the details.

Set filter conditions

Set filter conditions to limit the scope of your analysis.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

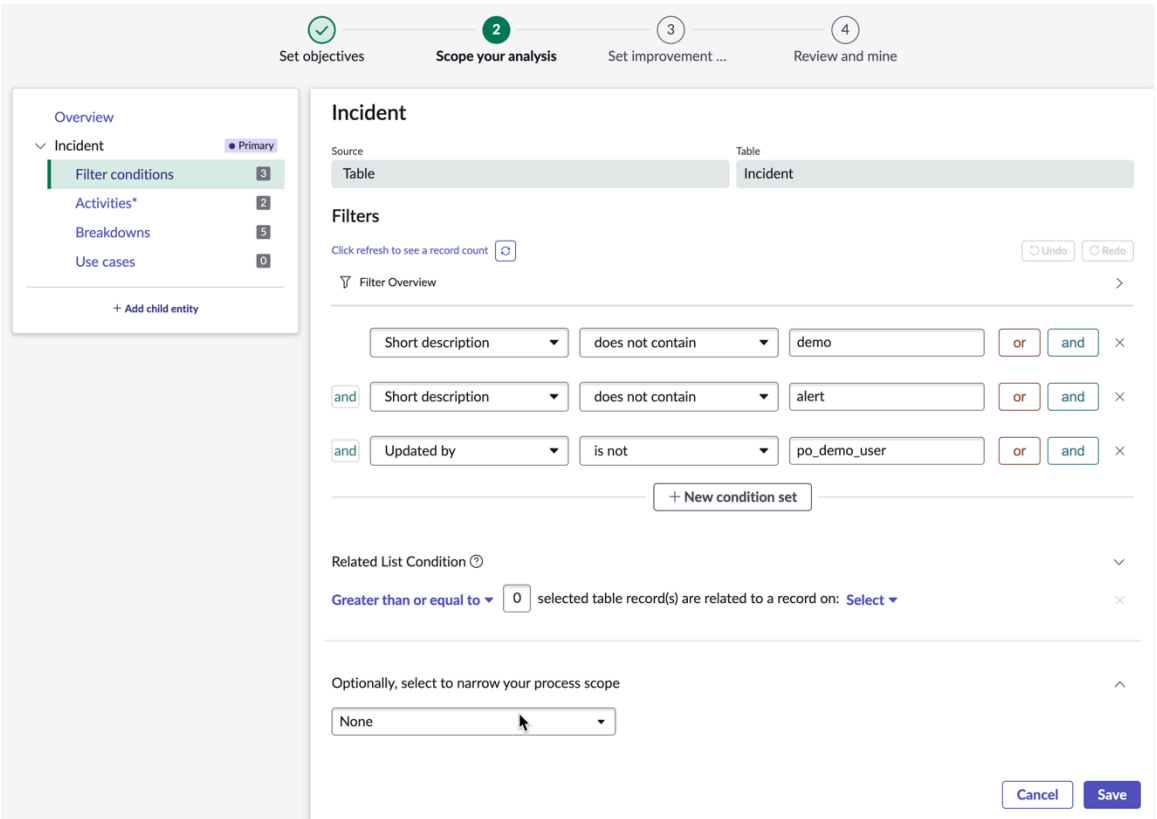
About this task

Setting filters is an optional task for project creation.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Set Objectives** page, you are on the **Scope your analysis** page.
2. Select **Edit** for the project that you want to edit.
3. Select the edit button for the **Scope your analysis** section.
4. Select **Filter conditions** from the left bar.

> **Tip:**
> Select **Advanced view** on the top-right corner if you want to edit the project in the Classic view.



5. Fill the form with details.

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Filters form

Source	It's automatically populated based on your selection in the **Set objectives** tab.
Table	It's automatically populated based on the table that you have selected in the **Set objectives** tab.
Filters	Select any field from the root table that you want to filter the data by.
Related List Condition	Select the number of records that you want to view.
Optionally, select to narrow your process scope	There are the following options in this section: ○ **None**: No filter is applied. This is the default value. ○ **Crop**: Crop the process to view a specific area of the process by specifying a start and end condition. All events that occurred before the start condition and after the end condition will not appear in the process graph. **Note:** You can specify the crop process on the fields that you have set as your activity definitions. Therefore, set the activity definition for the project, before setting the crop process. Select the + sign beside Start condition and End condition. Set a process start and process end condition. Example: If a project is set with the State as the activity definition, you have the following path: **New -> Open -> Work in Progress -> Resolved -> Work in Progress -> Resolved -> Closed** If a start condition is specified on the first occurrence of Work in Progress and a stop condition is specified on the last occurrence of resolved, then the model would look like this: **Work in Progress -> Resolved -> Work in Progress -> Resolved**. ○ **Transition**: A transition filter focuses on process paths that contain a specific transition between selected steps. For example, mine records that transitioned from **State: Work in Progress** `eventually followed by` **State: On Hold**. To provide the transition filter, you must set up the filter condition, with a start condition that is "eventually followed by" or "directly followed by" step 2. You can provide only 2 steps here.

6. Select **Save**.

Set activity definitions

Specify the activity definition to determine what to show on the process graph, often choosing activities such as State, Assignment group, and Assigned to. Activity definition enables you to discover, monitor, and improve real processes through the visual representation. The

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visual representation enables you to understand behaviors and performances by identifying bottlenecks, deviations, and inefficiencies in the workflows.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Note:

You can configure a maximum of five activity definitions for a table. You can't generate more than 5000 elements for any activity definition.

About this task

Setting activity definitions is a required task to create a project.

Process Mining gathers audit log field data for the activities that you define. Configure at least one activity to create a Process Mining project.

Note:

When configuring a project, start by setting up the main (parent) table, defining the activity and breakdown definitions. If only one table is needed, generate the full project with the data. For multiple tables, create additional (child) tables, relate them to the main table, and define their activity definitions.

Procedure

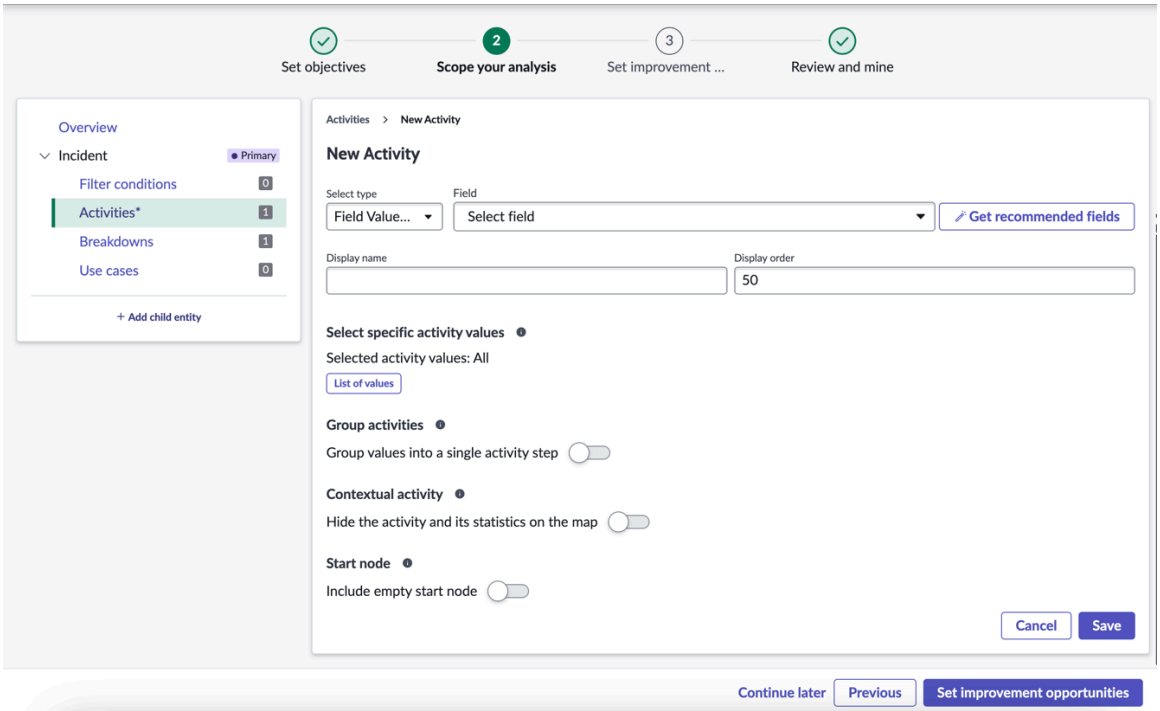
1. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
   If you continue from the **Set Objectives** page, you are on the **Scope your analysis** page.
2. Select **Edit** for the project that you want to edit.
3. Select the edit button for the **Scope your analysis** section.

   Tip:

   Select **Advanced view** on the top-right corner if you want to edit the project in the Classic view.

4. Select **Activities** from the left bar.
5. Select **New** in the Activities area.

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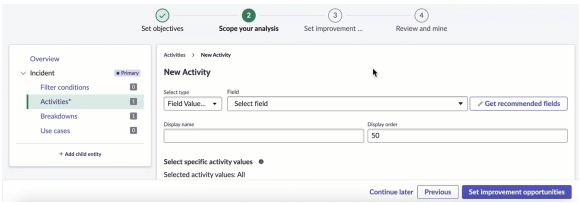


6. Fill the form.

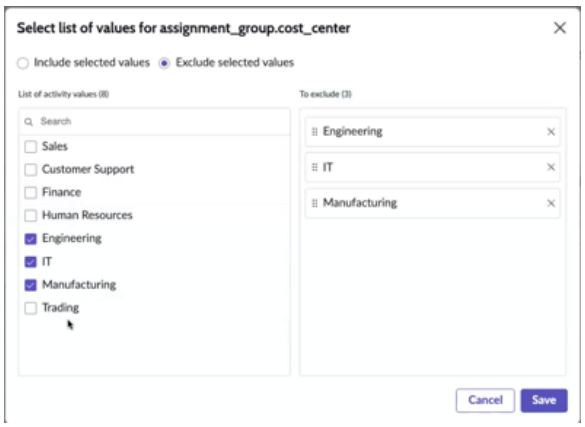
New Activity form

Select type	The type of values you want to mine. You have the following values: ○ Field Values (Default): This is the default selection. This option is available whenever you create an activity definition. Selecting any journal or textual fields for activity definitions, sets the grouped value to “Group values into a single activity step”. ○ Child Attached: This option is available when you’ve selected two tables for table configuration and have set a child-parent relationship. This option is available only for the parent table configuration. In the graph, you see when the child was attached in the process. ○ Date Time: Uses date time value from the actual record rather than the audit history and is displayed as a grouped node on the process map. ○ Compound: Compound events for 2 or more activity definitions that are updated to any value in certain processes, such as sales, finance, or security. A last moment change could infer another approval process and potentially impose additional steps and consequently longer resolution time. It could also result in a compliance breach. For example: if you have 4 activity definitions, but only one is updated, it must be captured in the compound event. To use a compound activity definition, you must have at least one activity definition of a type other than Compound. You can create a compound activity for any journal or textual fields, such as work notes or comments.

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Field	Specify the field or column from the table whose data you want to view in the process graph.
Get recommended fields	This field is available only if you choose **Field Values (Default)** in the **Select type** field. This button provides recommendations of fields that are ideal to be set as activity definitions for your project. These recommendations come from the process configuration set for the table on which the project is based. They are derived from the Process perspectives section of the Process details page in the Process Configuration Builder. For more information on Process perspectives, see Configure process details. The recommendation is provided even if you do not specify anything in the process configuration for the table. If nothing is configured on the Process details page, we recommend the fields that have high frequency of change. Select the button, and a dialog box is displayed to select from the list of recommended fields. Select the fields, and select **Select**. You can choose to use any other field outside of the recommendation too. 
Attached Table Configuration	This field is available only if you choose **Child Attached** in the **Select type** field. Select the table name from the list. However, it displays only the table that is used for the child entity.
Show Related Fields	This field is available only if you choose **Field Values (Default)** or **Date Time** in the **Select type** field. If you want to see the list of related fields, select the Related Fields icon ( ), and select a field. This field helps you set dot walking on records.
Display name	Name to display for this activity. If no name is entered, the **Display name** displays the value provided for **Field**.
Display order	This field is not available if you select **Contextual activity**. The value in this field decides which events must be displayed first on the process graph when multiple activity definitions have the same timestamp. When multiple activity definitions have the same display order, the alphabetic order is applied.

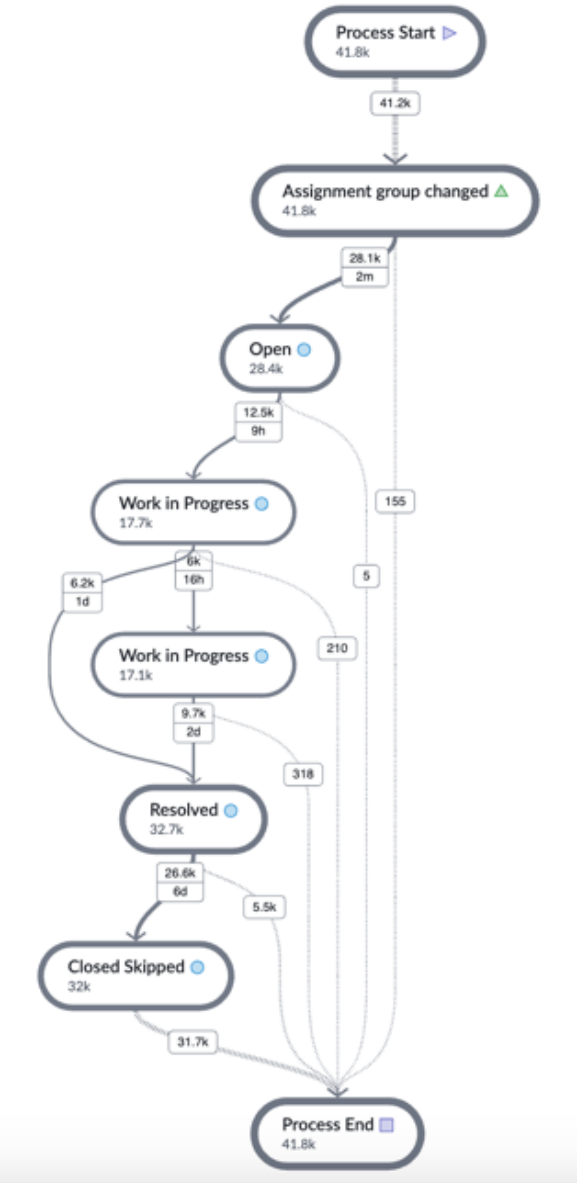
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	Provide any value (only integers). The default value is set to 50.
Select specific activity values	This field is available only if you choose **Field Values (Default)** in the **Select type** field. You can choose to mine specific activity values for the selected field. Select the specific activity values that you want to analyze. You can select the values and choose to include or exclude.  For example, you have chosen the **Incident** table. Now, you want to see records that went through Assignment group Service Desk and Assignment group Database. To see this data, you must select **Assignment group** as the **Field** and add **Service Desk** and **Database** from **List of values**.
Group activities	This field allows you to choose whether you want to view all the changes for an activity definition grouped as one node or view each change for an activity definition as a separate node. When you select the field as journal or textual fields for **Field Values (Default)** type or when you select the **Compound** type, this field is selected and is unavailable for any change. This field has two options: ○ **Display each unique value as separate activity steps**: If you select this option, the process map reflects the group of changes for the activity as separate item. **Note:** This is by default disabled for Field Values (Default), Child Attached, Date Time, and Compound. ○ **Group unique values and display as a single activity step**: If you select this option, the process map reflects the group of changes for the activity as one change item. For example, configure Assignment group and State to report on. Select **Group unique values and display as a single activity step** for Assignment group and **Display each unique value as separate activity steps** for State.

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Changes to assignment group are displayed as one node 'Assignment group changed'. You can view the records or view the details to see which records are affected and how. Every change to State is displayed as an individual node.

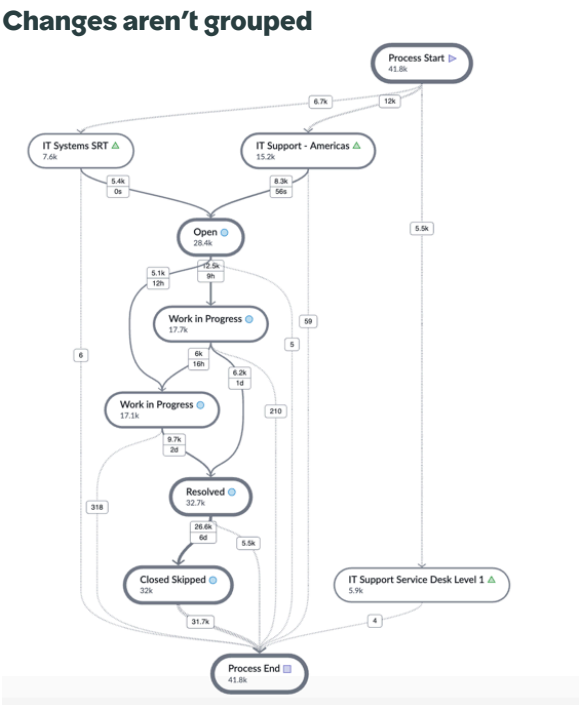
Changes are grouped



In the next scenario, configure Assignment group and State to report on and select **Display each unique value as separate activity steps** for Assignment group and State.

Every change to Assignment group and State are displayed as individual nodes.

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Grouped Activities name	Name for the grouped activities. If you select the **Group unique values and display as a single activity step** option, then the **Grouped Activities name** field is displayed. By default, the name that is displayed is <field-name changed>. For example, 'Assignment group changed'.
Contextual activity	This field is available only if you have not chosen to group activities. When this option is selected, activity definitions do not appear on the process graph, but can be used in the findings and transitions.
Start node	This field is available only if you choose **Field Values (Default)** in the **Select type** field. When this option is selected, an empty node on the process graph is displayed when the selected activity definition field is empty at the time of record creation.

Note:
To edit an activity definition, select the activity definition from the list and make edits.
To delete an activity definition, select the activity definition from the list and select the Delete icon ( ).

7. Select **Save**.
   You will see the list of activity definitions that you have created.
8. **Optional:** Select **Breakdowns**, **Use cases**, or **Add child entity** in the left panel if you want to add any of these entities.
9. Select improvement opportunities to set improvement opportunities.
   For more information, see Set improvement opportunities

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Related topics

Set breakdown definitions

Set use cases

Add a child entity

Set breakdown definitions

Set the breakdown definitions that act as filters for your project. Breakdown definitions are used to filter and analyze the data based on specific criteria or attributes. These definitions enable you to break down the analysis into smaller subsets, focusing on specific dimensions or perspectives of the process.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

- Create a project or template using Project Builder

About this task

This is an optional task.

Note:
You can configure a maximum of 10 breakdown definitions for the parent table configuration and 5 breakdown definitions for any child table configuration. You can't generate more than 5000 elements for any breakdown definition.

This is an optional task.

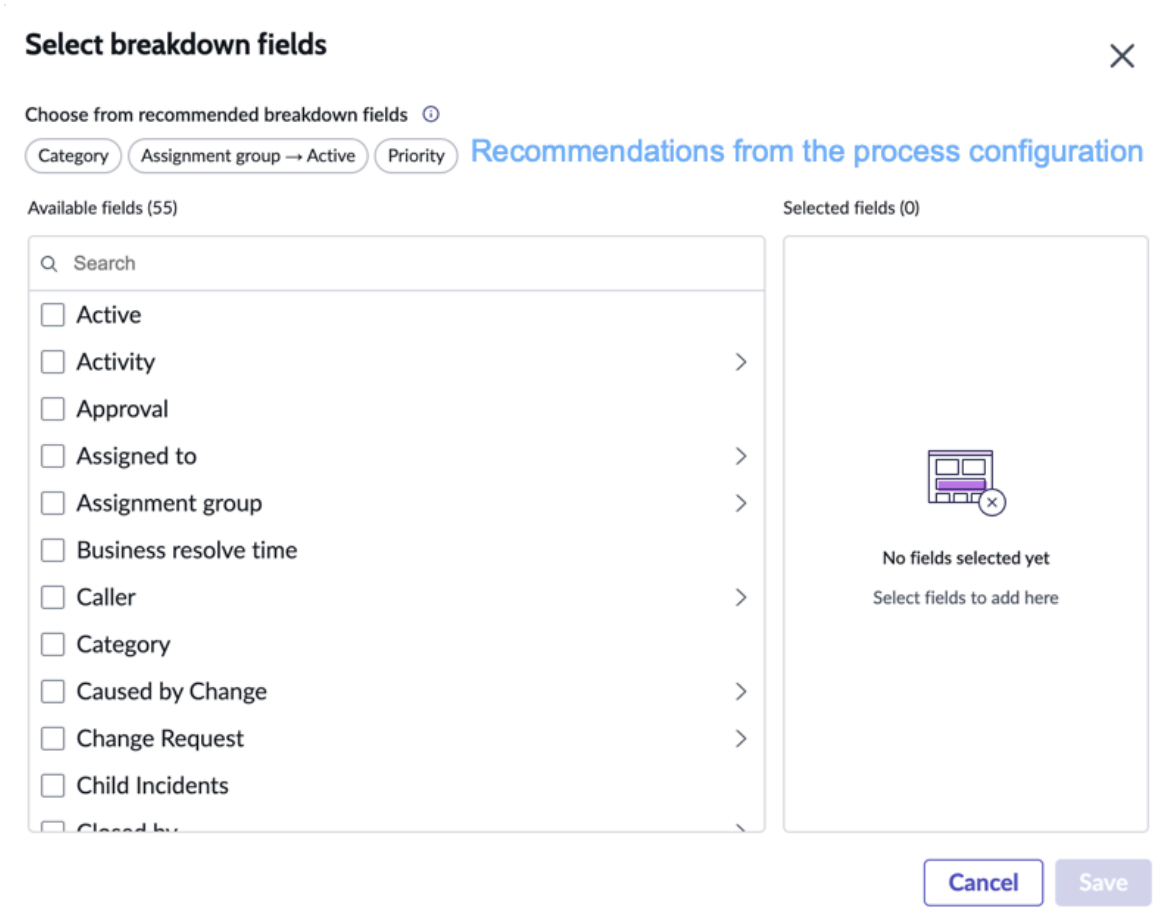
Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Set Objectives** page, you are on the **Scope your analysis** page.
2. Select **Edit** for the project that you want to edit.
3. Select the edit button for the **Scope your analysis** section.
4. Select **Breakdowns** from the left bar.

   Tip:
   Select **Advanced view** on the top right corner if you want to edit the project in the Classic view.

5. Select **New** in the Breakdowns area.

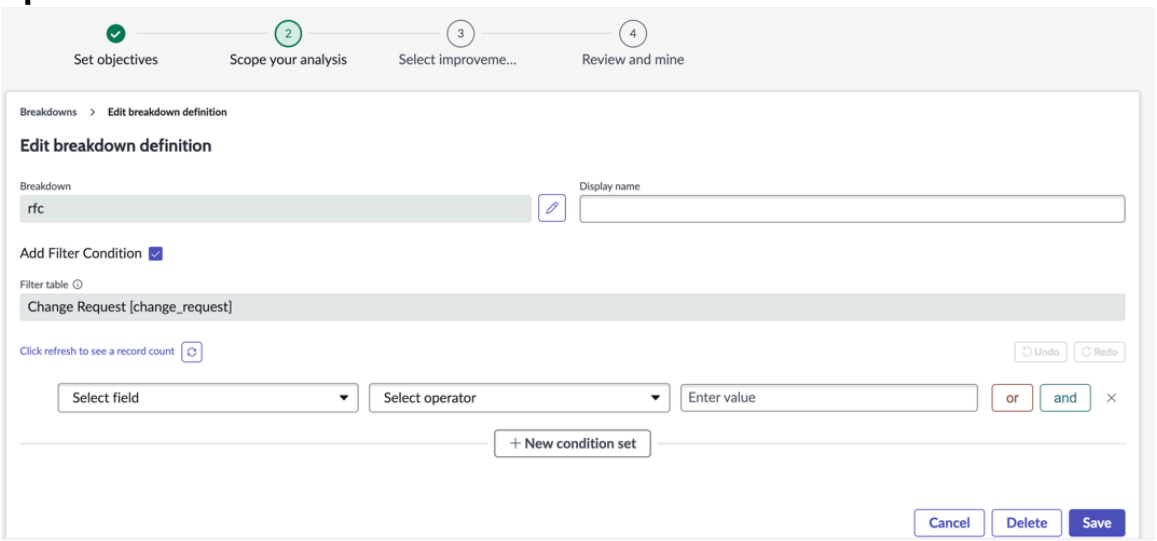
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6. Select any breakdown from the list or the recommendations.
   These recommendations come from the process configuration set for the table on which the project is based. They are derived from the Breakdown fields section of the Process details page in the Process Configuration Builder. For more information, see Configure process details.

   If no value is set in the Process Configuration Builder, then no recommendation is provided.

7. Select **Save**.
   The breakdown is added to the project.
8. **Optional:** Select a breakdown to edit it.



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You can add a display name and a filter condition to the breakdown.

9. Select **Select Improvement opportunities**.
   If you want to add or edit anything in the **Scope your analysis** page, select **Previous**.

Set use cases

Use cases are common patterns you may be interested in your analysis. Once enabled, they are automatically configured for the project.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Set Objectives** page, you are on the **Scope your analysis** page.
2. Select **Edit** for the project you want to edit.
3. Select the edit button for the **Scope your analysis** section.
4. Select **Use cases** from the left bar.

   Tip:
   Select **Advanced view** on the top right corner if you want to edit the project in the Classic view.

5. Select the **Include approvals** option if you want to view details of any approvals present for the process.
   The Approval [sysapproval_approver] table is attached as a child entity to the parent table of your project. The filter conditions, activities, and breakdowns are already selected for ease of you. You can review and edit any of those as per your requirement.

   Note:
   If you have projects from any version prior to Xanadu with the **Include approvals** option selected, those mined projects are made obsolete. The project will be automatically updated to the current change. You must remine the project to view the results.

6. Select the **Include SLA breach** option if you want to view where there is a breach in the process.
   The Task SLA [task_sla] table is attached as a child entity to the parent table of your project. The filter conditions, activities, and breakdowns are already selected for ease of you. You can review and edit any of those as per your requirement.
7. Select the **Include child tables for analysis** option if you want to add a related table to your parent table.
   This field is available only if you have specified the Child tables section of the Process details page in the process configuration. For more information, see Configure process details.

   Child tables include data of dependent subprocesses that are important for the execution of the parent process. Analyzing child tables helps uncover inefficiencies in subprocesses that impact the main process's performance.

   For example, the Incident table serves as the parent table with general information about incidents, while the Incident Task is the child table that stores specific tasks related to each incident.

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Note:
After setting the child table, you must configure the activity definitions and any other setting in the **Add a child entity** tab.

8. Select **Save**.

Add a child entity

Add a child or related table to track an activity from a related process.

Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task
Often the start and end of a full workflow occurs outside the life cycle of your business process. When it's helpful to analyze these external events, you can add another table for tracking other events relevant to your process. For example, if Incident table is your parent table, and you define the Incident Task [incident_task] table as child table for the Incident table, then when a record from the Incident Task [incident_task] table is created, it shows as an 'Incident Task created' activity on the process map. Only 'created' or 'closed' events show as activities in the process graph.

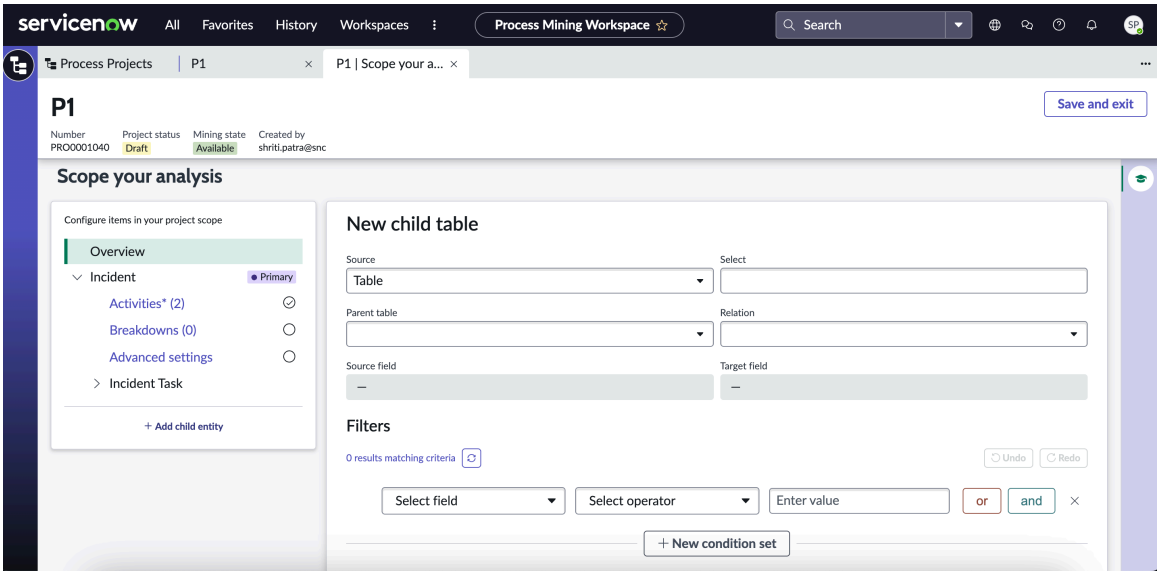
Note:
External events from a defined child table don’t show as condition options in the Transitions or condition filters.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Set Objectives** page, you are on the **Scope your analysis** page.
2. Select **Edit** for the project you want to edit.
3. Select the edit button for the **Scope your analysis** section.
4. Select **Add child entity** from the left bar.

Tip:
Select **Advanced view** on the top right corner if you want to edit the project in the Classic view.

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5. Fill in the form with the details.

New child table form

Source	The source for the table configuration. You can select a source type: ○ Table: Any database table ○ Report source: A table that has reports ○ Archived data: An archived table
Select	Select a table that has a relationship with the parent table of your project.
Parent Table	Select the primary table for the project.
Relation	Relationships between tables can be either **Child** or **Reference**.
Source field	If you select the **Child** relation, then select a field from the child table that has a relation with the parent table. If you select the **Reference** relation, then the **Source field** is auto-populated.
Target Field	If you select the **Reference** relation, then select a field from the child table that has a relation with the parent table. If you select the **Child** relation, then the **Target field** is auto-populated.
Filters (Optional)	If required, you can set filters for the child table.
Related List Condition (Optional)	Displays the selected number of related records for the filters set. You can filter it further.

6. Select **Save**.

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Set improvement opportunities

Set improvement opportunities to find areas of improvement by which teams could optimize a process. You can either select from a list of rules available to you or set your own rules. Based on the rules set by you, you can view your areas of improvement.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task

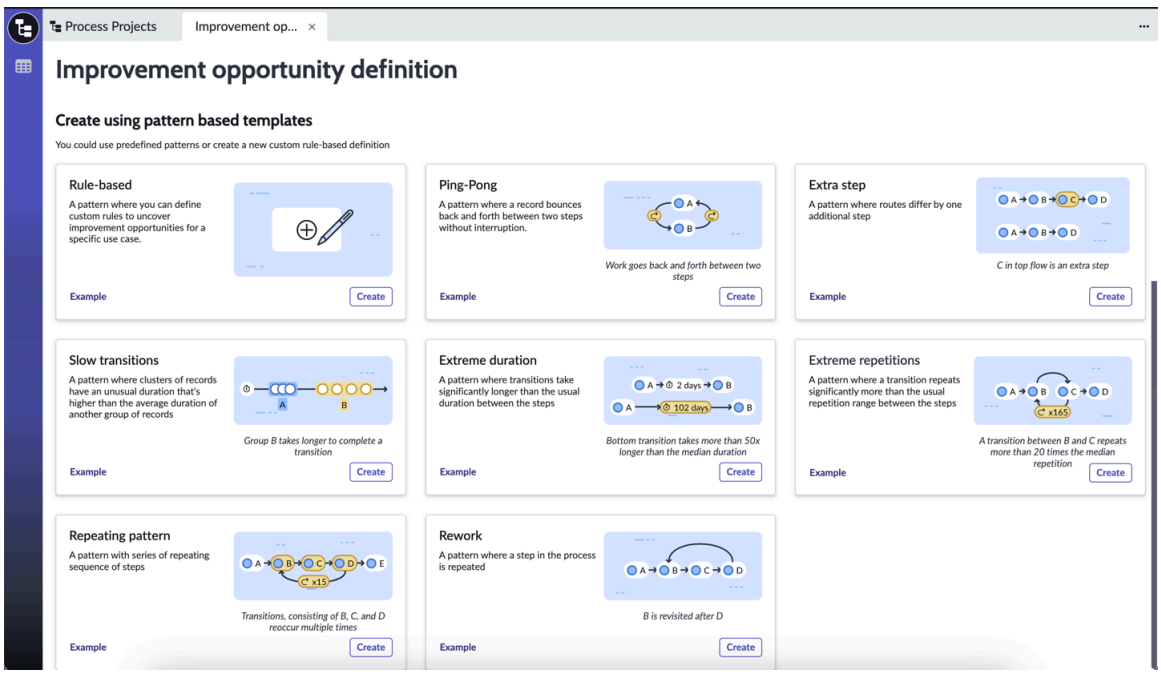
There are two types of improvement opportunities that could be set up:

- Rule-based improvement opportunities: These improvement opportunities consist of one or more finding rule chains executed in a sequence. The records that match the logic of these specifications are classified as a match for the improvement opportunities.
- Automated improvement opportunities: The improvement opportunities are displayed based on the default patterns that are already available for selection.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Scope your analysis** page, select the **Set improvement opportunities** tab.
2. Select **Edit** for the project that you want to edit.
3. Select the edit button for the **Improvement opportunities** section.
4. On the **Select improvement opportunities** tab, select **New**.

   The Improvement opportunity definition page is displayed. This page displays all the improvement opportunities definitions that are available. You can find the definition of each improvement opportunity along with an illustration and example.



5. Select **Create** on any of the cards to create an improvement opportunity of that type.

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For more information on rule-based improvement opportunity, see Set rule-based improvement opportunity.

For more information on automated improvement opportunity, see Automated improvement opportunities.

6. To edit an improvement opportunity, select the improvement opportunity and edit the details.
7. To delete an improvement opportunity, select the finding definition, and then select **Delete**.
8. **Optional:** To select an improvement opportunity from the library, select **Add from library**, and then select an improvement opportunity.
   These rules are available from the table configuration. If there are improvement opportunities configured for the table you have selected for your project, then you see those findings in the library. For information about table configuration, see Create process configuration using Classic view.

   Note:
   You can have a maximum of 15 automated improvement opportunities for a project.

9. Select **Review and mine**.

Review and mine your project

After you've created the project by setting the objectives, scoping the analysis, and adding improvement opportunities, it's time to mine the project.

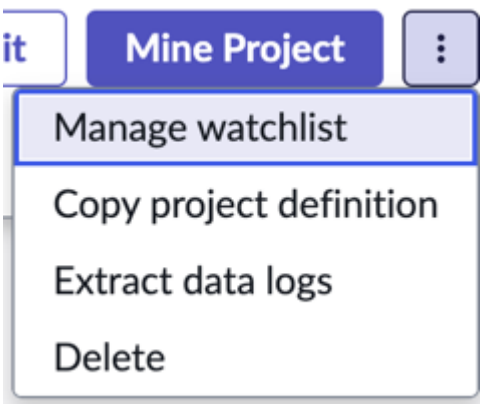
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
   If you continue from the **Improvement opportunities** page, you are on the **Review and mine** page.
2. Select **Edit** for the project that you want to review and mine.
   You are taken to the **Review and mine** tab.
3. On the **Review and mine** tab, review the project.

   You can do some additional steps on this page.



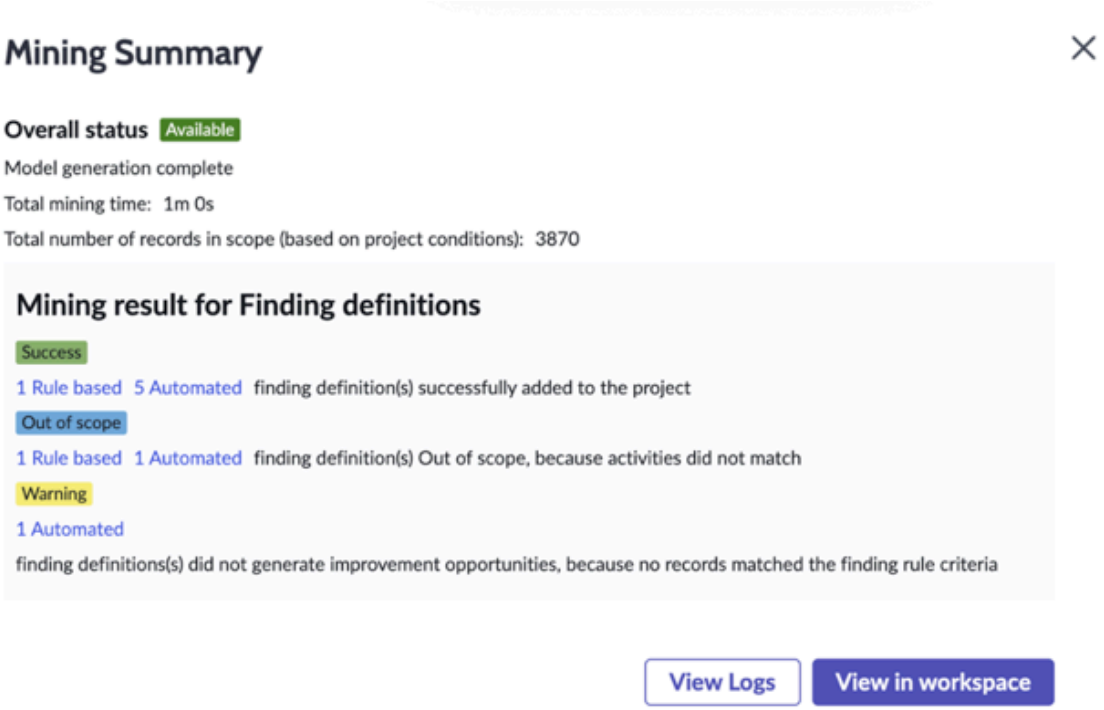
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- Select **Manage watchlist** to add users who receive notifications regarding the status of the mined project.
- Select **Copy project definition** to copy the project.
- Select **Extract data logs** to view any logs available.
- Select **Delete** to delete the project.

4. Select **Mine Project** to mine the project.
5. On the **Mine** window, select **Sample Mine** or **Full Mine**, and select **Confirm & Mine**.

Result

The **Mining Progress** page is displayed. After the mining is completed, a **Mining Summary** page is displayed. This page provides additional details about the mining. It also lists any finding definition that wasn't included in the mining and provides a link to understand the actual cause. You can also view the logs or go to the Process Mining Workspace and view the graph.



Create a project using Classic view

Configure and manage the project status and outline of the process you want to analyze.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

You must enable Audit Log for the table that you've selected to generate a model for a project.

About this task

Configure a project definition that displays visualized, interactive routes of flows of process information.

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Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All projects**.
2. Select **New**.
3. On the form, fill in the fields.

   For a description of the field values, see Project definition form.
4. Select **Save**.

   The project definition record is created.

Set up a table configuration

Define the kind of data or process that you want to view and analyse in your graph. You must select a specific table (parent table) that has the data that you want to analyse.

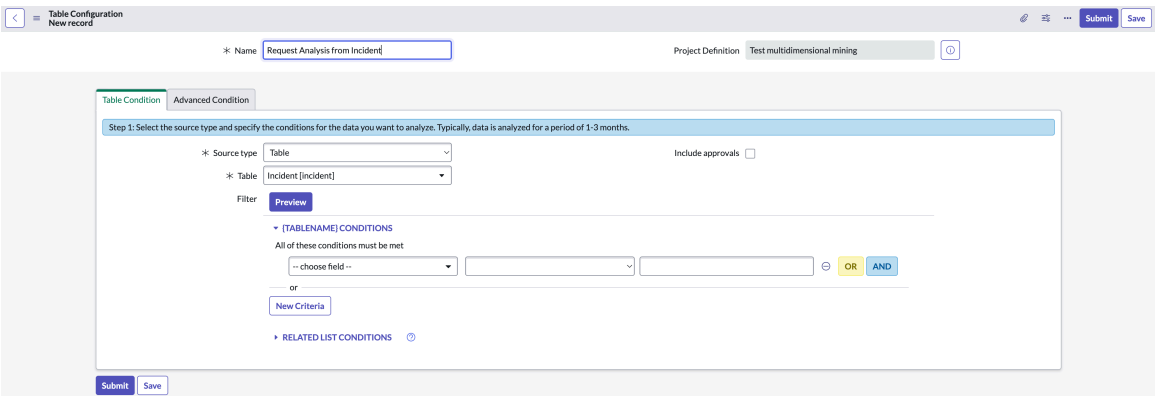
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Open your project, and select the **Table Configurations** tab.
2. Select **New**.

   A new **Table Configuration** page is displayed.



3. Enter a name for the table configuration in the **Name** field.
4. In the **Table Condition** tab, fill in the fields.

Table Condition fields

Field	Description
Source type	The source for the table configuration. You can select a source type: ○ Table: Any database table ○ Report source: A table that has reports ○ Archived data: An archived table
Include approvals	Whether approvals are included.

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Field	Description
Table	Select the appropriate table.
Filter	Use the conditions in the Filter section to select the data that you want to analyze. **Note:** Avoid long transaction times by limiting data to 1 to 3 months period. Select **Preview** to see the number of records available for the set filter.

5. Select **Submit** to save the table configuration.

   You are taken to the Table Configuration page displaying the table configuration that you have created. Configure an activity definition for the table configuration. For more information, see Configure an activity definition

Configure multi-dimensional mining

Use multi-dimensional mining to identify inefficiencies and improve performance by evaluating data from multiple related tables.

Before you begin

You must install and configure Process Mining plugins before configuring multi-dimensional mining on tables.

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task

Often the start and end of a full workflow occurs outside the life cycle of your business process. When it's helpful to analyze these external events, you can add another table for tracking other events relevant to your process. For example, if Incident table is your parent table, and you define the Incident Task [incident_task] table as child table for the Incident table, then when a record from the Incident Task [incident_task] table is created, it shows as an 'Incident Task created' activity on the process map. Only 'created' or 'closed' events show as activities in the process graph.

Note:
External events from a defined child table don't show as condition options in the Transitions or condition filters.

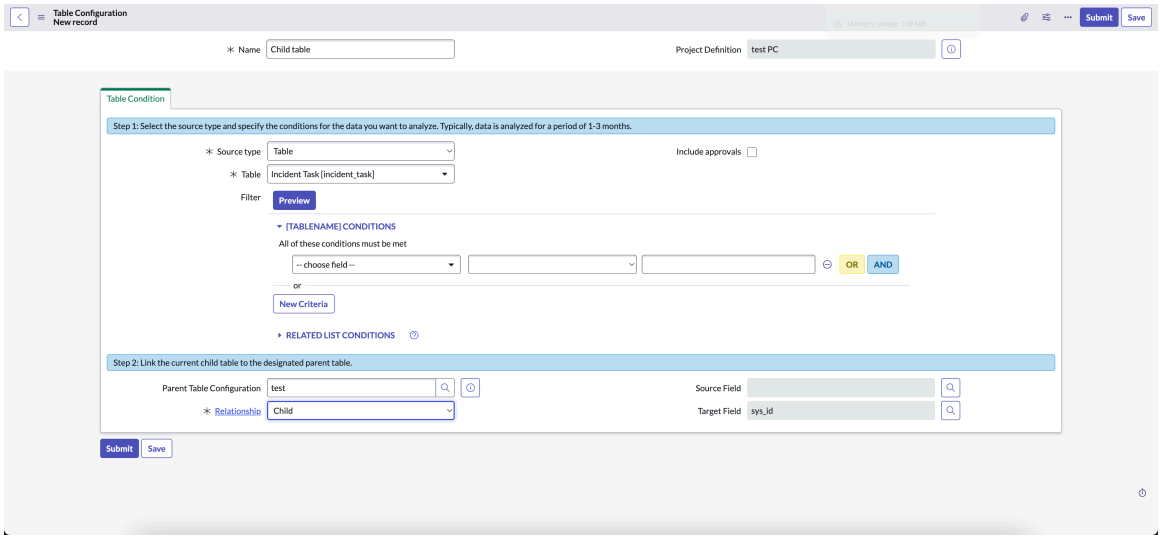
Procedure

1. Select the project for which you want to configure multi-dimensional mining.
2. Go to the **Table Configuration** tab, and select **New**.

   Note:
   The project must already have a parent table configuration set up.

   A new table configuration page is displayed.

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3. Provide a name for the child table configuration in the **Name** field.
4. In the **Step 1** section, provide details as you would do for table configuration. For more information, see Set up a table configuration.
5. To set a relationship, fill the fields in the **Step 2** section.

Field	Description
Parent Table Configuration	Select the search icon next to **Parent Table Configuration**, and select the parent table configuration.
Relationships	Select **Reference** or **Child** from the drop-down list of **Relationships**, depending on the relation type. A reference field stores a reference to a field on another table. For example, the **Problem** field on the Incident table is a reference to the Problem table. Child records are related with a particular parent record. For example, requested items have service catalog tasks or incidents and SLA records.
Source field	If you select the **Child** relation, then select a field from the child table that has a relation with the parent table. If you select the **Reference** relation, then the **Source field** is auto-populated.
Target Field	If you select the **Reference** relation, then select a field from the child table that has a relation with the parent table. If you select the **Child** relation, then the **Target field** is auto-populated.

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6. Select **Submit**.

   A new child table configuration is created.

   Configure an activity definition for the table configuration. For more information, see Configure an activity definition.

Configure advanced conditions: crop process

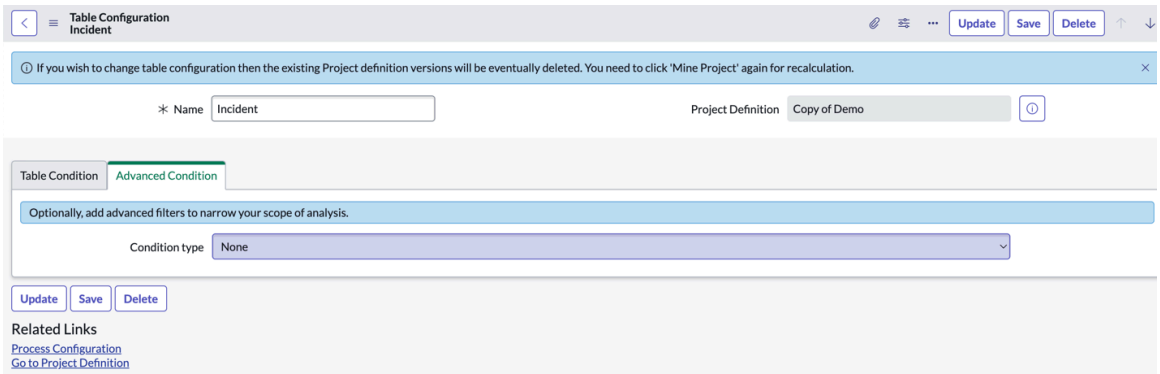
Configure custom start and end conditions for your table configuration to define which part of the process should be included in the Process Mining project and made available for analysis.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Go to the **Advanced Condition** tab of your table configuration record.



2. Select **Crop** from the **Condition type** list.

   Crop conditions allow you to configure a specific start and end condition from your process map, such as, specifying resolved as your process end state instead of closed. Another example is only discovering process from the first occurrence of the New state until the last occurrence of Resolved, thus leaving the Closed state out of the analysis.

3. Select the plus symbol next to the **Start condition** field.
4. In the **Create new process start condition** form, fill in the fields.
   For a description of the field values, see Create new process start/end condition.
5. Select **Submit** to save the condition.
6. To create an end condition, select the plus symbol next to the **End condition** field.
7. In the **Create new process end condition** form, fill in the fields.

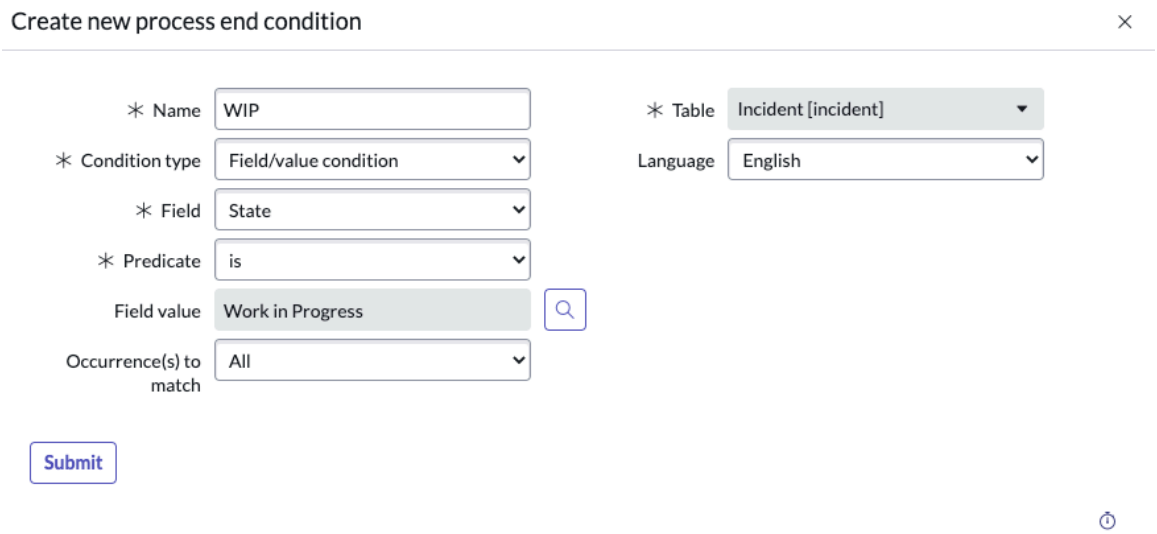
   Note:
   The fields and descriptions are identical to those for the **Create a new process start condition** form.

8. Select **Submit** to save the condition.

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Example: A configured process condition

In this example, a process end condition is configured when an incident record enters the `Work in progress` state. Because the **Occurrence(s) to match** field is set to `First only`, the condition only triggers the first time a record's state changes to `Work in progress`.



Configure advanced conditions: transition filter

Activity transitions filtering enables you to get closer views of the different routes that records go through.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Use transition filters to filter records for executed workflows that transition through specified activities. This helps you investigate corresponding values more closely.

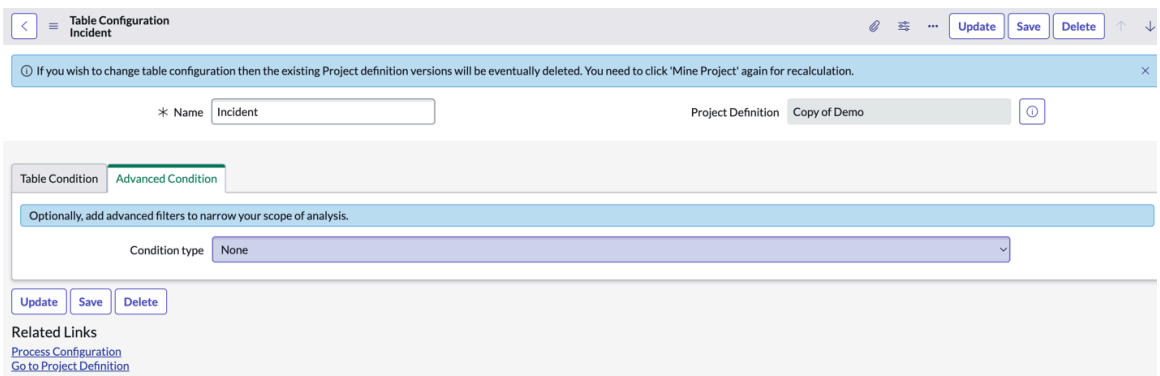
About this task

You can apply a transition filter in two ways:

- By creating a specific condition manually
- By applying transition filter on a pre-defined filter

Procedure

1. Go to the **Advanced Condition** tab of your table configuration record.



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2. Select **Transition** from the **Condition type** list.
3. Select the plus symbol next to the **Start condition** field.
4. In the **Create new process start condition** form, fill in the fields.
   For a description of the field values, see Create new process start/end condition.
5. Select **Submit** to save the condition.
6. Select a value in the **Relation** field.
7. To create an end condition, select the plus symbol next to the **End condition** field.
8. In the **Create new process end condition** form, fill in the fields.

   Note:
   The fields and descriptions are identical to those for the **Create a new process start condition** form.

9. Select **Submit** to save the condition.

Configure an activity definition

Report on steps that occur within your business process.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

- Create a project or template using Project Builder

Note:
You can configure a maximum of 10 activity definitions for the parent table configuration and 5 activity definitions for any child table configuration. You cannot generate more than 5000 elements for any activity definition.

About this task

Process Mining gathers audit log field data for activities you define. Configure at least one activity to extract for and display in your process map records that start, end, or pass through a specific activity.

Note:
While configuring a project, you must first set up a main (parent) table configuration, define an activity definition, and set up a breakdown definition. If only one table is needed, you can generate a full project that you can periodically mine and schedule with the data.
If multiple tables are required, you must create additional (child) tables, relate it to the main (parent) table, and define the activity definition. You may also configure breakdown definitions on child tables.

You can set up dot walking on activities that will flag any kind of change that you want to keep a track of.

Large organizations find it inefficient or non-compliant to change Configuration Items (CIs) and business services, especially when they're associated with legal and geographical entities. To address this, they perform data mining on dot-walked fields for insights without changing these critical attributes.

While adding activity definitions, you can add a reference field (dot walked field) to flag any such non-compliance. For example: Assigned_to.Location. After the mining is complete, the graph

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will display the data flow across different locations making it easier for you to track any non-compliance.

You can also group multiple activities to track changes made to each of the activities. For this, you can add an activity definition of type "Compound" and select the fields. After the mining is complete, the graph will display that something has changed for these fields. This will simplify the graph. To know the details, you can further filter them.

Procedure

1. From the **Activity Definitions** tab of your table configuration record, select **New**.
2. On the form, fill in the fields.
   For a description of the field values, see Activity definition form.
3. Select **Submit**.

What to do next

Configure a breakdown or generate a project.

Configure a breakdown definition

Add a breakdown to filter records and analyze a process map by categories.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

- Create a project or template using Project Builder
- Configure multi-dimensional mining

About this task

Note:
You can configure a maximum of 10 breakdown definitions for the parent table configuration and 5 breakdown definitions for any child table configuration. You cannot generate more than 5000 elements for any breakdown definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Process Mining Workspace** and select your project record.
2. Identify which table you are configuring the breakdown definition, and open the associated table configuration record from the **Table Configurations** tab.
3. In the **Breakdown Definitions** tab, open a new breakdown definition record by selecting **New**.
4. On the Breakdown Definition form, fill in the fields as needed.

Breakdown definition fields

Field	Description
Field	Select the field on to use for the breakdown.
Display Name	Name to display for this breakdown. If no name is entered, the breakdown displays the value of the **Field** field.

5. **Optional:** Select **Add Filter Condition** and further choose conditions for filtering the breakdown.

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Note:
Filter conditions are only available when a reference field is selected in the **Field** field.

6. Select **Submit**.

What to do next
Mine a project.

Configuring improvement opportunities

Configure an improvement opportunities to view the insights on the Summary and Insights page.

An improvement opportunity creates the rule that searches for insights relevant to a process that is based on a specified table. After you configure a definition, any relevant records show as opportunities for in the Insights section of the Summary and Insights page.

There are two types of improvement opportunities:

- Rule-based improvement opportunities
- Automated improvement opportunities

Both improvement opportunities serve the same purpose, but the way they're created varies.

Rule-based improvement opportunities are created where you can change the table to have a start and stop condition based on a secondary table. They have finding rules and finding constraints, which must be set by you.

Automated improvement opportunities are simpler to create. The process is short and can be completed in a few steps.

For more information on creating finding definitions, see Setting improvement opportunities from Classic view.

Import improvement opportunities

Import improvement opportunities as templates into the project associated with the table. Improvement opportunities from the parent table that are in Active state are available for import. If you don't import the improvement opportunities from the process table, the improvement opportunities aren't used during project mining.

Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All Projects**.
2. Open the project that you want to copy the findings for.
3. In the **Related Links** section, select **Import Process Finding Templates**.

Result
A message is displayed stating the number of rule-based improvement opportunities and automated improvement opportunities that are imported to the project.

Mine a project

After you've configured the data you want to visualize, you can begin mining the project.

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Before you begin
Role required: po_analyst

About this task
Process Mining extracts a maximum limit of 500,000 records for a single table. If that limit is reached with the table you selected, add additional filters to refine the data set.

This limit will decrease depending on the number of tables you have configured on your project. For example, if you configure two tables, a parent table (like Incident) and a child table (like Task_sla), the limit calculated on the incident table will be 250,000 records.

Note:

- Optimizing a project may take significant time. While extraction is in progress for a project, you cannot explore its process map.
- During a full or sample mining, Process Mining analyzes the audit log.

Procedure

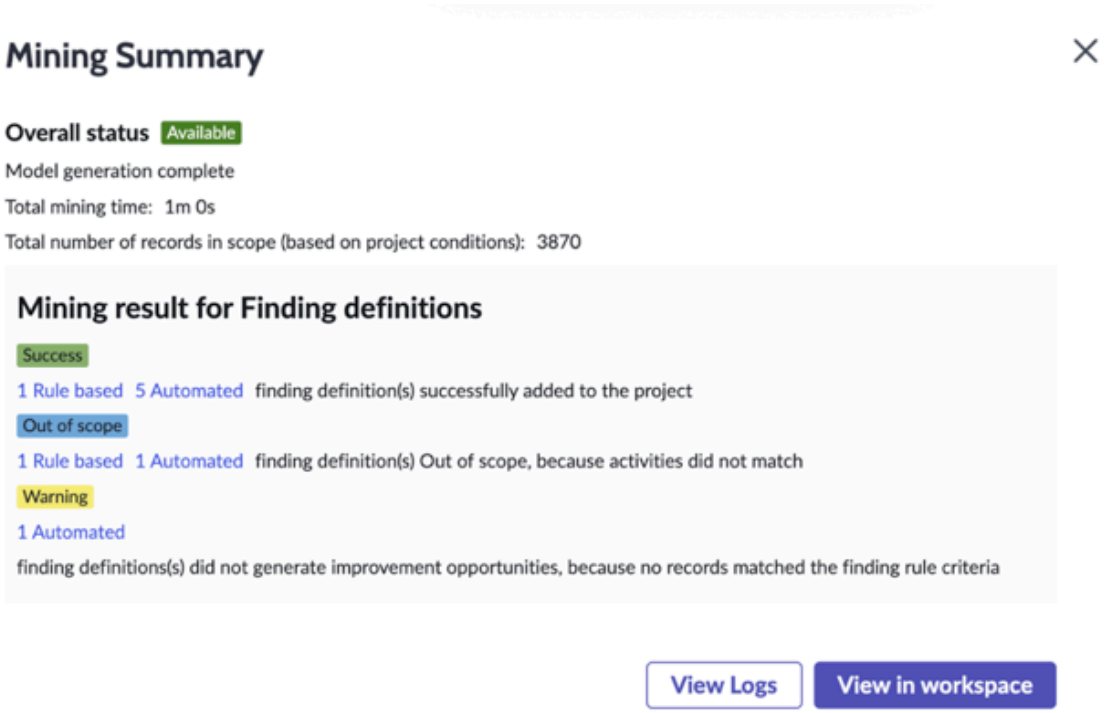
1. From the application navigator, navigate to **Process Mining** > **Process Mining Workspace**.
2. From the project's card menu, select:
   - **Mine project (Full)** to mine the full project.
   - **Mine project (Sample)** to mine up to 3,600 records, rather than mining all records applicable to a project.

     Note:
     Mining a sample enables an analyst to validate project configuration settings before performing a full data extraction of the project.
3. Select **OK** to confirm you want to begin mining the project.
4. **Optional:** Select **Notify once complete** if you want to be added to the watch list.
   You will receive an email notification after the mining is complete. The job limit per day is set to 50 by default. If you exceed the limit, an error message is displayed.
5. **Optional:** Select **View progress** to see the details of the mining.

   (Optional) After the mining is complete, a **Mining Summary** page is displayed. This page provides additional details about the mining. It also lists any finding definition that wasn't

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included in the mining and provides a link to understand the actual cause. You can also view the logs or go to the Process Mining Workspace and view the graph.



Result
If the extraction completes successfully, the project card shows the mining state as **Available**.

Cancel a mining job

An analyst, power user, or administrator can cancel a mining job currently in process.

Before you begin
Role required: none

Procedure

Select **Cancel** during mining of a project to cancel the process.

It can take several minutes before the cancel process completes. The unit of work in progress at the time of canceling mining must complete before cancellation occurs.

The mining state on the Project Definition form shows as **Cancelled**.

Mine states

When attempting to mine a project, the project workflow record shows one of these states.

Workflow record mine states

State	Description
New	Mining has not been attempted on the project data.
Mining Data	Mining is in process for the project.
Cancelling	Mining is in process of user-initiated cancellation.
Cancelled	A user cancelled mining that was in process for the project.

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Workflow record mine states (continued)

State	Description
Available	Mining has been performed on the data and the process map visualization is available to view.
Error	Mining was attempted but did not complete successfully. • New projects that have not yet been successfully mined cannot be opened in the Analyst Workbench. • You can attempt a data refresh from the Analyst Workbench on a project that has been successfully mined from its workflow record. An error icon ⚠ displays when project data does not refresh successfully. To investigate for details, view the **Extract Data Log** tab from the Project Definition form.
Scheduled	A job has been scheduled for the project to be mined at a specified time interval. **Note:** If there are several projects scheduled for mining within a job, the projects execute sequentially. For example, a job which has Projects 1 and 2 scheduled within it will mine Project 1 first, then begin mining Project 2 after mining of Project 1 completes.

Schedule a Process Mining job

Schedule a Process Mining job to mine one or more projects later.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

Note:
You can create only one scheduled job for each project. You can, however, associate multiple projects to a job. If there are several projects scheduled for mining within a job, the projects execute sequentially. For example, a job which has Projects 1 and 2 scheduled within it will mine Project 1 first. Then, it begins mining Project 2 after mining of Project 1 completes.

Procedure

1. Navigate to **All** > **Process Mining** > **Scheduled Jobs** > **Create New**.
2. On the Scheduled Process Mining Job form, populate the applicable fields for the job you want to create, then select **Submit**.
   See descriptions of fields on a scheduled job record.
3. In the Project Definitions section, select **Edit**.
4. From the **Edit Members** form, select the projects in the **Collection** column that you want to mine and move them to the **Project Definitions List** column.
5. Select **Save**.
   The scheduled job runs on the frequency that you've configured.

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What to do next

- View a successfully generated project from the Analyst Workbench.
- Navigate to **All** > **Process Mining** > **Scheduled Jobs** > **All Jobs** to view scheduled process mining jobs.

Edit a project

Edit a project from the Project Definition form to generate an updated process map.

Before you begin

Role required: sn_process_optimization_power_user, or sn_process_optimization_admin

- The sn_process_optimization_analyst role can edit a project if they created it.

Procedure

1. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
2. From the Project list, select the ellipses beside the project you want to edit.
3. Select **Edit**.
4. Enter changes in the desired fields and select **Update**.
   The table can't be changed after defining an activity, breakdown, or child table.

What to do next

Perform a data extraction on the updated project to view it in the Analyst Workbench, and apply relevant filters.

Delete a project

Delete a project if you are not using it and want to clean up data. Deleting a project deletes the project's configurations and versions or projects it has generated. You can delete a project from the Process Mining Workspace.

Before you begin

Role required: sn_process_optimization_power_user or sn_process_optimization_admin

If you have the sn_process_optimization_analyst role, you can delete only those projects that you have created.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select the ellipses beside the project that you want to delete.
3. Select **Delete** from the list.
4. Select **Delete** on the confirmation dialog box to delete the project.

Working with improvement opportunities

Set improvement opportunities to find areas of improvement by which you could optimize a process. You can either select from a list of rules available to you or set your own rules. Based on the rules set by you, you can view your areas of improvement.

Create improvement opportunities for the following:

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- A process table: Improvement opportunities for a process table is set for the table. You can add them to the projects that are based on that table by adding it from the library.
- A project: Improvement opportunities for a project are specific for the project.

There are two types of improvement opportunities:

- Rule-based improvement opportunities: These improvement opportunities consist of one or more rule chains executed in a sequence. The records that match the logic of these specifications are classified as a match for the improvement opportunities.
- Automated improvement opportunities: The improvement opportunities are displayed based on the default patterns that are already available for selection.

There are two UI locations from where you can create the improvement opportunities:

- Classic view
- Finding Builder

Set improvement opportunities for process tables

Set rule-based or automated improvement opportunities for a process table from the Classic view or Finding Builder.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

The improvement opportunities that are set for a process table will be available in the library. You can add it to any project that is based on that table.

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.
2. Select **New** if you want to create an improvement opportunity for a table that is not yet listed. Select the table from the list if you want to create an improvement opportunity for a table from the list.
3. On the form, fill in the fields.
   For information on the fields, see Create process configuration using Classic view.
4. To set improvement opportunities for the table from the Classic view, select **New** under **Finding Definitions** tab or **Automated Finding Definitions** tab.

   Under the **Finding Definitions** tab, create rule-based improvement opportunities. For more information, see Rule-based finding definition form from Classic view.

   Under the **Automated Finding Definitions** tab, create automated improvement opportunities. For more information, see Automation finding definition form from Classic view.
5. To set improvement opportunities for the table from the Finding Builder, select **Use Finding Builder** under the **Finding Definitions** tab or the **Automated Finding Definitions** tab.

   The **Improvement opportunity definition** page is displayed.
6. To create a rule-based improvement opportunity, select **Create** on the Rule-based card.
   For more information, see Set rule-based improvement opportunity.

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7. To create an automated improvement opportunity, select **Create** on any of the automated opportunity card.
   For more information, see Automated improvement opportunities.

Setting improvement opportunity for projects

Set improvement opportunities for projects to find areas of improvement by which teams could optimize a process. You can either select from a list of rules available to you or set your own rules. Based on the rules set by you, you can view your areas of improvement.

You can set improvement opportunity using the Finding Builder or the Classic view from the following locations:

- Creating or editing a project from the Classic view.
- Creating or editing a project from Project Builder.
- Adding improvement opportunity for a project from the Summary and Insights page.

Setting improvement opportunities from Classic view

Set improvement opportunities from the Classic view.

Set rule-based and automated improvement opportunities from the Classic view.

Set rule-based finding definitions using Classic view

Configure rule-based finding definitions to deliver discovered insights to your Summary and Insights page.

Before you begin

- You can create one configuration per table for each project based on a process.
- You can create a rule-based finding definition from the Process Configurations page or the Projects page.
- Role required:
  - The sn_process_optimization_admin and sn_process_optimization_power_user roles can create a finding definition for a project.
  - The sn_process_optimization_analyst role can view a finding definition for a project, but can't create, edit, or delete a definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All Projects**.
2. Select a project.
3. Select **New** under the **Project Finding Definitions**.
4. On the form, fill in the fields.
   For a description of the field values, see Rule-based finding definition form from Classic view.
5. Select **Submit**.

What to do next

- Create finding rules. For steps on this process see Configure finding rules.
- Create finding constraints. For steps on this process, see Configure finding constraints.

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Configure finding rules

Configure finding rules for your finding definition. Finding rules define what record criteria triggers your finding definitions.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

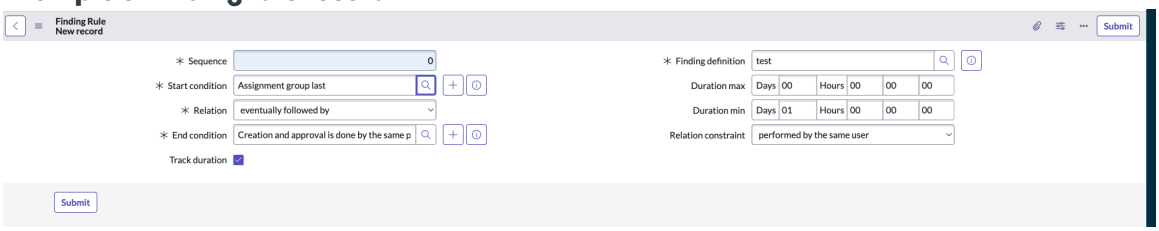
Procedure

1. Open the finding definition record where you want to add a finding rule.
2. In the **Finding Rules** tab, select **New**.
3. On the form, fill in the fields.
   For a description of the field values, see Finding rule form.
4. Right-click the form header, and select **Save** to save the finding rule record.
5. **Optional:** To create additional finding rule within the same chain, select **Create next rule (same chain)**.
   This option opens a new finding rule within the same chain. The **sequence** value is one higher than the current rule.
6. **Optional:** To create additional finding rule within a new chain, select **Create next rule (new chain)**.
   This option opens a new finding rule within a new chain.

Example:

In this example, a finding rule is created to find when someone requests an approval on an incident record, and that approval is approved by the same user. Because the **Duration min** field is set to one day, the rule only triggers when the approval is approved more than 24 hours after it was requested.

Example of finding rule record



What to do next

- Configure automated root cause analysis to find the root cause of undesired process behavior. For details on this feature. See Automated root cause analysis.
- Configure Automation Discovery to help you identify automation opportunities for your workflows. For details on this configuration, see Automation Discovery.
- Configure cluster analysis to group similar records into a cluster (one group) so you can identify patterns. For more detail on this configuration, see Cluster analysis.

Configure finding constraints

Configure finding constraints for your finding definition. In addition to finding rules, finding constraints further narrow down the scope of your finding definitions using metrics like duration and relation constraints.

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Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Open the finding definition record where you want to add a finding constraint.
2. In the **Finding Constraints** tab, select **New**.
3. On the form, fill in the fields.
   For a description of the field values, see Finding constraint form.
4. Select **Submit**.

Example use case: a-b-a transitions

Use finding rules to identify when records return to a previous state.

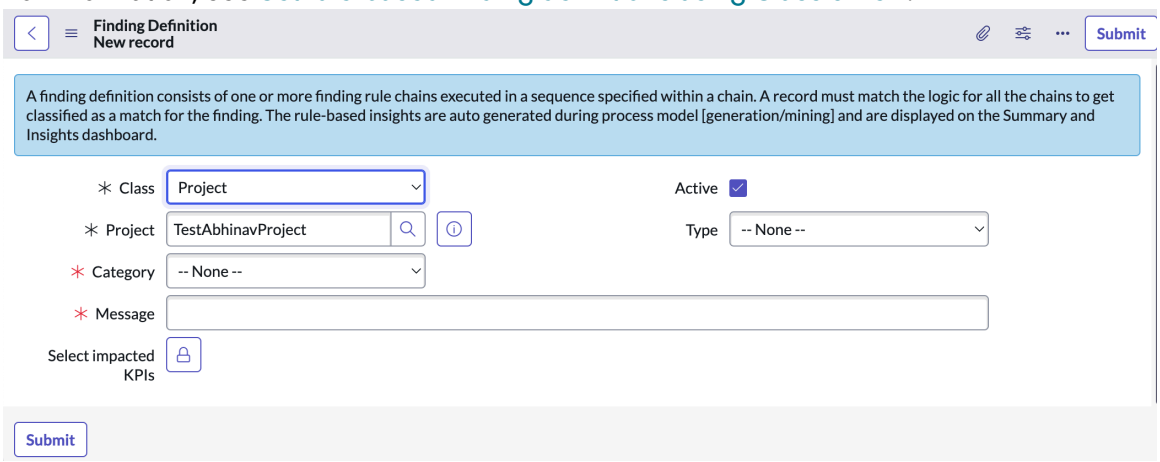
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

This example creates a finding definition that uses two finding rules and a finding constraint to identify when an incident is assigned to a group (in this example, the Database group), and then switched back to its original assignment. Use finding definitions like this one to identify situations where incidents are incorrectly assigned.

Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All Projects**, and open the project where you want to include this finding.
2. In the **Project Finding Definitions** tab, select the **New** button to create a finding definition.
3. Fill in the details in the **Finding Definition** record.
   For information, see Set rule-based finding definitions using Classic view.



4. Right-click the form header, and select **Save** from the context menu.
   After saving, the **Finding Rules** and **Finding Constraints** tabs are visible.
5. In the **Finding Rules** tab, select the **New** button to create a finding rule.
6. Select the plus (+) icon to the right of the **Start condition** field to begin creating your start condition.

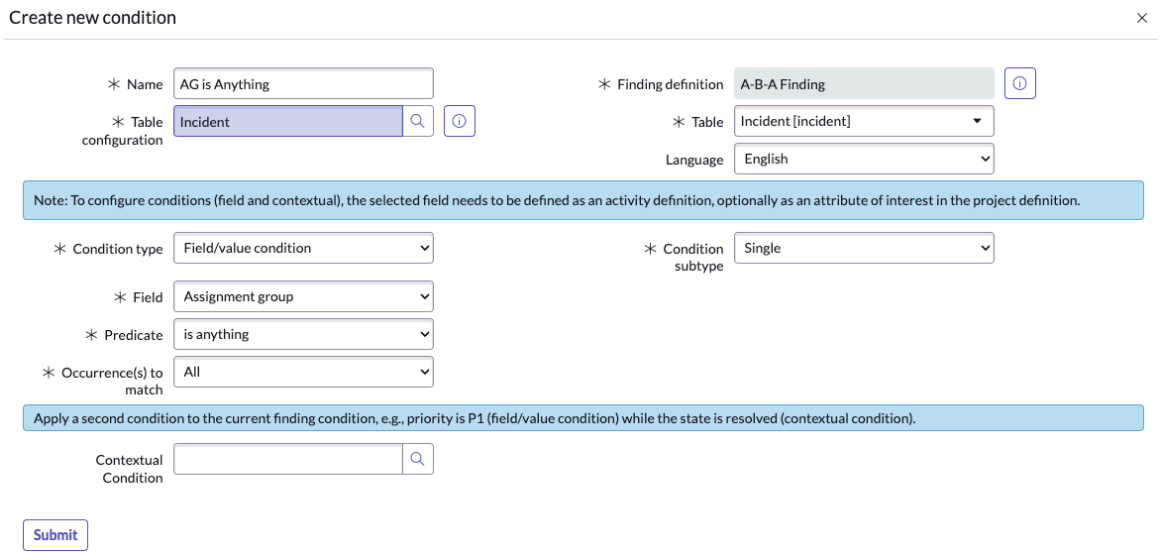
> **Note:**
> You must create conditions for each rule. There's no option to select existing rules.

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7. Use the fields on the **Create new condition** form to create your first condition.

   For the start condition, you create a condition where an incident is created with any value in the **Assignment group** field.

Field	Value
Name	AG is Anything
Table configuration	Incident
Condition type	Field/value condition
Field	Assignment group
Predicate	is anything
Occurrence(s) to match	All
Condition subtype	Single



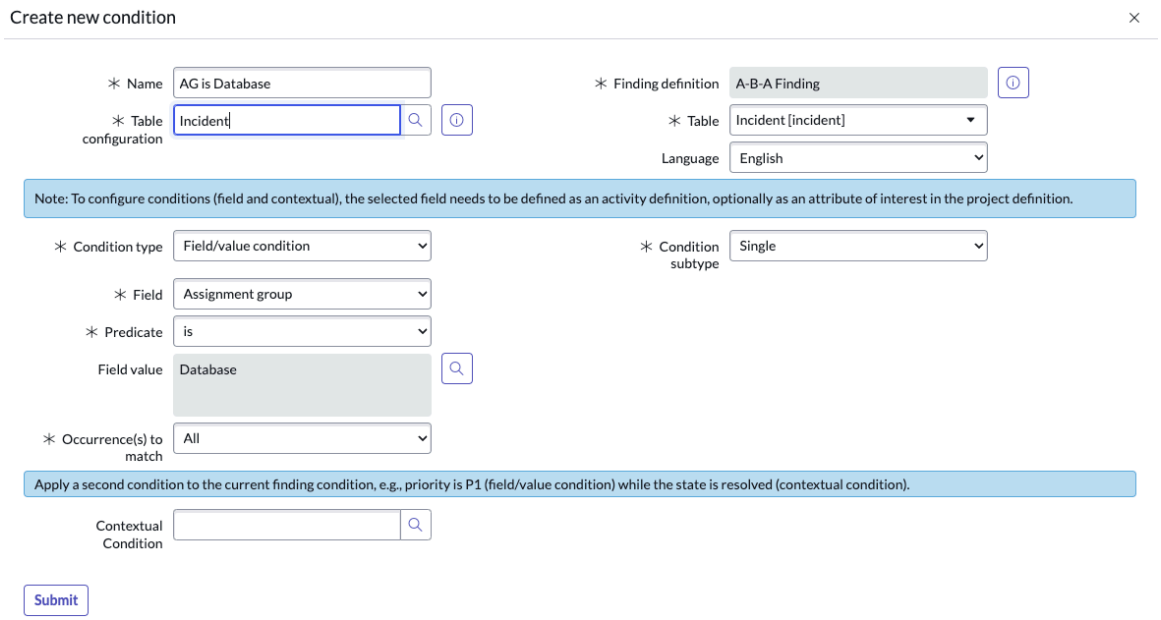
8. Select **Submit** to save your condition.
9. In the **Relation** field, select **eventually followed by**.
10. Select the plus (+) icon to the right of the **End condition** field to begin creating your end condition.
11. Use the fields on the **Create new condition** form to create your second condition.

    For the second condition, you create a condition where an incident is assigned to the Database group.

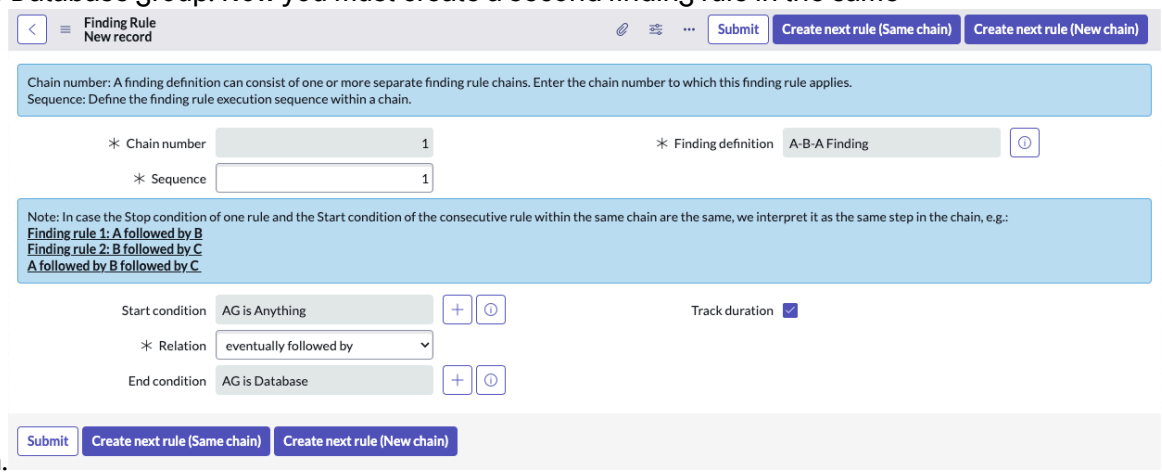
Field	Value
Name	AG is Anything
Table configuration	Incident
Condition type	Field/value condition
Field	Assignment group
Predicate	is

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Field	Value
Field value	Database
Occurrence(s) to match	All
Condition subtype	Single



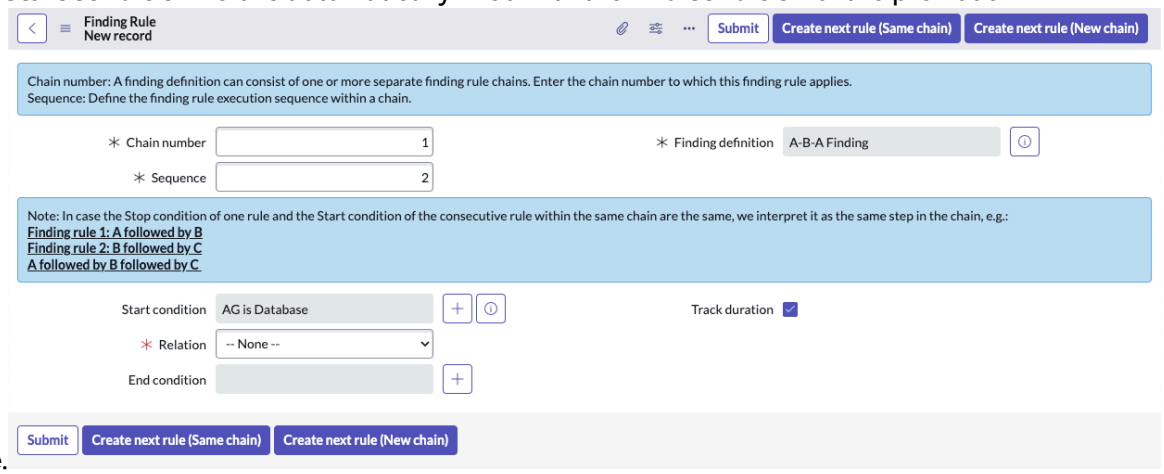
12. Select **Submit** to save your condition.
    You now have your first finding rule, which identifies when an incident is assigned to the Database group. Now you must create a second finding rule in the same chain.



13. Select **Create new rule (Same chain)**

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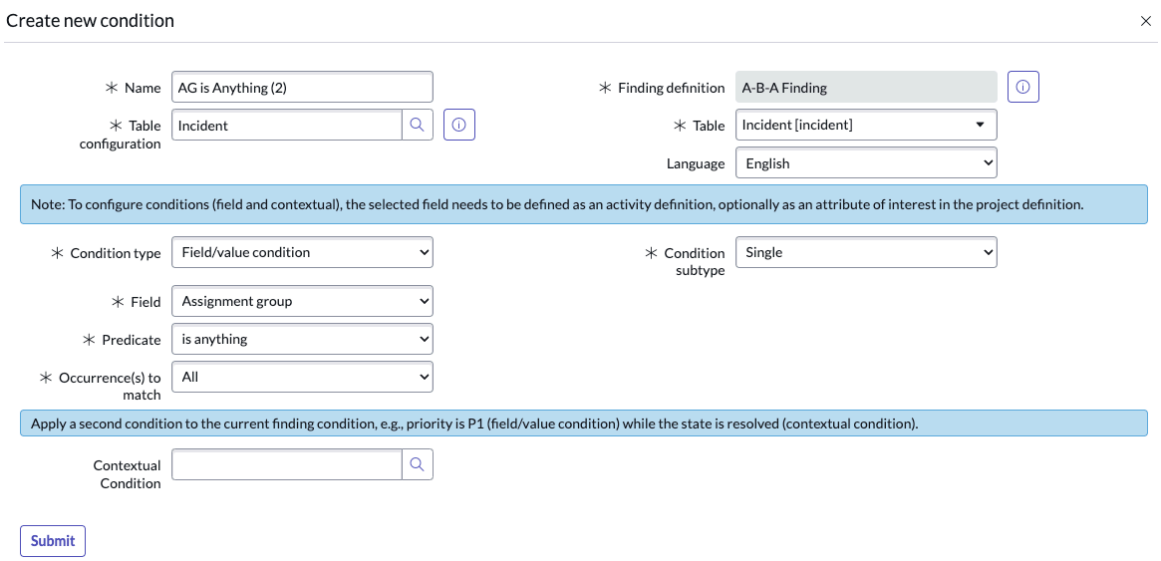
This is a new rule in the same chain. You can see that the **Sequence** field is 2 and the **Start condition** field is automatically filled with the **End condition** of the previous rule.



14. In the **Relation** field, select **eventually followed by**.
15. Select the plus (+) icon to the right of the **End condition** field to begin creating your second end condition.
16. Use the fields on the **Create new condition** form to create your end condition.

    For the second condition, you create a condition where an incident is assigned to the Database group.

Field	Value
Name	AG is Anything (2)
Table configuration	Incident
Condition type	Field/value condition
Field	Assignment group
Predicate	is anything
Occurrence(s) to match	All
Condition subtype	Single



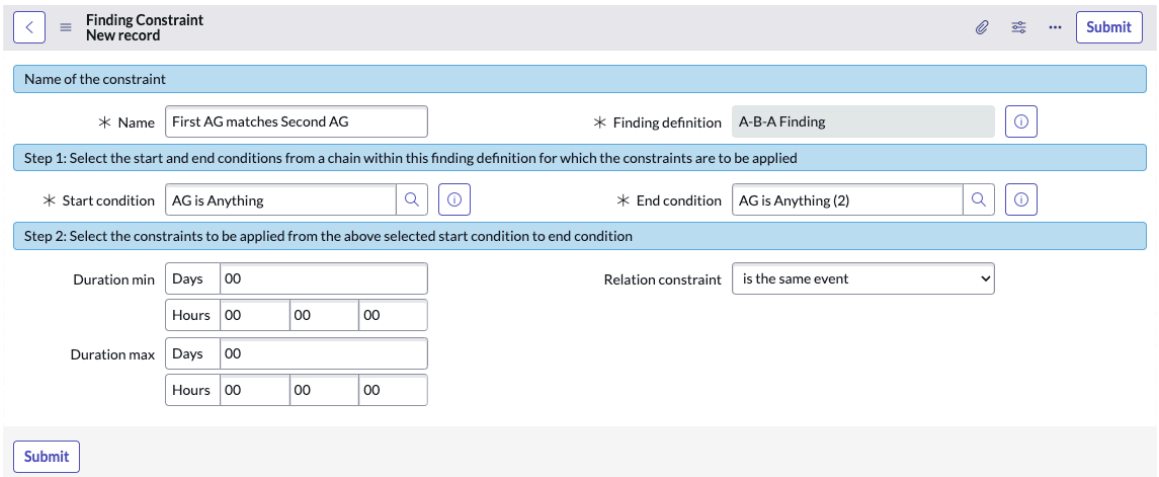
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17. Select **Submit** to save your condition.
    You now have a completed second finding rule.
18. Select **Submit** to save your finding rule.
19. Open your project record again.
20. From the **Project Finding Definitions** tab, open the finding definition created in the previous steps.

    Note:
    This should be the one you created in step 3.

21. In the **Finding Constraints** tab, select the **New** button.
22. Use the fields on the **Finding Constraint** form to create your constraint.

Field	Value
Name	First AG matches Second AG
Start condition	AG is Anything
End condition	AG is Anything(2)
Relation constraint	is the same event



This finding constraint refines your finding rules. Now, for example when an incident is assigned to **Network**, then **Database**, and then back to **Network**, it will be discovered by this finding rule.

23. Select **Submit**.

Set automated improvement opportunities using Classic view

Configure automated finding definitions to view the insights specified by you in your Summary and Insights page.

Before you begin

- You can create one configuration per table for each project based on a process.
- Role required:

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- The sn_process_optimization_admin and sn_process_optimization_power_user roles can create a finding definition for a project.
- The sn_process_optimization_analyst role can view a finding definition for a project, but can't create, edit, or delete a definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All Projects**.
2. Select a project.
3. Select **New** under the **Automated Finding Definitions** tab.
4. On the form, fill in the fields.
   For more information, see Automation finding definition form from Classic view.

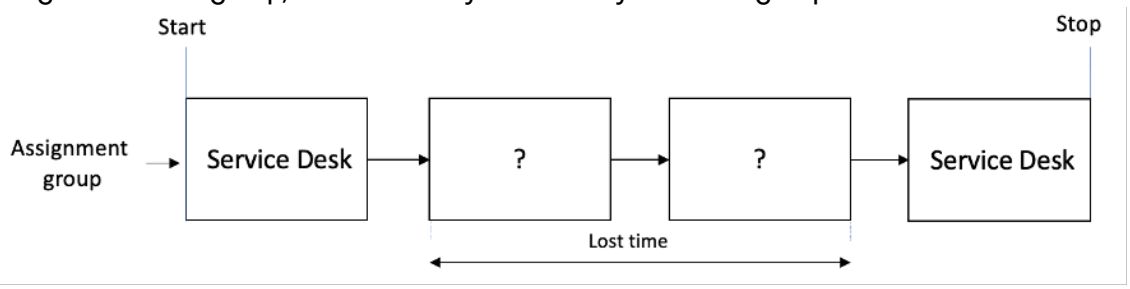
   Note:
   You can have a maximum of 15 automated improvement opportunities for a project.

5. Select **Submit**.

Improvement opportunities examples

The finding definitions use cases are described below.

Use case 1a: Record bouncing between groups. Analysts often want to identify records that go from a particular group (for example service desk), then reassign to another group, and eventually resolved by the initial group again.



In case the initial group is known, use the following finding rule: Message and category.

- Start condition table config: incident
- Start condition
  - Name: group name, for example, Service Desk
  - Condition type: Field/value condition
  - Field = Assignment Group
  - Predicate = Is
  - Field value = Service Desk
  - Occurrence(s) to match: first only

Relation: eventually followed by

- End condition table config: incident
- End condition
  - Name: group name, for example Service Desk
  - Condition type: Field/value condition

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- Field=Assignment group
- Predicate= Is
- Field value = Service Desk
- Occurrence(s) to match: last only
- Track duration: true

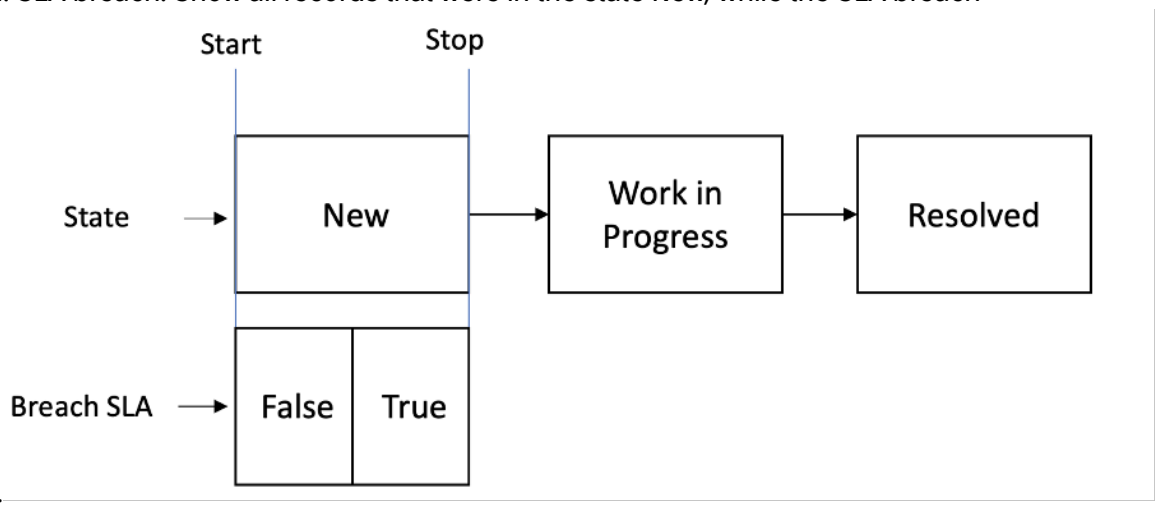
Use case 1b: In case all bouncing records between groups with similar initial group must be identified, use the Message and category finding rule.

- Start condition table config: incident
- Start condition
  - Name: Assignment group is anything
  - Condition type: Field/value condition
  - Field = Assignment group
  - Predicate = Is anything
  - Occurrence(s) to match: first only

Relation: eventually followed by

- End condition table config: incident
- End condition
  - Name: Assignment group is anything
  - Condition type: Field/value condition
  - Field=Assignment group
  - Predicate=Is anything
  - Occurrence(s) to match: all
  - Track duration: true
  - Relation constraint: Has the same assignment group

Use case 2: SLA breach. Show all records that were in the state New, while the SLA breach happened.

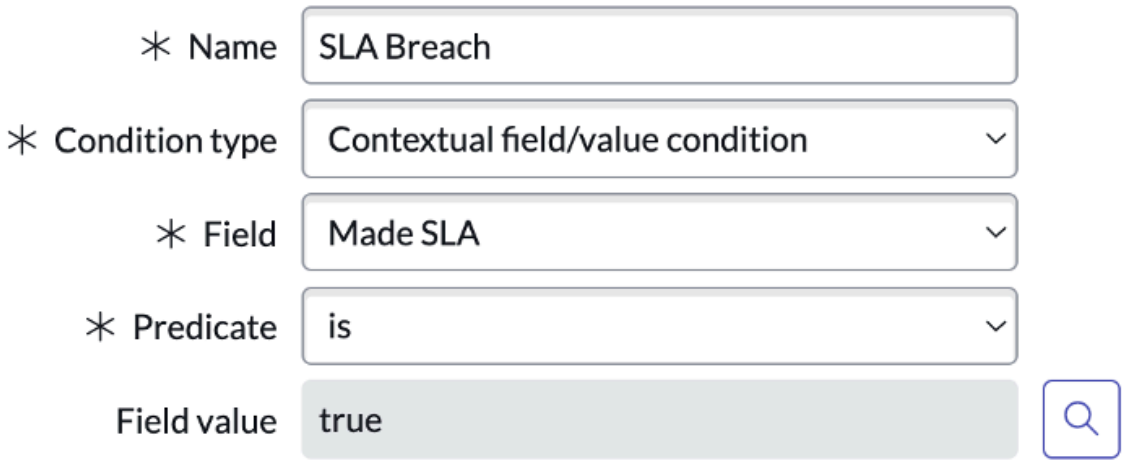


After you give the finding definition a message and category, specify the finding rule as follows.

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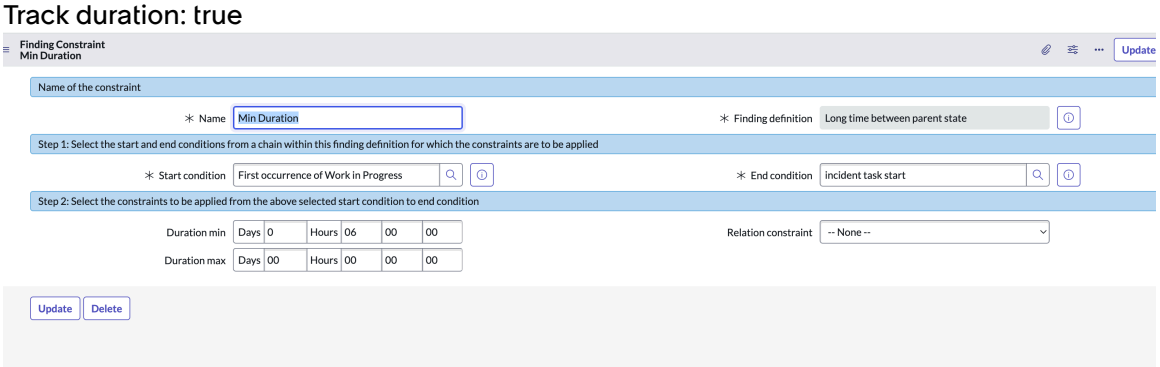
- Start condition table config: incident
- Start condition
  - Name=state
  - Condition type: Field/value condition
  - Field=State
  - Predicate=Is
  - Field value=New
  - Occurrence(s) to match=first only
- Contextual condition:
  - Name=SLA breach
  - Finding Def= Add the finding def message
  - Condition type= Contextual field/value condition
  - Field=Made SLA (make sure you have Made SLA defined as activity definition in your project)
  - Predicate=is not
  - Field value=true
- Relation: directly followed by
- End condition table config: incident
- End condition
  - Name: State
  - Condition type: Field/value condition
  - Field=State
  - Predicate=is
  - Field value=Work in progress
  - Occurrence(s) to match=first only
- Contextual condition:
  - Name=SLA breach
  - Condition type= Contextual field/value condition
  - Field=Made SLA (make sure you have Made SLA defined as activity definition in your project)
  - Predicate=is
  - Field value=true
- Track duration: true

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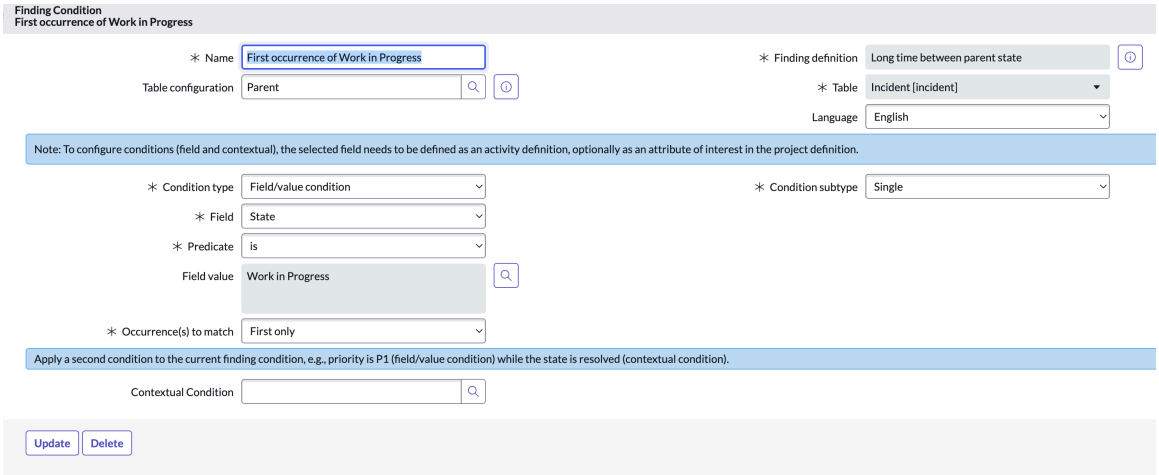


Use case 3: Longer than six hours between parent state Work in Progress and task creation. The resolution time or records often depends on the completion of one or more tasks. To improve the solution time of the main record, it's therefore important to start the tasks as quickly as possible after the main records reached the Work in Progress state. In this example, the user wants to find all records where it took longer than six hours to create the underlying tasks after the main record went into Work in Progress. After giving the Finding definition a message and category, specify the finding rule as follows.

- Start condition table config: Parent, for example incident
- Start condition
  - Name: First occurrence of Work in Progress
  - Condition type: Field/value condition
  - Field=State
  - Predicate=Is
  - Field value=Work in progress
  - Occurrence(s) to match: first, only
    - Relation: eventually followed by
    - End condition table config: incident task
    - End condition
      - Name=incident task start
      - Condition type=Process start
        - Constraint: Minimum duration is 6 hours
        - Track duration: true



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Set improvement opportunities using Finding Builder

Set improvement opportunities from the Finding Builder.

Before you begin

- You can create one configuration per table for each project based on a process.
- You can create a rule-based finding definition from the Process Configurations page or the Projects page.
- Role required:
  - The sn_process_optimization_admin and sn_process_optimization_power_user roles can create a finding definition for a project.
  - The sn_process_optimization_analyst role can view a finding definition for a project, but can't create, edit, or delete a definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Projects** > **All Projects**.
2. Select a project.
3. Select **Use Finding Definition** under the **Project Finding Definitions** tab or the **Automated Finding Definitions** tab.
   The **Improvement opportunity definition** page is displayed.
4. To create a rule-based improvement opportunity, select **Create** on the Rule-based card.
   For more information, see Set rule-based improvement opportunity.
5. To create an automated improvement opportunity, select **Create** on any of the automated opportunity card.
   For more information, see Automated improvement opportunities.

Setting improvement opportunity from Project Builder

Set improvement opportunities from Project Builder.

Create rule-based and automated improvement opportunities from Project Builder while creating or editing a project.

Set rule-based improvement opportunity

Rule-based finding definition is a custom rule that displays improvement opportunities for a use case on the Summary and Insights page.

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Before you begin

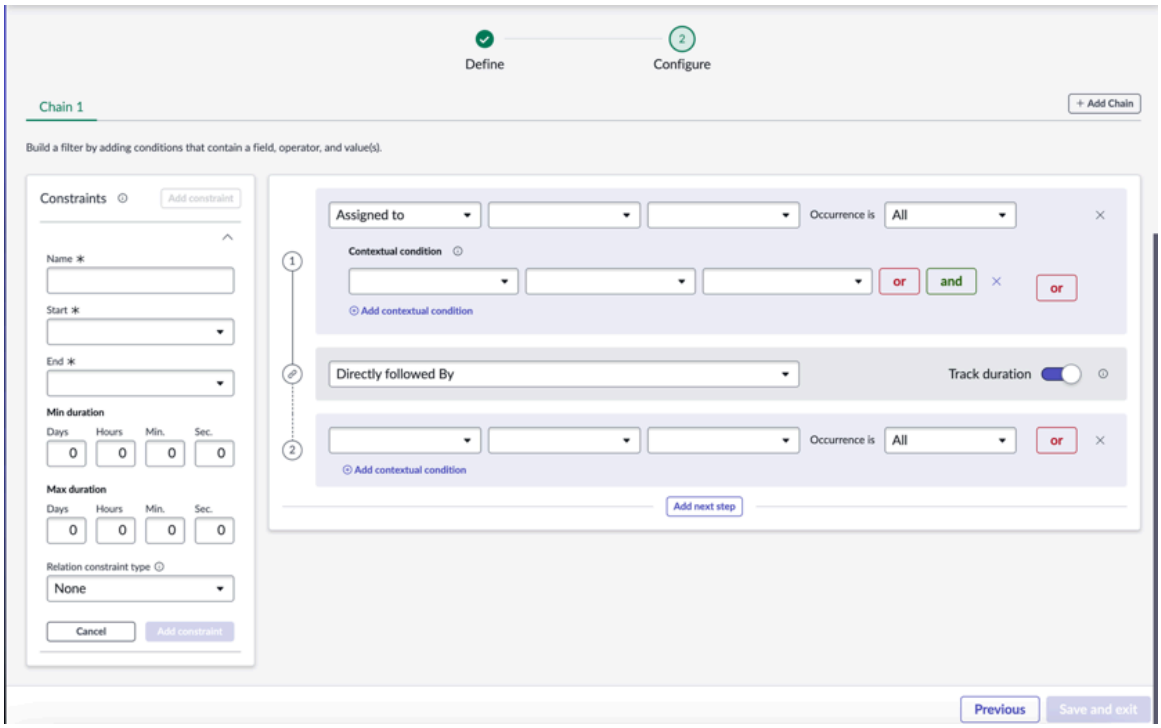
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

By setting up your own rules, you can focus on specific areas of the process that you'd want to know more about, thus identifying improvement opportunities for a given use case.

For example, you can set up a rule to display records that took more than 7 days from **Awaiting verification** to **Resolved**.

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Rule-based card.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.



5. Fill the details on the form.
   a. Define a filter by adding conditions that contain a field, operator, and values.

      Use the **Occurrence is** field to define whether the filter applies to the first, last, or all occurrences of this condition.

   b. Use the **Add contextual condition** button to define additional contextual conditions for this filter.

      Use the **and** and **or** buttons to create as many contextual conditions as needed.

   c. Select **Add next step** to define another filter within this chain.

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After creating a filter, a relationship section appears between the two filters. This section defines the relationship between the activities immediately above and below it.

d. Select a relationship between your filters.

- Directly followed by
- Eventually followed by
- Not directly followed by
- Not eventually followed by

e. Select the **Track duration** field.

This field tracks the time between the specified finding steps to calculate the total duration of the finding process, which is displayed on the improvement opportunity.

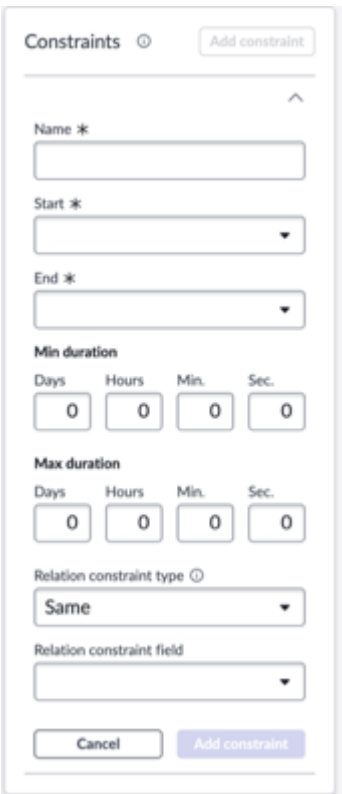
f. Select **+ Add Chain** (on the top right) to create an additional chain of filters.

A chain is a set of linked filters. Create a chain to define a separate set of related filters that must also evaluate to true, but doesn't have a relationship with the filters in another chain. After you create a chain, you can navigate between chains using the **Chain <number>** tabs at the top of the window.

g. Select **Add constraint**.

The constraints panel is displayed to the right. Use the Finding Constraint to set specific conditions between finding definitions steps, such as duration and relation constraints between certain steps, which help narrow down their scope beyond the basic finding rules.

h. Select **Add constraint**, provide all details and select **Add constraint**.



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Field	Description
Name	Name of the constraint
Start	Event that triggers the finding constraint. The options available are the steps provided in the filters.
End	Event that concludes the finding constraint. The options available are the steps provided in the filters.
Min duration	Specifies the minimum duration between when the event defined in the **Start** field and event defined in the **End** field. The event in the **End** field must occur after the amount of time specified in this field.
Max duration	The maximum duration between when the event defined in the **Start** field and event defined in the **End** field. The event in the **End** field must occur before the amount of time specified in this field.
Relation constraint type	Optional constraint conditions to further define when the constraint triggers. **None** No relation constraint **Same** Records must have the same value in a specific field. Specify this field in the **Relation constraint field** field. **Different** Records must have different values in a specific field. Specify this field in the **Relation constraint field** field. **Same user** Start and end conditions must be triggered by the same user. **Different user** Start and end conditions must be triggered by different users. **Same event** Indicates that the start and stop steps are identical, while intermediate steps can differ. This helps identify Ping-Pong patterns, such as A -> B -> A, where only the first and last steps need to match.

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Field	Description
	Different event Indicates that the start and stop steps are distinct from each other, while intermediate steps can vary or be the same. This helps identify sequences where the initial and final activities are not the same, such as A -> B -> C, ensuring that the process begins and ends with different events.
Relation constraint field	Field associated with the relation constraint type. This field appears when **Same** or **Different** is selected in the **Relation constraint type** field. **Note:** The available relation constraint field will appear empty if there are no selections in the **Start Condition** or **End Condition** fields.

6. Select **Save and exit**.

Automated improvement opportunities

Automated improvement opportunities are the improvement opportunities that are available in Process Mining. Set them to understand the improvement opportunities for your process.

Note:
You can have a maximum of 15 automated improvement opportunities for a project.

In Process Mining the following improvement opportunities are available:

Configure ping-pong finding definition

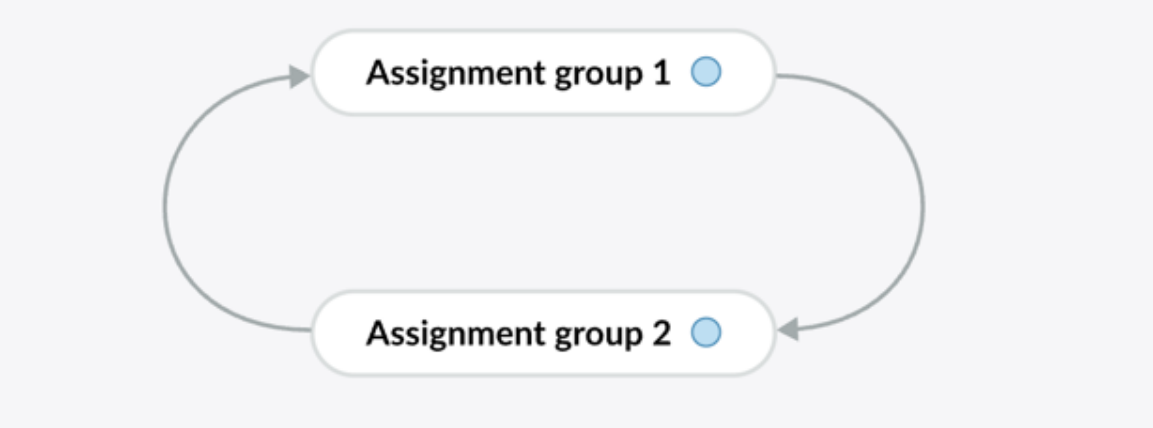
Configure ping-pong finding definitions to view a pattern where a record bounces back and forth between two steps without interruption.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Ping-pong finding definition surfaces areas in the process where records continuously bounce between two steps. Identifying these loops helps determine the necessary improvements.

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Ping pong is seen here between both assignment groups, caused by continuous reassignment

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Ping-Pong card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.

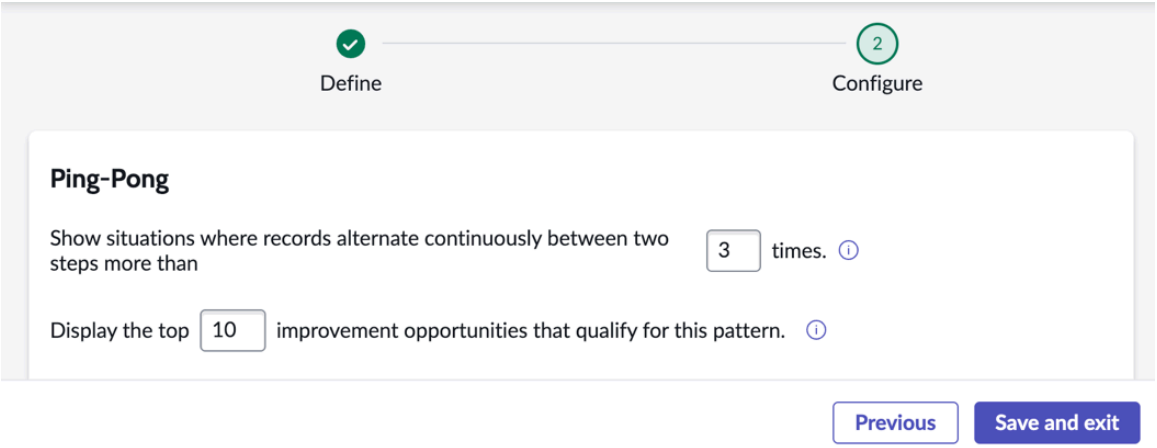
Project Definition form

Field	Description
Name	Specify a name for your automated finding definition.
Pattern type	This field is auto-populated. The automated finding definition that you chose to create is displayed here. You can change it if necessary.
Field to detect the pattern on	Select any field from the table on which you want to detect this pattern. The entire finding definition works on this field.
Category	Specify a category to which the automated finding definition belongs. The available options are: ○ Quality ○ Automation ○ Conformance ○ Performance
Active	Select the field if you want this finding definition to be active. By default, it's selected.
Table	Displays the table name that you have selected. This field is non-editable.

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Field	Description
Apply to process	Displays the table name that you have selected. This field is non-editable.
Impacted KPIs	Select the KPIs most likely impacted by the findings. Choosing the affected KPIs enables you to assess the business impact. You can view the KPI-related findings in the insights panel of the Process Mining workspace.

4. Select **Configure**.
   The **Configure** tab is displayed. Default values are provided. You can edit them if needed.



   According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

   - A record must have the minimum number of 3 uninterrupted repetitions where it alternates between two processes.
   - In the Summary and Insights page, a maximum of 10 improvement opportunities will be displayed.

5. Select **Save and exit**.

Configure extra step finding definition

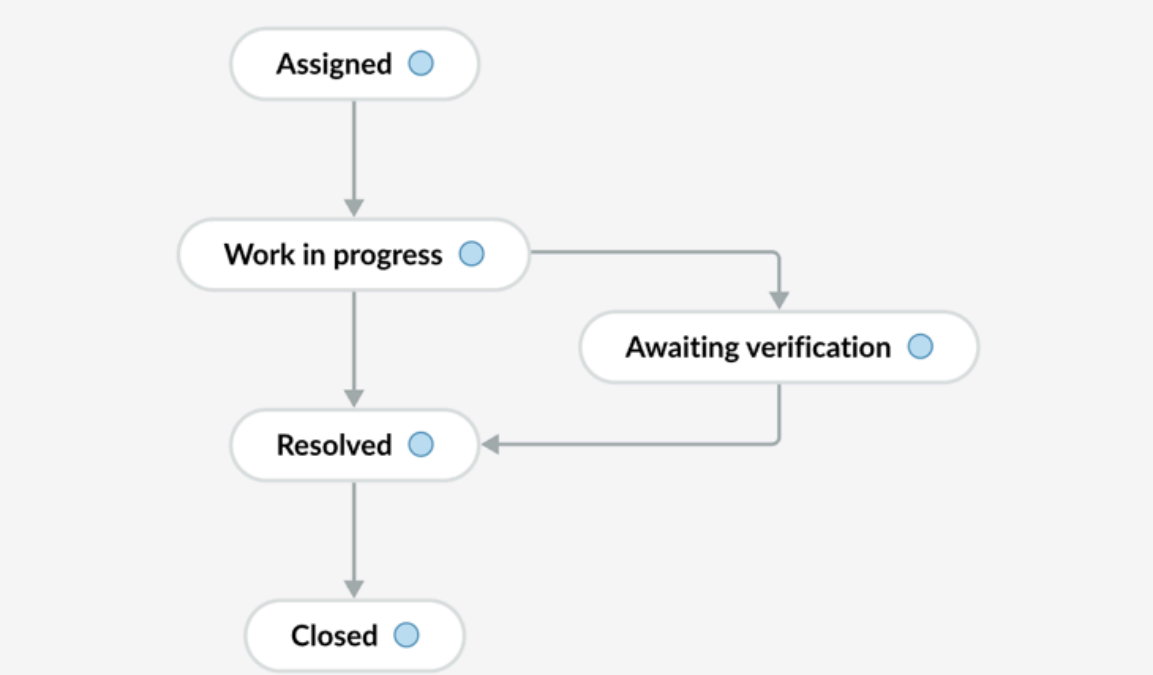
Configure an extra-step finding definition to view a pattern where routes differ by one additional step.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

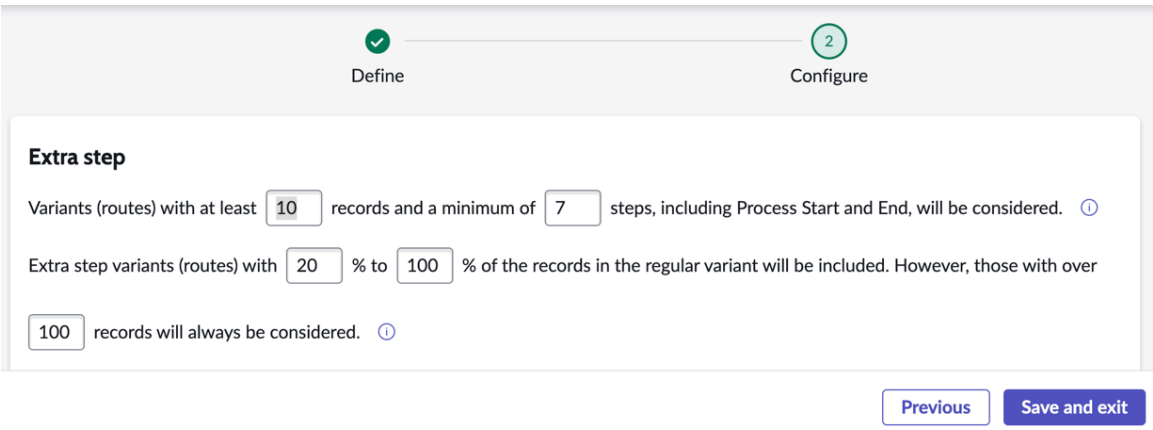
Extra-step finding definition surfaces variants (routes) in the process that differ by only one additional step, which could possibly be automated or eliminated to save time.

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Procedure

1. Navigate to Improvement opportunity definition page.
   For information about Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Extra step card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.
5. Fill the details on the form.
   Default values are provided. You can edit them if needed.



According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

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- Checks for variants (routes) with a minimum of 7 steps to find similar variants with an extra step. The steps include **Process start** and **Process end**. Also, the variants must have a minimum of 10 records.
- Only variants with 20% to 100% of the of the volume of the efficient route will be considered. However, variants with 100 records will always be considered irrespective of the percentage.
- Only top 10 variants will be displayed in the Summary and Insights page.

6. Select **Save and exit**.

Configure slow transitions

Configure a slow transitions finding definition to view a pattern where clusters of records have an unusual duration that's higher than the average duration of another group of records.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Slow transitions finding definition displays clusters of records that have an unusual duration that's higher than the average duration of another group of records. This helps identify slower progression for a significant group of records.

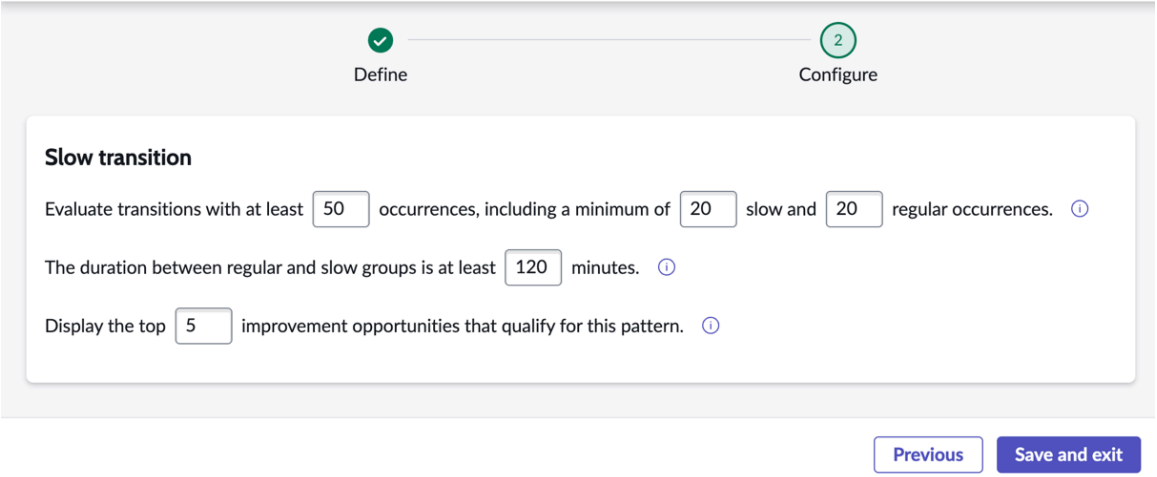


Group B takes longer to transition from "New" to "Assigned"

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about the Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Slow transition card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.
5. Fill the details on the form.
   Default values are provided. You can edit them if needed.

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According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

- The transition should have at least 50 occurrences with a minimum of 20 slow transitions and 20 regular transitions.
- The difference between the shortest transition in the slow transition group and the longest transition in the regular transition group must be at least 120 minutes.
- Only the top five slow transitions are displayed in the Summary and Insights page.

6. Select **Save and exit**.

Configure extreme duration finding definition

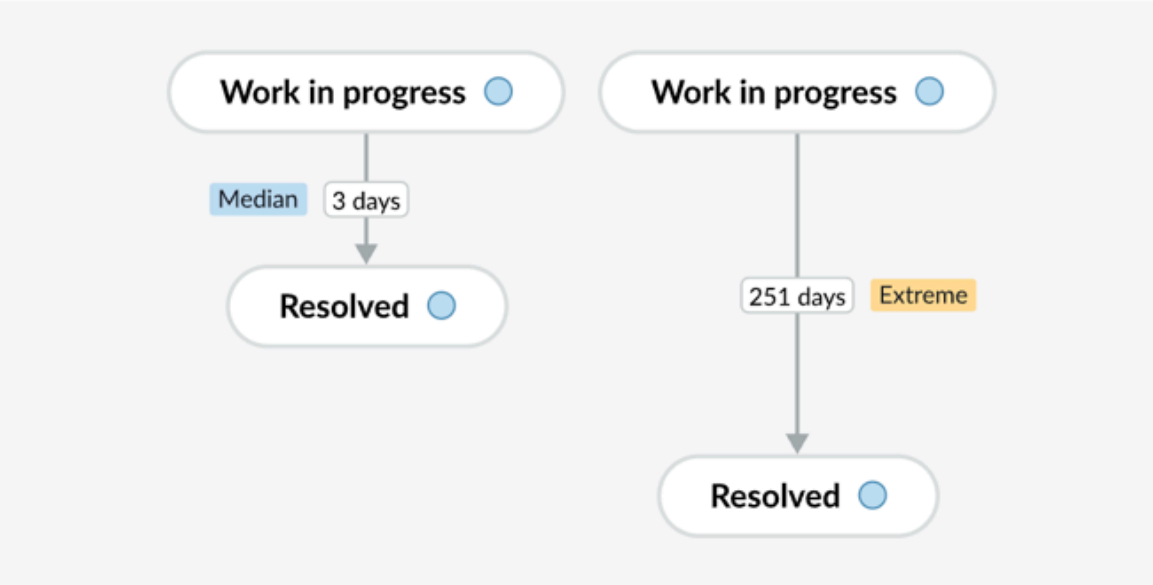
Configure an extreme duration finding definition to view a pattern where transitions take significantly longer than the usual duration between the steps.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Extreme duration finding definition displays transitions that take significantly longer than the median duration. This helps uncover potential duration anomalies.

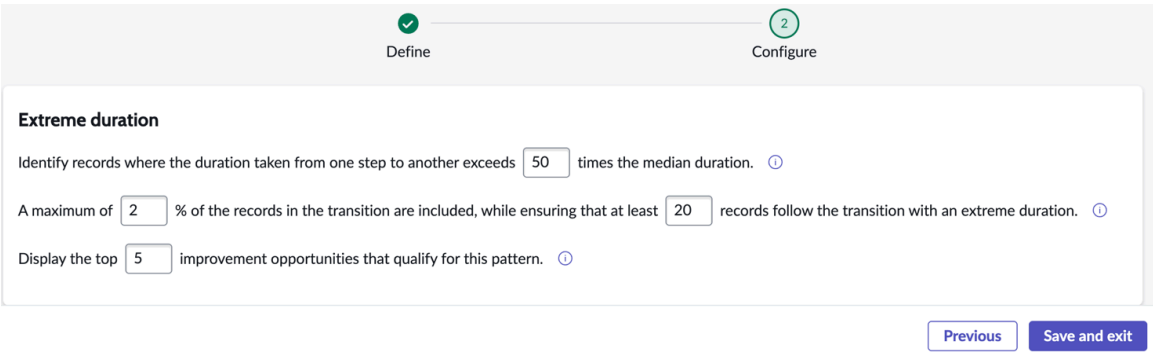
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Right-hand side transition takes significantly longer than the median duration (3 days) to complete

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about the Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Extreme duration card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.
5. Fill the details on the form.
   Default values are provided. You can edit them if needed.



According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

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- Records that take the minimum time, which is the number of times specified multiplied by the median duration.
- Only 2% of the total records will be included so that a large number of records are not displayed. Also, a minimum of 20 records will be considered.
- Only the top five extreme duration transitions are displayed in the Summary and Insights page.

6. Select **Save and exit**.

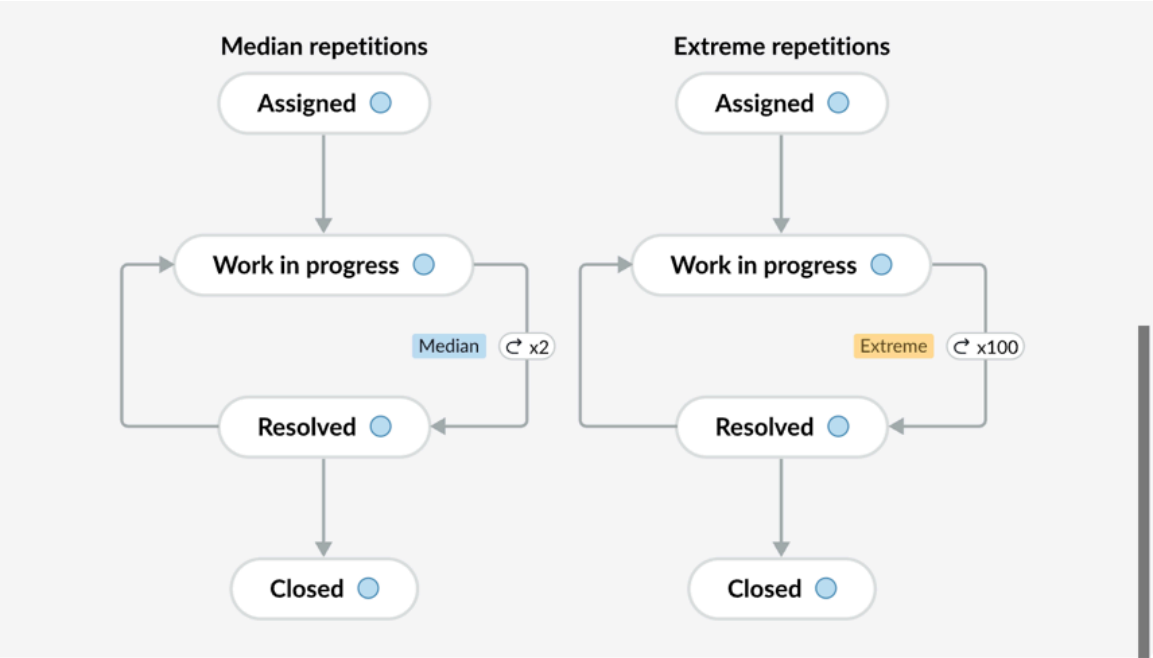
Configure extreme repetitions finding definition

Configure an extreme repetitions finding definition to view a pattern where a transition repeats more than the usual repetition range between the steps.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Extreme repetitions finding definition surfaces transitions that are repeated significantly more than the median repetition. This helps uncover potential repetition anomalies.



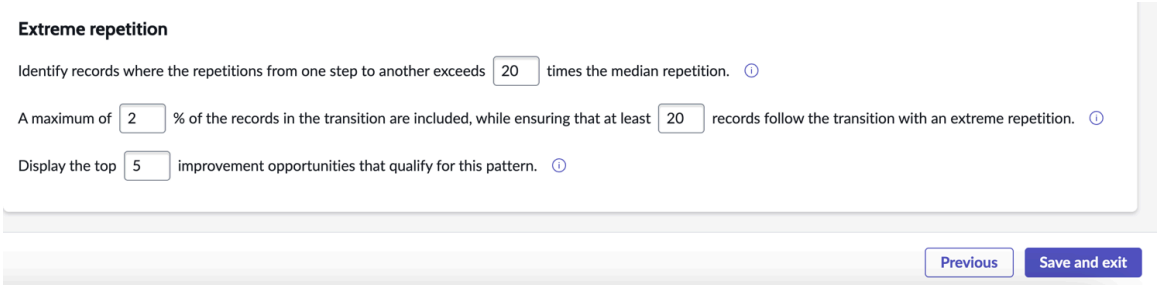
Right-hand side transition between "Work in progress" and "Resolved" occurred significantly more than the median repetition

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about the Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Extreme repetitions card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.

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5. Fill the details on the form.
   Default values are provided. You can edit them if needed.



   According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

   - Records that take the minimum time, which is the number of times specified multiplied by the median duration. In the example, it is 20*median duration.
   - Only 2% of the total records are included so that a large number of records aren't displayed. Also, a minimum of 20 records is considered.
   - Only the top five extreme duration transitions are displayed in the Summary and Insights page as improvement opportunities.

6. Select **Save and exit**.

Configure repeating pattern finding definition

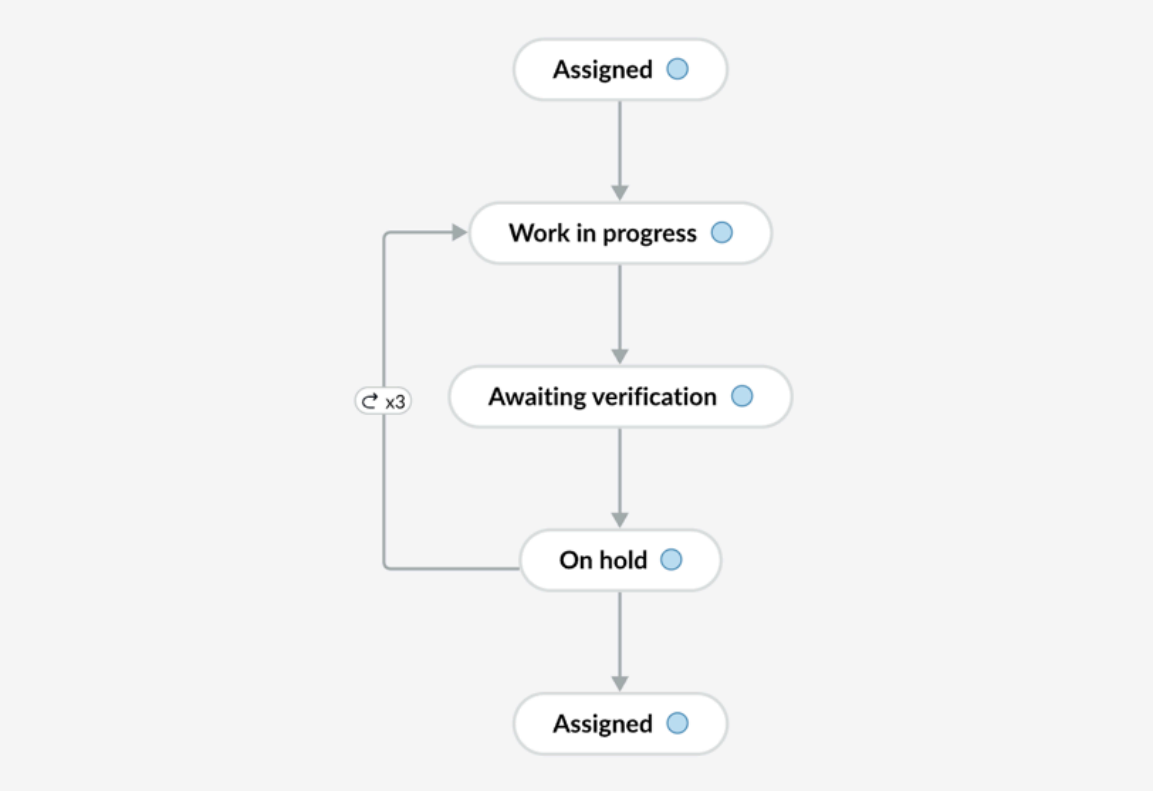
Configure a repeating pattern finding definition to view a pattern with a series of repeating sequence of steps.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Repeating pattern finding definition displays the repetition of a specific order of steps. This brings the focus to the areas where you want to improve or automate certain parts or the process that are revisited.

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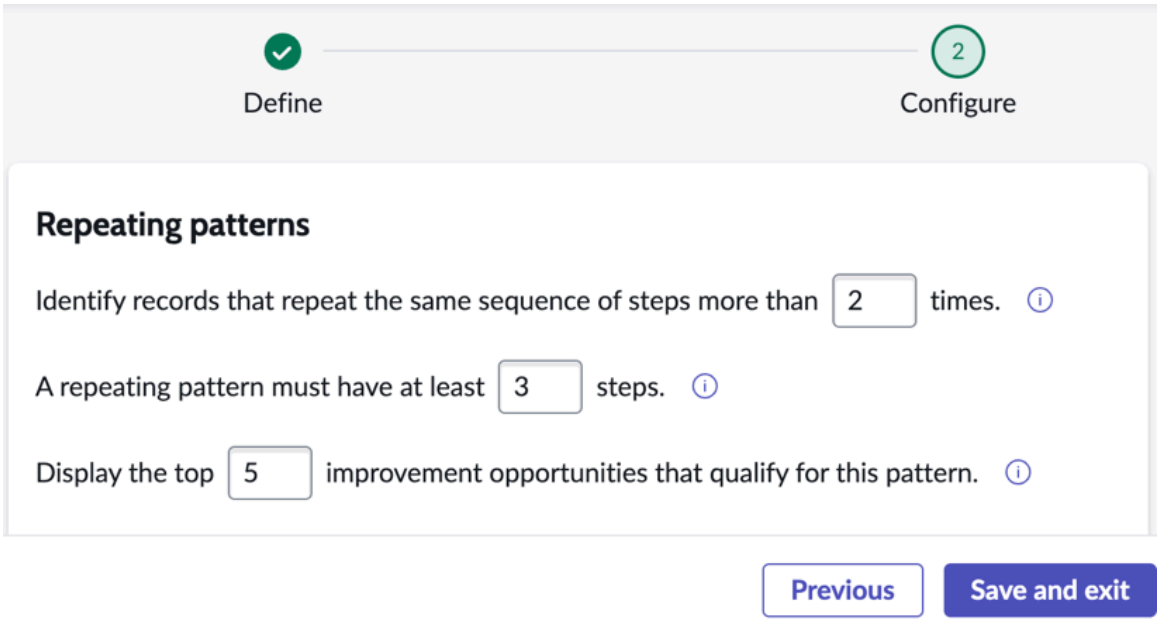


"Work in progress", "Awaiting verification", and "On hold" were executed multiple times

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about the Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the Repeating pattern card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.
5. Fill the details on the form.
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According to the example, records that meet the following conditions will be available as improvement opportunities in the Summary and Insights page:

- A record must be repeated at least 2 times.
- The repeating pattern must have at least 3 steps.
- Only the top 5 repeated patterns are displayed in the Summary and Insights page.

6. Select **Save and exit**.

Configure rework finding definition

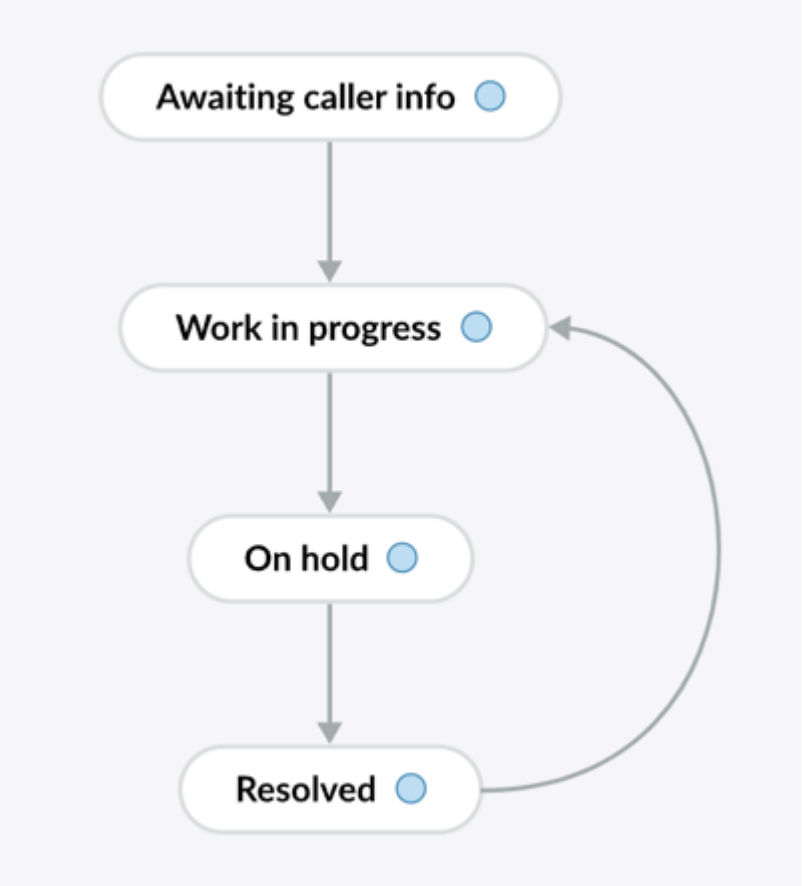
Configure a rework finding definition to view a pattern where a step in the process is repeated.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Rework finding definition displays repeated process steps. This helps in identifying situations where there could be frequent repetition of work.

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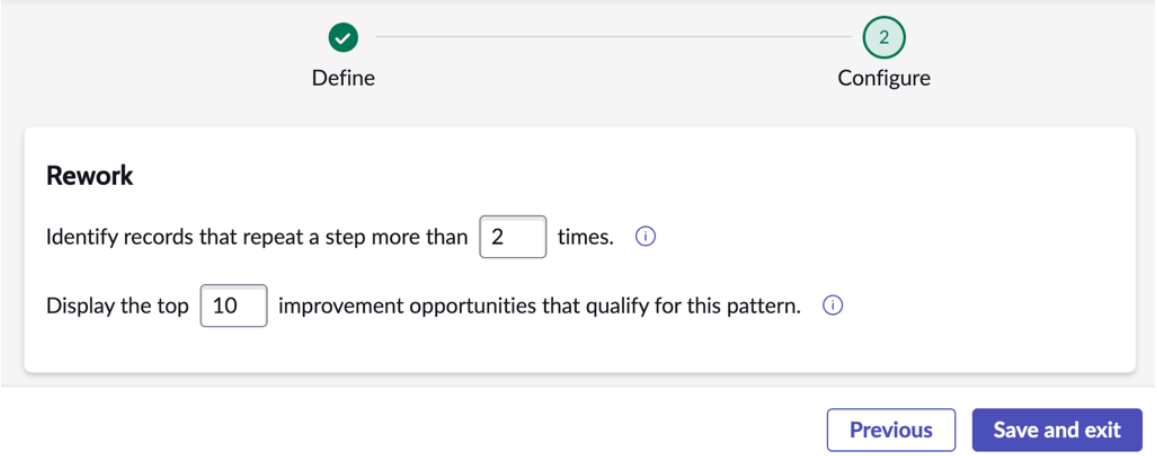


"Work in progress" has been revisited

Procedure

1. Navigate to Improvement opportunity definition page.
   For information about the Improvement opportunity definition page, see Set improvement opportunities.
2. Select **Create** on the rework card.
   For a particular type of automated finding, you can create a maximum of two automated findings.
3. Provide details in the **Define** section.
   For details, see Rule-based finding definition form from Finding Builder.
4. Select **Configure**.
   The **Configure** tab is displayed.
5. Fill the details on the form.
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According to the example, records that meet the following conditions are available as improvement opportunities in the Summary and Insights page:

- A record in which one step is repeated more than 2 times.
- Only the top 10 records are displayed in the Summary and Insights page.

6. Select **Save and exit**.

Set improvement opportunities from Summary and Insights page

Set improvement opportunities from the Summary and Insights page to configure improvement opportunities for the project.

Before you begin

- You can create one configuration per table for each project based on a process.
- You can create a rule-based finding definition from the Process Configurations page or the Projects page.
- Role required:
  - The sn_process_optimization_admin and sn_process_optimization_power_user roles can create a finding definition for a project.
  - The sn_process_optimization_analyst role can view a finding definition for a project, but can't create, edit, or delete a definition.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select a project.
   Ensure that the project has improvement opportunities set.
3. Select the **Change the configuration** link on the **Opportunities** section.
   The **Improvement Opportunities** page from project Builder is displayed.
4. Select **New**.
   The **Improvement Opportunity definition** page is displayed.
5. Select **Create** on a card to create an improvement opportunity of that type.

   For information on rule-based improvement opportunities, see Set rule-based improvement opportunity.

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For information on automated improvement opportunities, see Automated improvement opportunities.

Note:
You can have a maximum of 15 automated improvement opportunities for a project.

Analyzing and getting process insights

Visualize and analyze your business flows from automated process data, and act on those insights.

Summary and Insights page

In addition to having a visualization of your process, you can also see interesting facts which can help improve it. Process Mining uses rules and cluster analysis of connections, activities, and routes to deliver these calculated insights to you. From the Summary and Insights page, you can access statistically relevant findings on such metrics as speed, quality, and cost impacts to your business. You can view an overview of the improvement opportunities as well as a detailed report. You can also create a new finding rule for the project from here.

Analyst Workbench

To better analyze your business process, refine the process map generated from your project data. You can refine a map from the Analyst Workbench. From the workbench, you can further analyze two projects side by side, collaborate on improvement initiatives, and view metrics.

Note:
The Analyst Workbench can be accessed only after a project has been configured and its data generated into a process map.

From either the page or workbench, you can perform such tasks as cluster and process analyses.

Related topics

Create a project or template using Project Builder

Viewing business insights

View key information about your business process from the Summary and Insights page. See goals and performance indicators, and get insights on the improvement opportunities.

The Summary and Insights page shows opportunities for optimizing your process. You can see the following snapshots.

- Met or unmet goals and KPIs
- Improvement opportunities overview
- New improvement opportunities

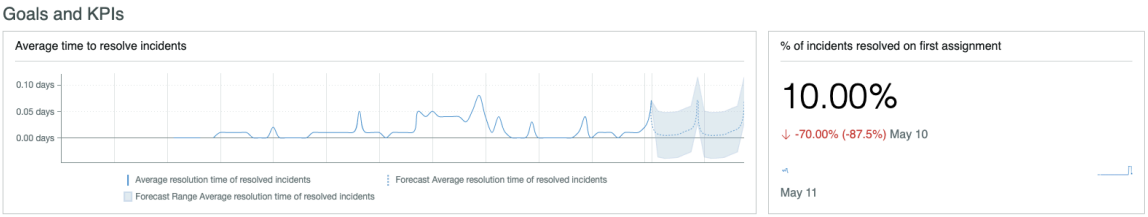
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Goals and KPIs

> **Note:**
> The Goals and KPIs section is available with the integration of Performance Analytics.

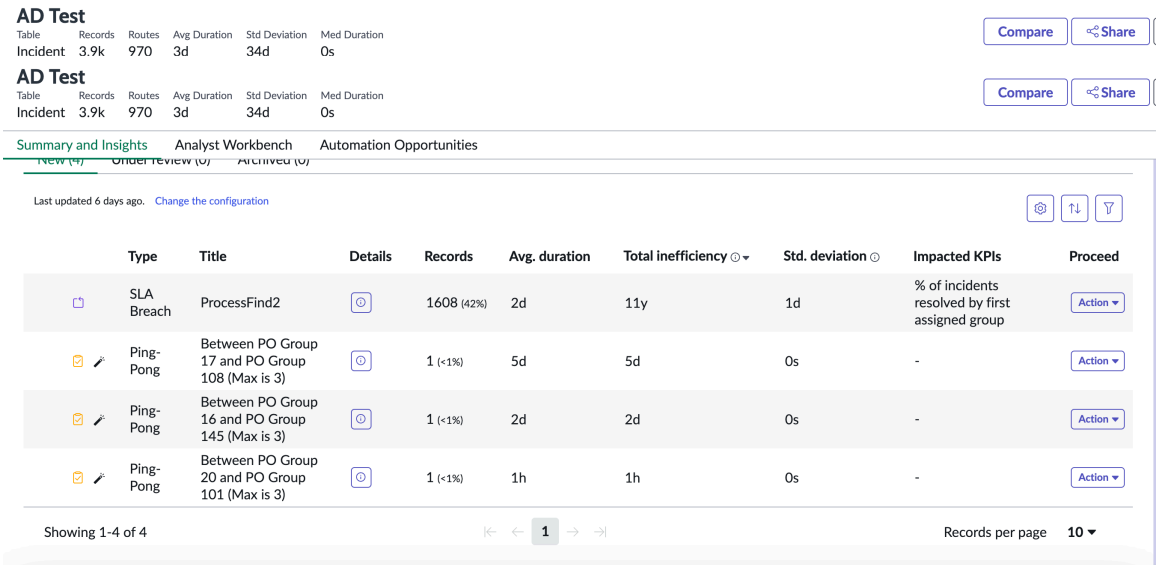
The Goals and KPIs section is configured from the UI Builder.

From the Goals and KPIs section, choose a visualization to analyze indicator details more closely from the KPI Details view. KPI Details shows you trends, predictions, breakdowns, and associated records for a specific indicator. The KPI Details page leads you to deeper information behind your key performance indicators.



Improvement opportunities overview

From the Improvement opportunities overview section, you can see opportunities sorted by category, type, and KPIs in three different cards.



The rules that you configure discover business findings. For example, you might configure rules which show:

- records that went directly into a Closed or Resolved state
- reworked records with solutions that customers didn't accept, or whose states changed from 'Resolved' to 'Work in progress' status.
- wrong or many group assignments

Select a combination of these insight categories to show on the dashboard.

- Quality
- Performance
- Conformance

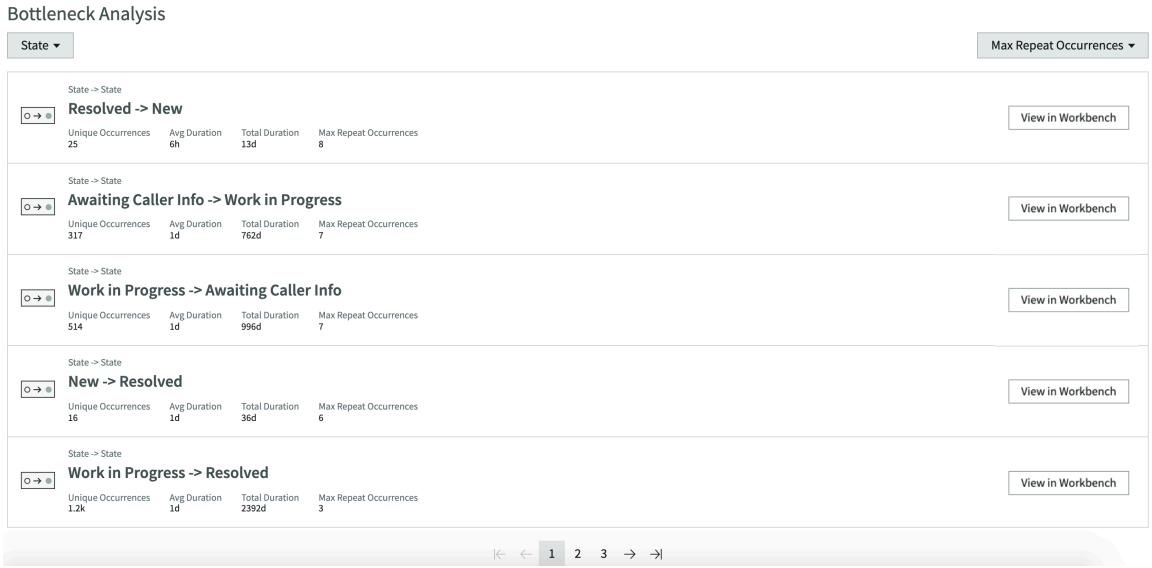
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From each insight, you can request or view a completed cluster or process analysis, then view from the workbench the completed cluster or model.

To generate a project for a selected insight, select on the card to get to the Analyst Workbench for the card data. When the project becomes available to view, select **View Process analysis**.

Bottleneck Analysis

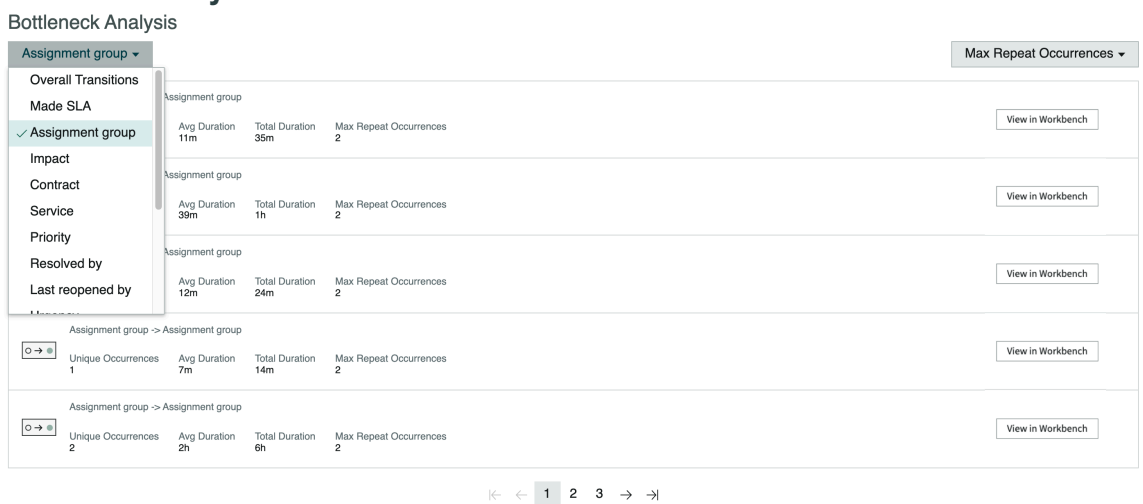
From the Bottleneck Analysis section, you can see identified bottleneck sources discovered in your process records.



Select a breakdown to refine the routes list, then sort the list by:

- Unique Occurrences
- Total Duration
- Avg Duration
- Max Repeat Occurrences
- Total Occurrences

Bottleneck Analysis - Breakdowns

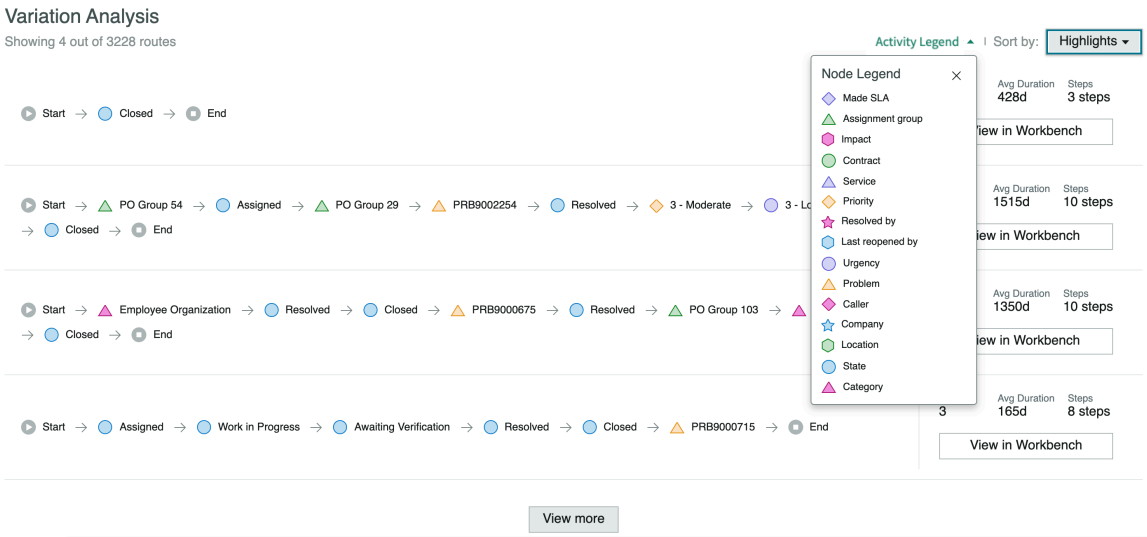


Select **View in Workbench** to view the project for the selected transition.

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Variation Analysis

All routes for a process show in the Variation Analysis section. You can sort the order for routes by highlights, number of records, average duration, or steps.



Select **View in Workbench** to view the project for an individual route.

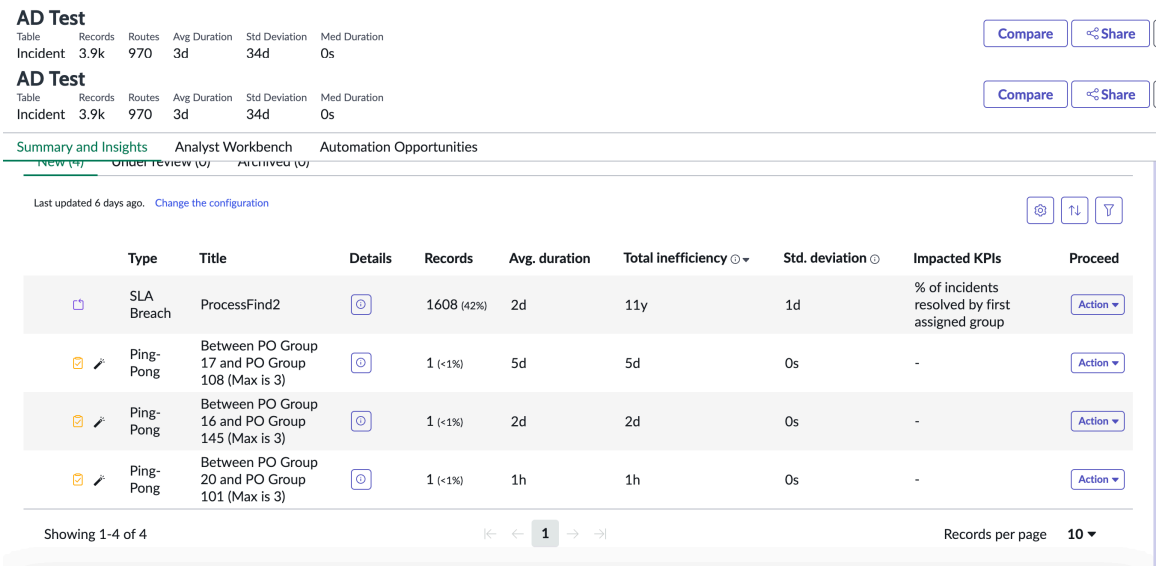
Related topics

KPI Details

Working with finding definitions

Use finding definitions to deliver discovered insights to your Summary and Insights dashboard.

Finding definitions display information gathered in Process Mining projects. These appear as a list within your Summary and Insights page. Use this information to see key information about your business processes and get insights on bottlenecks, route variation, and more.



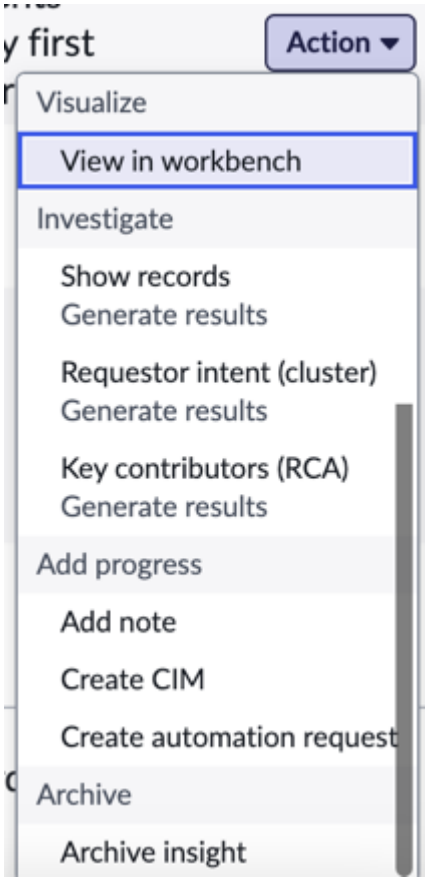
- To create a new finding definition, select **Change the configuration** link.

  For information on creating finding definitions, see Configuring improvement opportunities.

- Select  to hide or show columns.

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- Select ⇅ to sort the columns.
- Select ▽ to filter the list of findings.
- Select **Action**, and select any item from the list to see more details.



Select view for a graph

Choose to view the graph from the perspective of any one activity definition or all activity definitions set for the project.

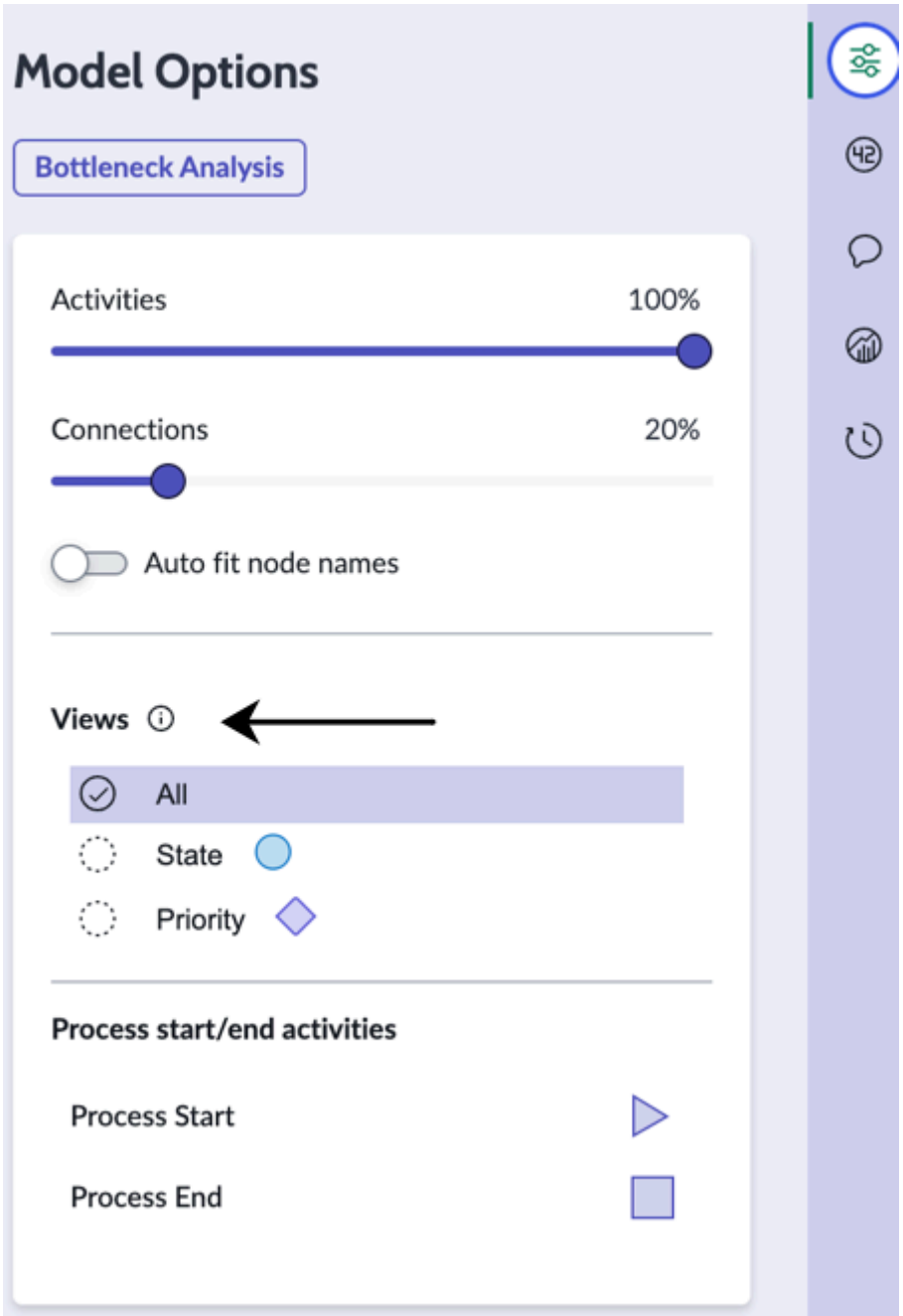
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select a project.
3. Select the **Analyst Workbench** tab.
4. Select Model Options (⚙) from the right bar.
5. From the **Views** area, select **All** or any one of the activity definitions.

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6. Select **View result** after the scheduled task is complete.

Result
The graph will display all data for the selected activity definition.

Refining a process map

View your visualized workflow project for insights and improvement opportunities in your business process.

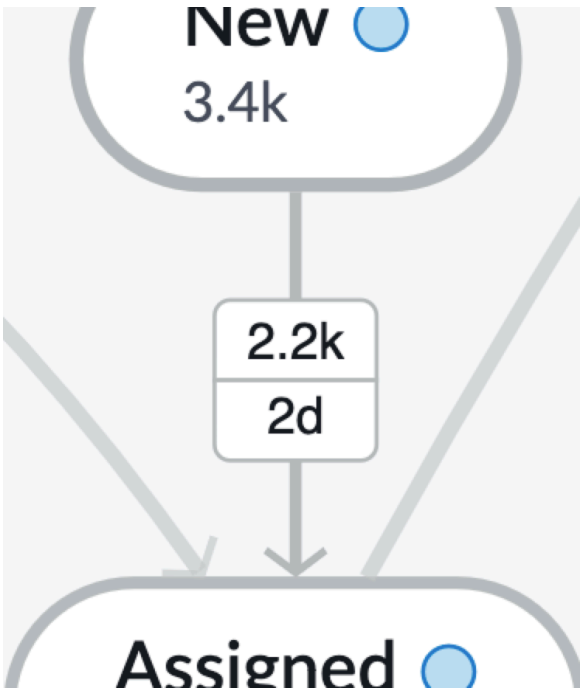
The visualized process map helps you see data that is specific to a problem. Within the map, you can drill down to understand the root causes. Also display routes according to the KPIs you want to view or measure.

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Note:
You can reproduce most of the functionality of a process map in a dashboard on a configurable workspace. For more information, see Configure a Process Mining map on a dashboard.

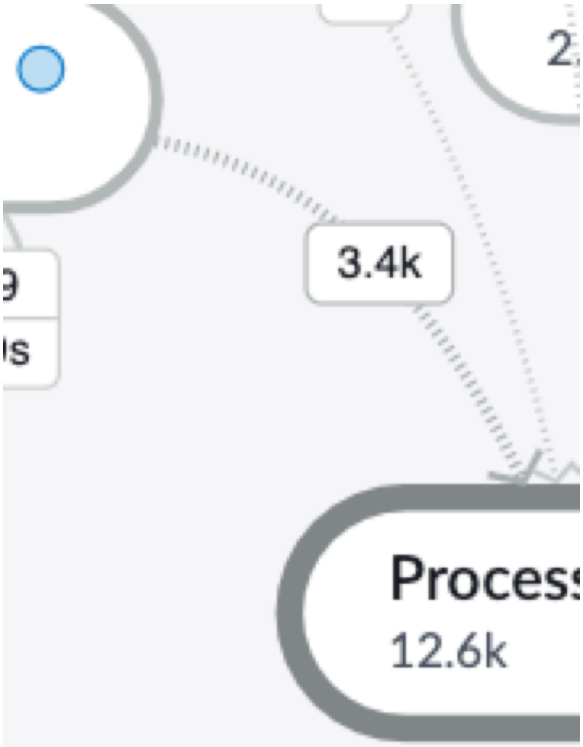
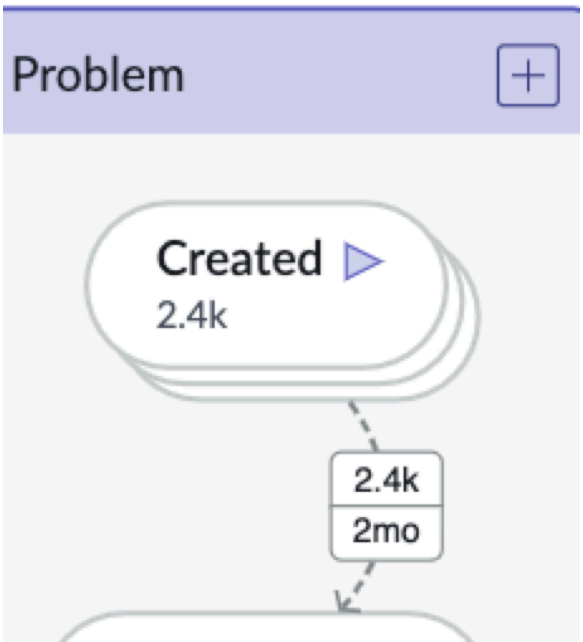
- Use the activity and connection sliders to focus on the process steps which occurred most frequently. You can also include steps which occurred at lesser frequencies.
- Move an activity to a different position on the map workspace.
- Slide a metric number along a connection to improve the visual display.
- Select an activity or connection to view metric details.

Activity and connection sliders

Example	Definition
	Regular node transition line presenting minimum one and maximum two performance metrics. The following performance metrics can be shown: • Total occurrences • Unique occurrences • Minimum duration • Maximum duration • Avg duration • Total duration • Standard deviation • Median duration
	The inter-model transition slider shows the number of transitions hidden in the graph. Users can select on the inter-model transition line to change the % of transitions within the graph show. One line per parent-child relation is shown.

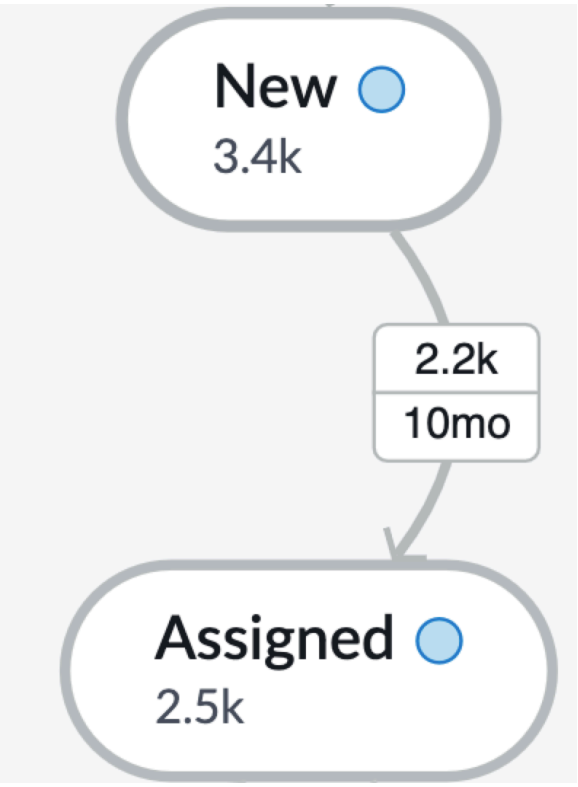
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Activity and connection sliders (continued)

Example	Definition
	Artificial lines help the user to understand from which nodes the process ends. Multiple artificial lines from different nodes to process end per entity can occur.
	The dashed line shows that the entity is collapsed. The line will disappear when the user expands the entity by selecting the + icon.

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Activity and connection sliders (continued)

Example	Definition
	The direction of the arcs show the sequence of the activity occurrence. For example, for 2.2k records, state New occurs on average 10 months before they moved into the state Assigned.

Filtering project data

Apply filters to refine and drill into specific aspects of your process map.

Process Mining has these filtering tools for refining a process map, accessible from the **Filters** tab and the process map.

Filters tab

- Breakdown filters - Show records grouped by category.
- Conditions - Use the condition builder to filter by table field conditions.
- Transitions filter - Filter by activity conditions to see routes that transitioned through an activity.

Process map

- Metrics filter - Show your selected metrics on activities and connections.
- Activities and Connections filters - Use sliders to view more or less activities or connections.

Apply a breakdown filter

Filter analyst workbench projects that you create, shared with you or all.

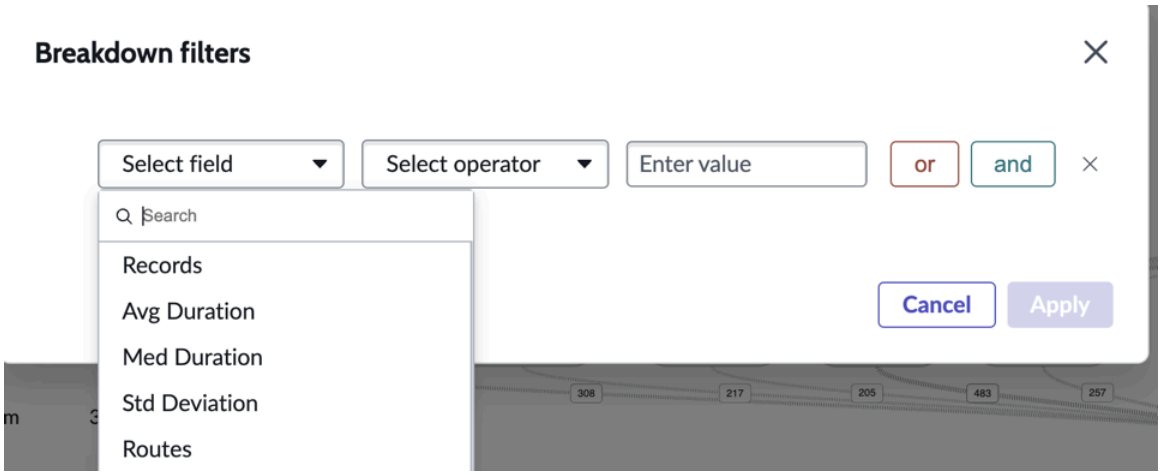
Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

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Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select a project.
3. Select the **Analyst Workbench** tab.
4. In the **Breakdown Filters** section, select the filter icon .

   The Breakdown filters window is displayed.



5. Specify the filter, and select **Apply**.

Create a filter set

Create a filter set to be able to apply your current filter selections to the same process map later.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Apply a breakdown or advanced filters.
2. From the **Filters** tab, select **Save as set**.
3. Name the filter set, then select **Save**.

Result

The Filter set list contains the new filter set.

Update a filter set

Edit any saved filter.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. From the **Filters** tab, select the Filter set list.
2. Select a saved filter set to apply to your process map.

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3. Add any breakdown or advanced filter changes.
4. Select **Apply** if needed, then select **Update filter set**.
5. From the Update filter set dialog that displays, confirm the changes you want, then select **Save**.

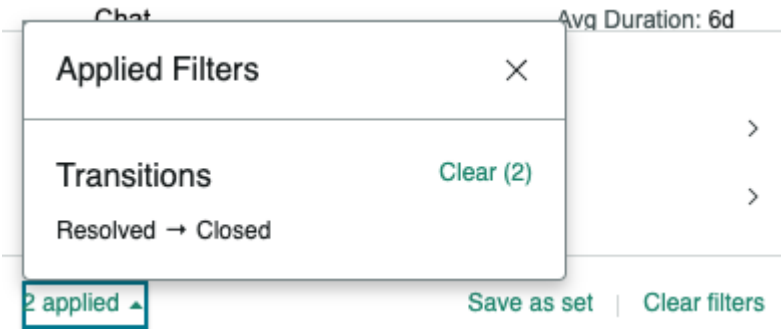
Result
The filter set is updated.

Clear filters

Remove applied filters.

Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

As you add filters from the Filters tab, a list of selected filters shows you new values currently selected but not yet applied. The Applied filters list also shows currently applied filter values and the panel categories they were added from.



Procedure
1. Navigate to the **Filters** tab.
2. Select the applied filter list.
3. Select **Clear** next to individual applied filters that you want to remove.
   To clear all currently applied filters, select **Clear filters**.

Result
The process map automatically refreshes with previously applied filters removed.

Delete a filter set

Delete a filter set when it's no longer useful for your project.

Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure
1. From the **Filters** tab, select the Filter set list.
2. Select the trash icon next to the filter set you want to delete.
   The filter set is deleted.

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Apply a transition filter on an activity

Activity transitions filtering enables you to get closer views of the different routes that records go through.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Use transition filters to filter records for executed workflows that transition through specified activities. This helps you investigate corresponding values more closely.

Tip:
Process Mining analyzes completed, non-active workflow items. However, you may find that your data consists of incomplete records that were active at the time the data was mined. In addition to selecting a date-relevant condition such as 'Closed on' when defining a project, use the Transitions filter to remove incomplete records.

About this task

You can apply a transition filter in two ways:

- By creating a specific condition manually
- By applying transition filter on a pre-defined filter

Create a transition filter manually

Create a transition filter to meet your needs and apply it to view the result on the process graph.

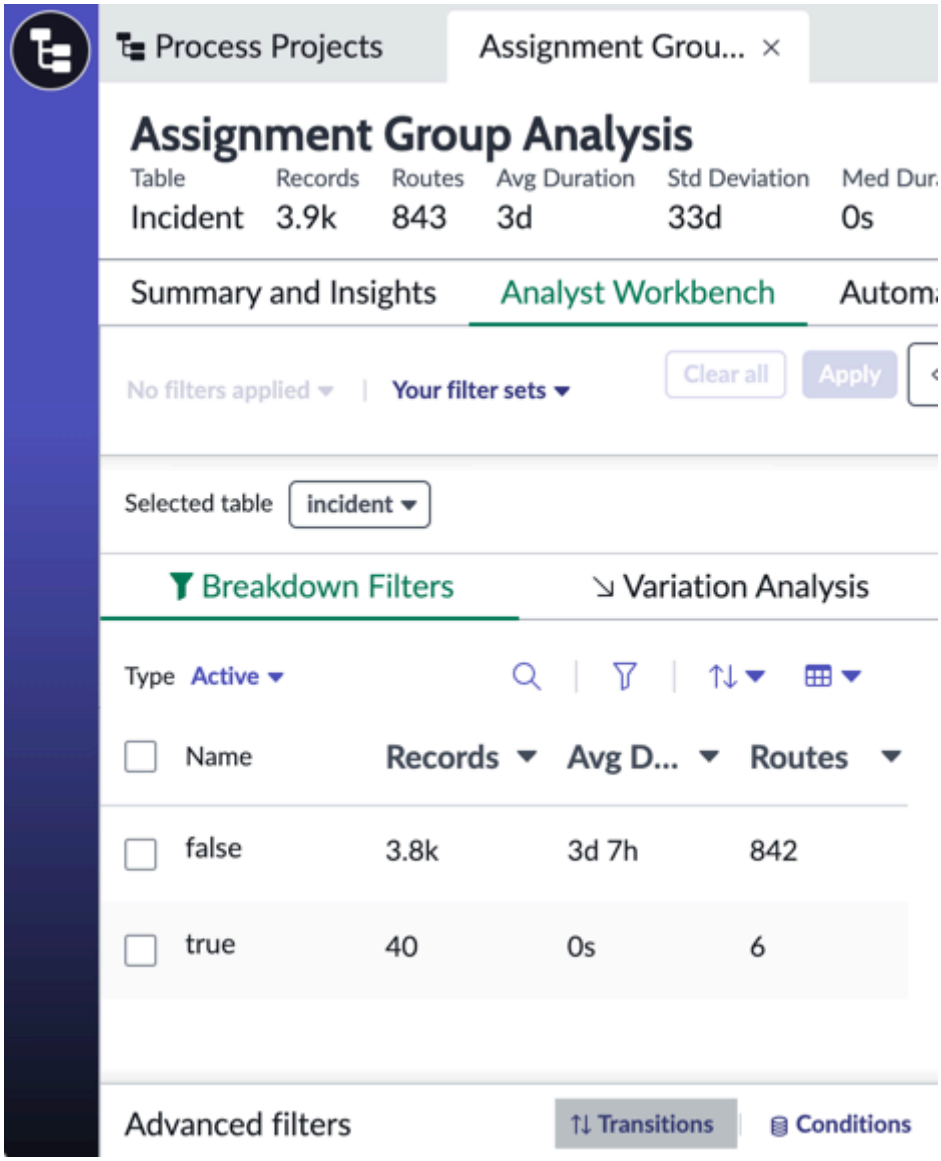
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

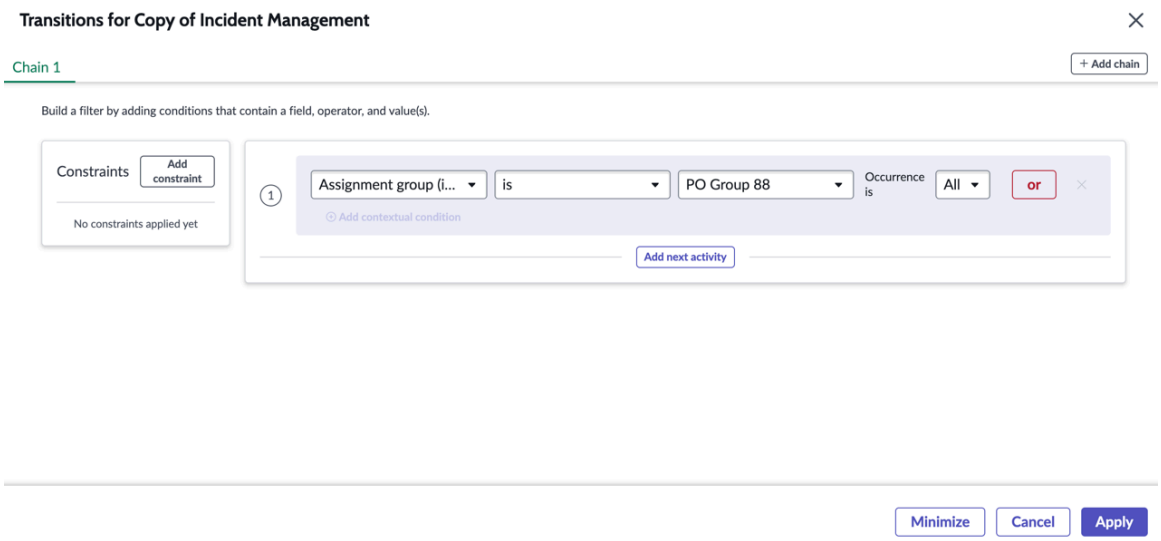
1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Open a project for which you want to set the transition filter.
3. Go to the **Analyst Workbench** tab.
4. Select **Transitions** from the Advanced filters area.

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The transition filter form is displayed.

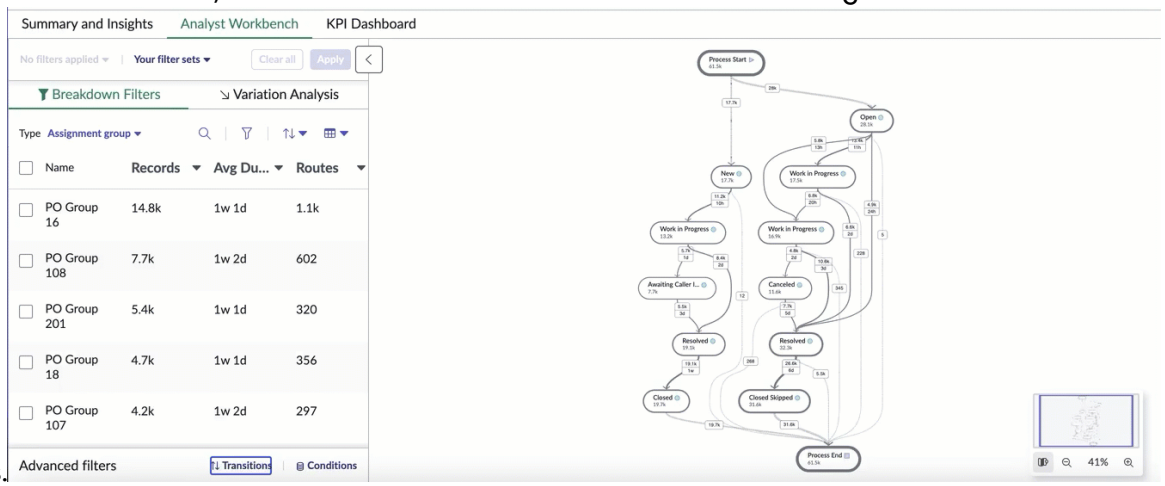
5. Fill the transition filter form with the required conditions.



The predicates available are:

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- is
- is not
- is empty
- is not empty
- is anything
- is one of: When you select "is one of", you can select multiple values at once. Type the first two letters, and select the **Select all** icon to select all matching values.



Note:
OR condition can be used only for conditions within the same entity. (State (incident) is Work in progress OR Assignment group (incident) is database).

a. Define an activity by adding conditions that contain a field, operator, and values.
Use the **Occurrence is** field to define whether the filter applies to the first, last, or all occurrences of this condition.

b. Use the **Add contextual condition** button to define additional contextual conditions for this activity.
Use the **and** and **or** buttons to create as many contextual conditions as needed.

c. Select **Add next activity** to define another activity within this chain.
After creating a new activity, a **Relationship** section appears between the two activities. This section defines the relationship between the activities immediately above and below it.

d. Select a relationship between your activities.

- Directly followed by
- Eventually followed by
- Not directly followed by
- Not eventually followed by

e. Select ( ) next to **No constraints added** text to edit constraints for this relationship.
After creating a constraint, you can select ( ) to minimize the constraint editor.

f. Select **+ Add Chain** (on the top right) to create an additional chain of activities.

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A chain is a set of linked activities. Create a new chain to define separate set of related activities that must also evaluate to true, but does not have a relationship with the activities in another chain. Once you create a new chain you can navigate between chains using the **Chain <number>** tabs at the top of the window.

g. When you have finished creating your filter, select **Apply** to save and return to the **Analyst Workbench**.
The task runs in the background.

6. When the task completes, select **View result** in the Scheduled tasks panel of the Analyst Workbench.

Edit a transition filter

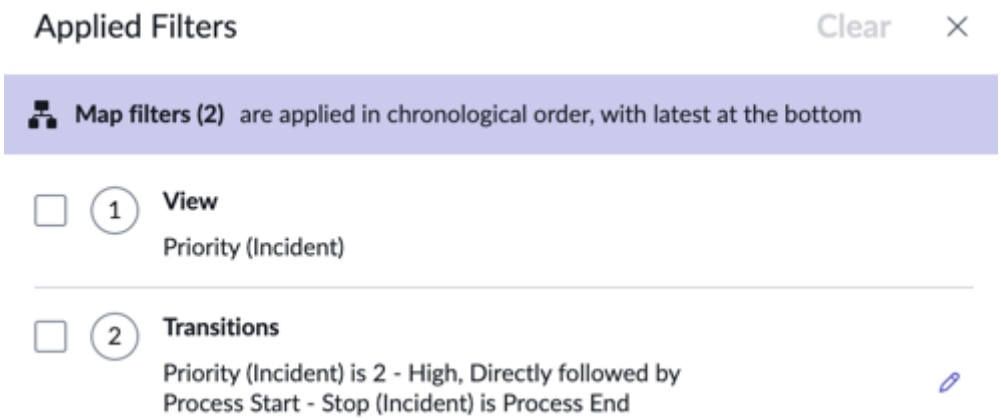
Edit a transition filter if you want to make any changes to it.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Open a project for which you want to set the transition filter.
3. Go to the **Analyst Workbench** tab.
4. Apply filters including a transition filter in between.
For information about how to apply filters, see Create a transition filter manually.
5. Open the **Applied Filters** list.



6. Select the edit icon ( ) beside the transition filter.

Note:
You will be able to edit the transition filter only using the fields in the View on which the filter is applied.

The transition filter form is displayed. For information on the form, see Create a transition filter manually.

7. Edit the filter as required.

Apply transition filter on a pre-defined filter

Apply a transition filter on a selected node or connection.

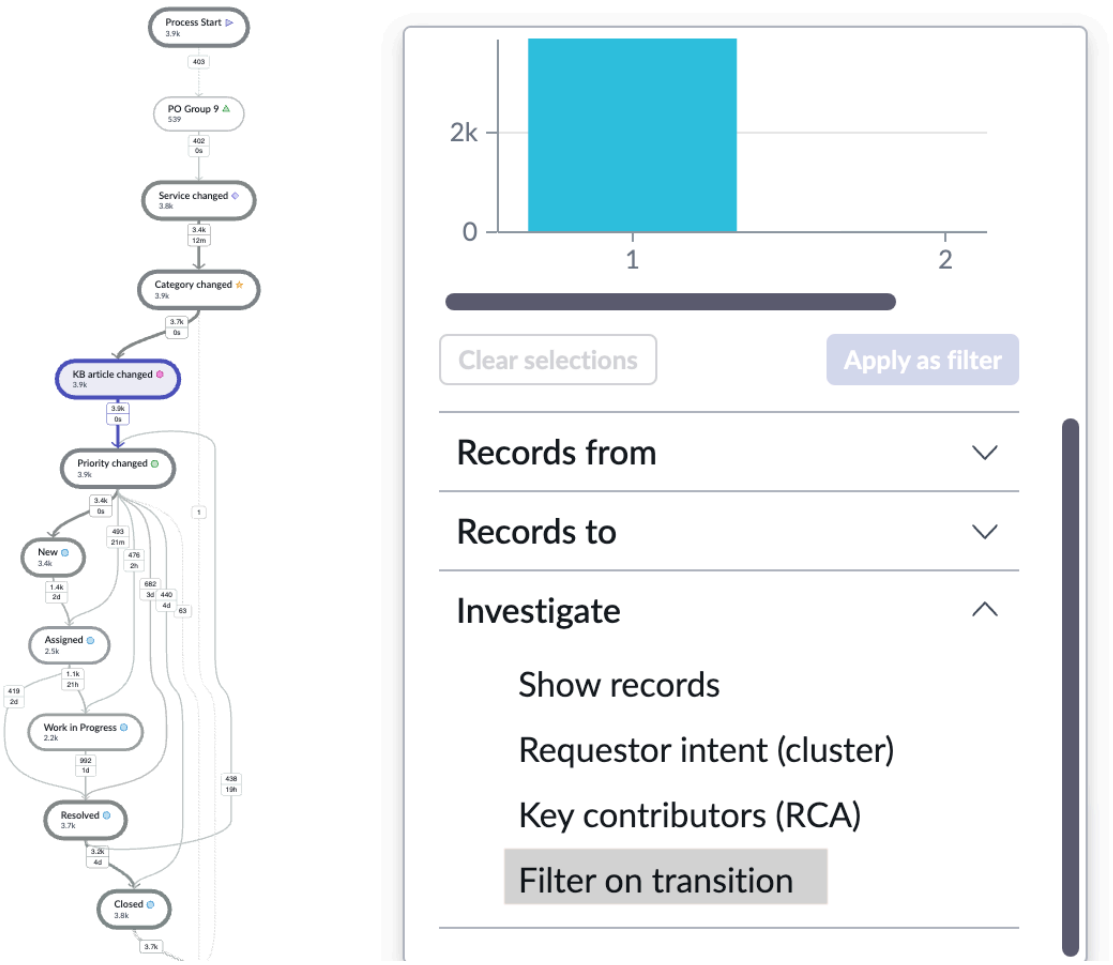
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Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Open a project for which you want to set the transition filter.
3. Go to the **Analyst Workbench** tab.
4. Select a node or connection on the graph.
   The Metrics window is displayed.
5. Select **Investigate > Filter on transition** from the Metrics window.



   The task runs in the background.

6. When the task completes, select **View result** in the Scheduled tasks panel of the Analyst Workbench.

Apply metrics

Refine your project visualization to show the KPIs and metrics that are more relevant to your process goals.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

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Note:
Duration metrics do not apply to activities, so aren't displayed for them.

Procedure

1. From the process map screen, select from the list the **Primary Metric** you want the map to show.

2. **Optional:** Select a **Secondary Metric** to show.

Result

The process map automatically refreshes showing the metric selection. The numbers on the metrics box ( ) on a route correspond to the metrics you selected.

Filtering activities and connections

Focus in on how activities relate to your process by refining the activities and connections views.

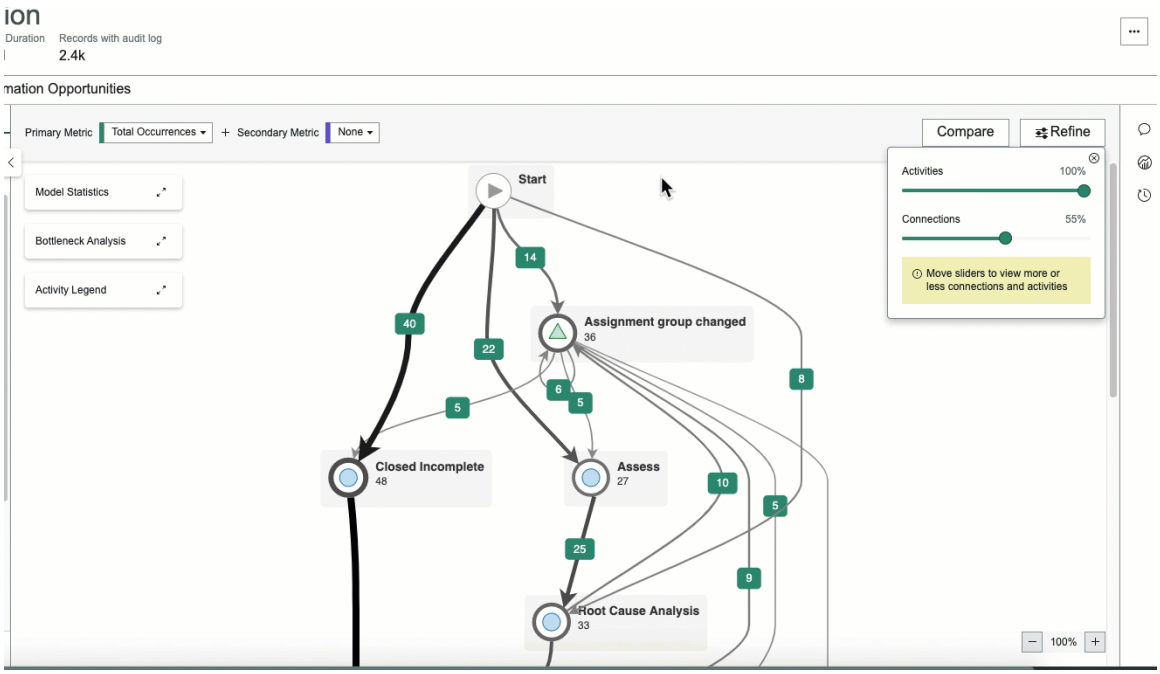
From the process map screen, you can choose to show more or fewer variances relevant to activities by moving the activities and connections sliders.

Use the Activities slider to zoom in on records that pass a certain activities more or less often than a certain threshold.

Use the Connections slider to zoom in on a lower limit of records which followed an activity sequence within routes.

Note:

- Process Mining generates a limit of 5000 elements per defined activity.
- If you slide both the Activities and Connections sliders to their maximum ranges, process map rendering may be impacted. To optimize the map's rendering, configure the project to group more of the activities that are defined. See Configure an activity definition.



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In comparing connections for various routes in the process map, you will see that they may have different widths. The widths correspond to a smaller or larger number of records that followed a connection or route.

Set data filter and map filter

Set the data and map filters to focus on the data as per your requirement.

Before you begin

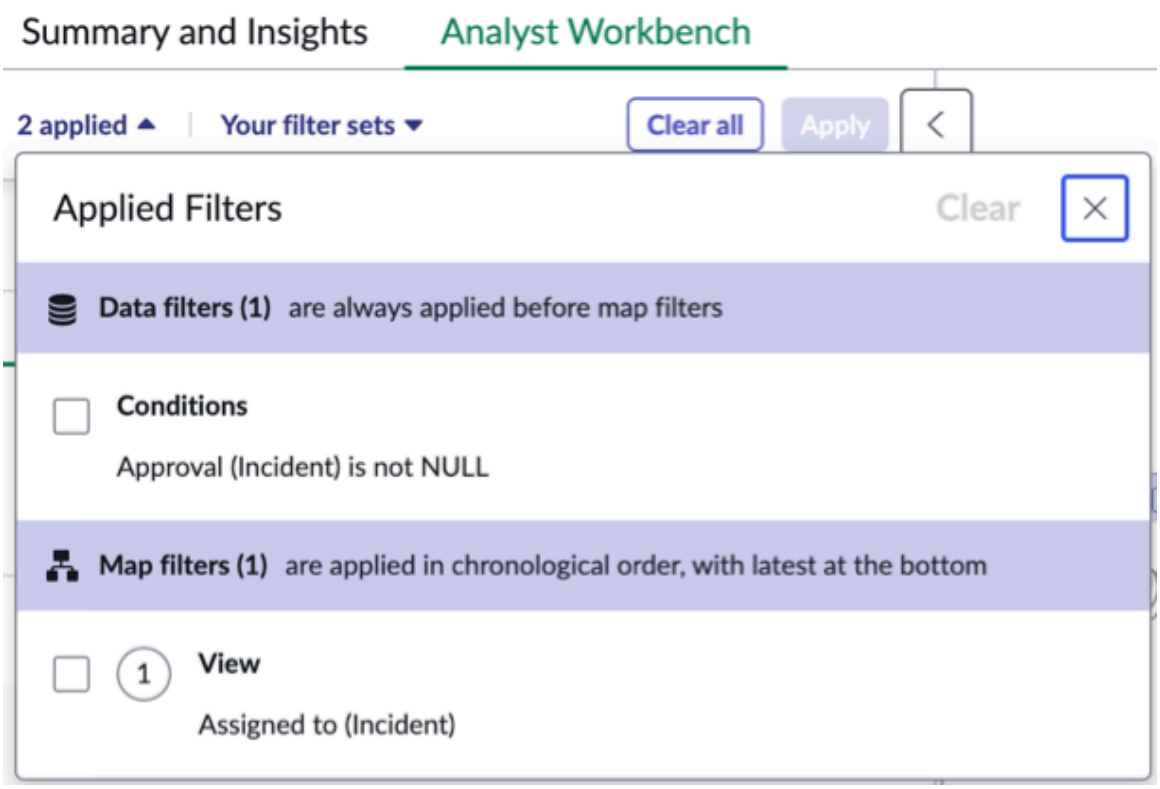
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

There are two types of filters:

- Data filters: Data filters are always applied before map filters. They can be applied in any order and the result will not change. They are unordered. All advanced data filters, breakdown filters, variant filters, findings, and Automation Discovery filters are listed as data filters.
- Map filters: Map filters are applied in chronological order, with latest at the bottom. They are ordered. All transition filters, repetition filters, View and Crop conditions are listed as map filters.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. Select a project.
3. Select the **Analyst Workbench** tab.
4. In the filters list, you see the filters that are applied to the project.



5. Select any filter, and select **Clear** to remove the filter.

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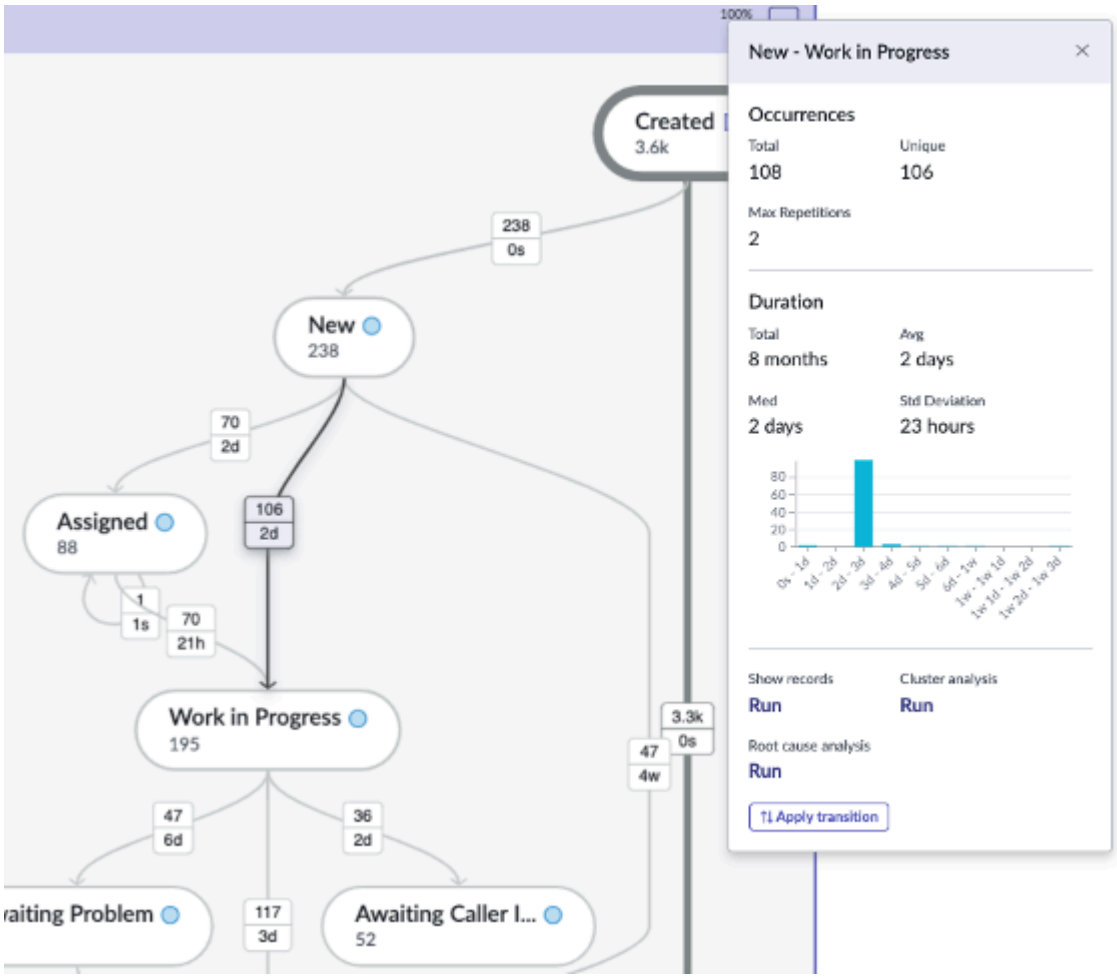
Viewing metrics and activity transitions

View metrics and activity transitions you have defined.

View metrics

View your selected metrics, or the full list of metrics for an activity or connection. The metrics box ( ) on a route shows the primary and secondary metrics selected to show on the process map.

Select an activity or connection to see a full list of metrics.



Viewing activity transitions

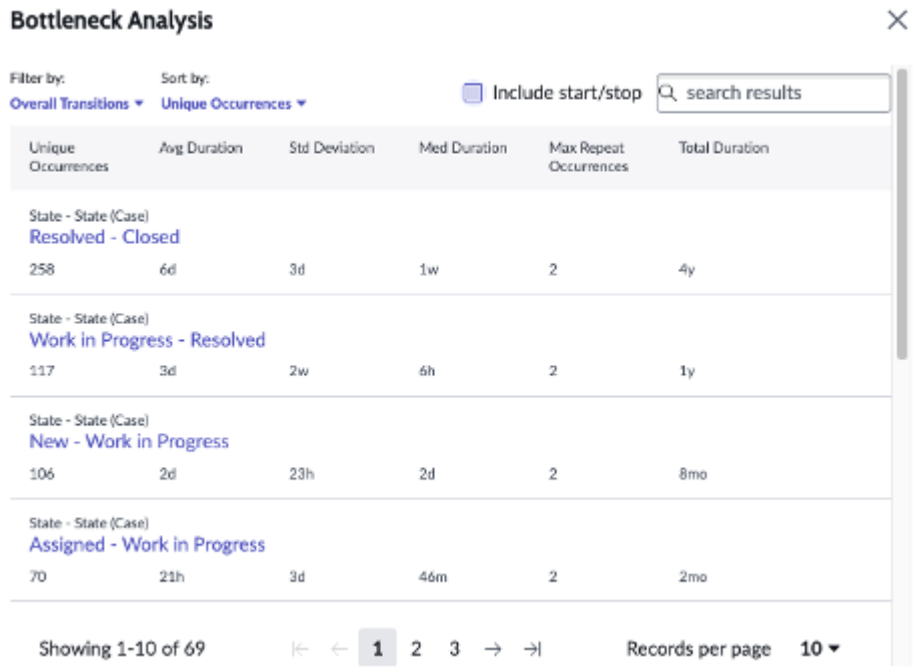
View activity transitions you've defined from the Bottleneck Analysis feature.

Expand the Bottleneck Analysis box to see the top five overall and specified activity state transitions across these specific metrics.

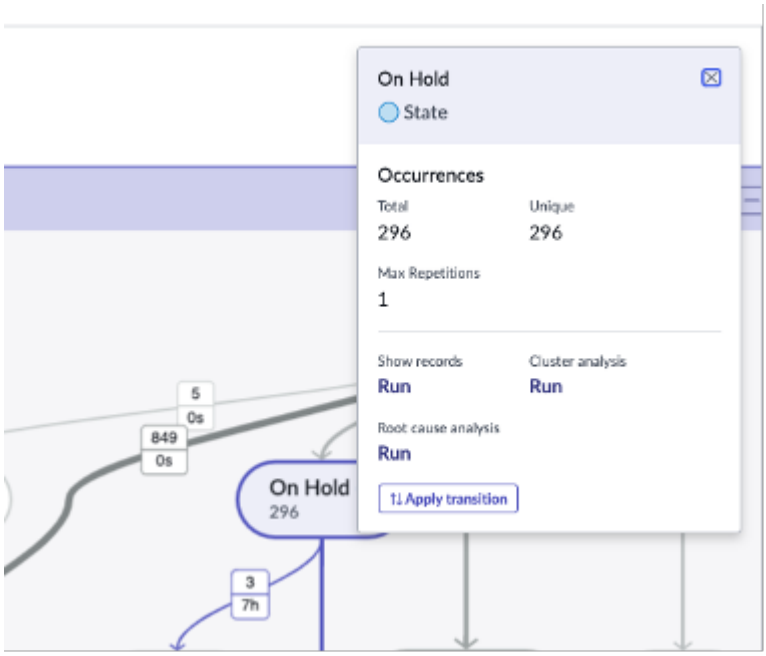
- Unique Occurrences
- Maximum Repeat Occurrences
- Average Duration
- Total Duration
- Total Occurrences

View selected transitions and metrics from the lists.

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Select a transition link from the list to edit activities for the selected filter.



Related topics

Apply a transition filter on an activity

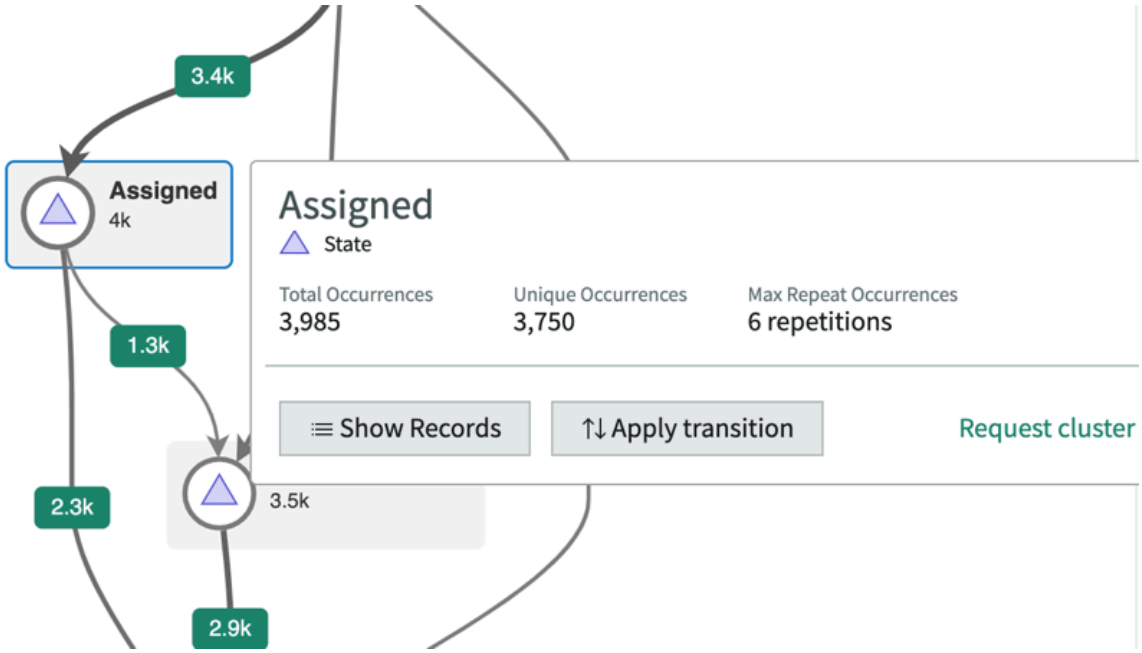
Viewing records for an activity or connection

See the list of records which passed through an activity or connection to analyze data in more detail.

Select an activity or connection on a route to display the metrics box. You can then also select **Show Records** to open the list of records that passed through it.

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Note:
The **Show Records** link displays for a maximum of 100,000 records returned for an activity or connection. An administrator can add and the promin.show_records.limit system property to change this limit. The sn_process_optimization_analyst role must have read access to the promin.show_records.limit system property. For instructions on adding properties, see Add a system property.



Adding notes to a project

Add, view, and remove notes for a project to help manage tasks, ideas, and insights. Tag others to notify them to view a note.

From the project overview panel, you can add a note or see a list of notes associated with a project.

Note:
To add or delete notes, you must have the sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin role.

View a note

Review notes posted for a project.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Notes can be viewed from a main or linked process. A note can be edited or deleted from the process map in which it was created.

Note:
Notes do not display in comparison view.

Procedure

1. Select the project to view a note from.
2. From the project view, select the Notes icon ( ) to open the Notes panel.

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3. From the **Show** list, select whether to show one or more of these options:
   - **Current Model Notes** - Shows notes created on the process you're currently viewing.
   - **Main Model Notes** - From a linked process, shows notes created on the main process.
   - **All Linked Notes** - Shows all notes created on the main and all linked processes.

Add a note

Add a note to a project to review later.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Select the project to add a note to.
2. From the project view, select the Notes () icon to open the Notes panel.
3. Select **New note** and type a note into the box.
   You can get someone's attention in a note by mentioning them. For each user you want to notify, add an @mention containing the user's name. When the note saves, users receive an email notification.
4. **Optional:** Check **Attach snapshot** to add a snapshot of the current process map view.
   Scroll the view to include the area you want to snapshot. To add a larger or smaller view of the process map image, zoom the map in the main screen before adding it as a snapshot.
   - Adding snapshots can be helpful for restoring settings at a later time. For example, when revisiting a note, you can preview an attached snapshot and see the configured settings at the time the snapshot was added. You will have a picture of how you can replicate a project to the same state.
   - If viewing a linked process, a snapshot of both the main and linked projects add to the note.
5. Select **Post**.

Edit a note

Update a project note.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

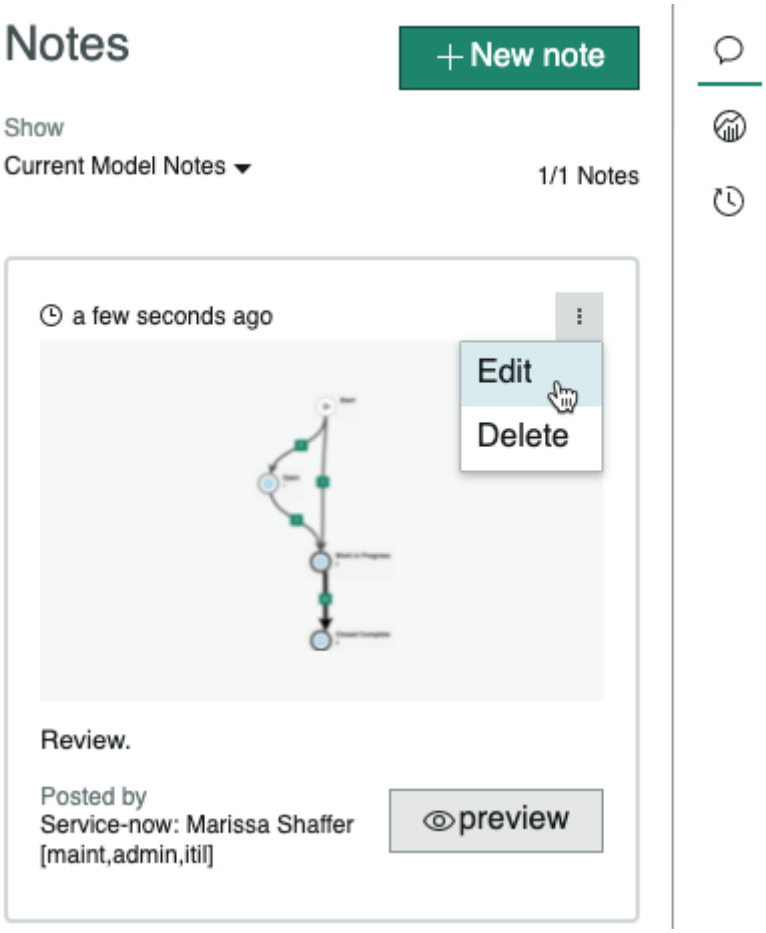
About this task

A note can be edited from the main or linked process in which it was created.

Procedure

1. From the project view, select the Notes icon ().
2. From the Notes panel, select the context menu of a note, then select **Edit**.

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3. After you edit the note, select **Update**.
   The update shows in the refreshed list.

Delete a note

Delete a project note once you resolve or want to remove it.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task

A note can be deleted from the main or linked process in which it was created. Deleting a note doesn't destroy it, but only removes it from the project view. A note's record remains accessible from the Notes tab of the Related lists section.

Procedure

1. From the project view, select the Notes icon ( ).
2. From the Notes panel, select the context menu of a note, then select **Delete**.
3. Select **Yes** to confirm.
   The note is removed from the refreshed list.

View a snapshot

Review snapshots of process maps posted for a project.

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Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

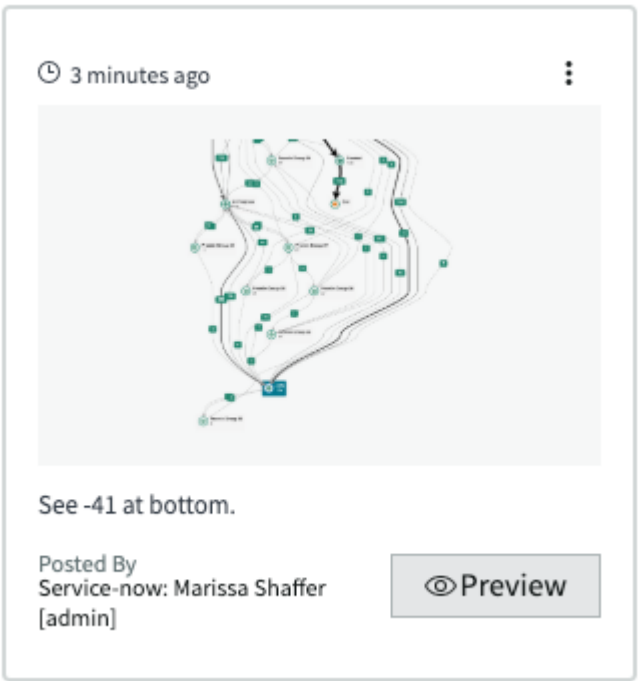
About this task

Snapshots are helpful for seeing a process map and its configuration settings at the time the snapshot was added. You can view snapshots from and for main and linked process maps.

Note:
This task explains how to view a snapshot from the process map in which the note was created. The **Preview** option is not available for notes created in another model.

Procedure

1. Select the project to view a snapshot from.
2. From the project view, select the Notes icon ( ) to open the Notes panel.
3. Select the **Preview** button on a note.
   The snapshot displays the preview in the main map window, along with its model's statistics.



   - On the preview map, you can adjust view of the primary and secondary metrics, select activities and connections to view, and zoom in and out. Viewing filters and routes is not possible from a snapshot preview, however.
   - Snapshots cannot be updated.
4. Once done viewing the snapshot preview, select **Stop Preview** to return to the previous map and filter tools, or select to preview a different snapshot.

Comparing projects

Comparing projects side by side enables you to investigate performance differences or deviations from an ideal route.

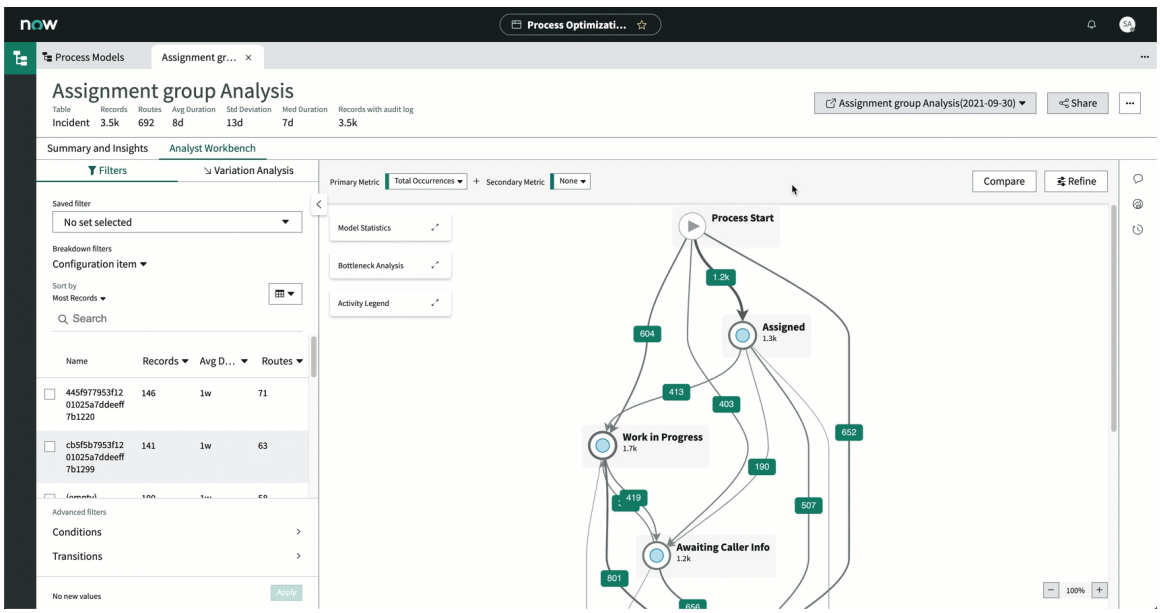
A manager wants to compare performance across regional teams to understand why one region had a greater reduction in Mean Time to Resolve than another. Using the process compare

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feature, the manager applies breakdowns and filters in the process maps, and investigates for bottlenecks. The manager compares:

- Team performance across locations and previous time periods.
- Regions against the ideal route for insights on the adoption rate and deviations.

Comparing projects lets you analyze two versions or scenarios from the same project simultaneously. When comparing, you can choose a project version, set different filters, choose routes to view, and see their records separately.



From the project comparison view, you can refine activities and connections for each map. You can also apply filters and routes, and compare statistics between them.

Start a comparison

Begin a side-by-side project comparison.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task

You can perform a comparison of a main or linked project.

Procedure

1. Select the project you want to compare.
2. From the process map within **Analyst Workbench**, select **Compare**.
   Access the Compare view from a main or linked process.
3. Choose one of the following routes:

   - Select **Apply Filters** to choose the filters or a route to compare on.
   - From **Compare Versions**, select a project version.

4. If selecting **Apply Filters**, do one of the following actions:

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a. From the Filters panel, choose from breakdown and advanced filters to compare on.

b. From the Variation Analysis panel, choose a route to compare on.

5. Select **Apply** if you selected filters, or **Show route** if you selected a route to compare on. A second model with your filters applied displays next to the main model. Items in the **Breakdown Filters** are also filtered according to the applied routes.

> **Note:**
> After applying filters, you can use the selector in the upper right corner of the window to view a different model version.

What to do next

Compare transitions or statistics between the two projects.

Compare statistics and transitions between two projects

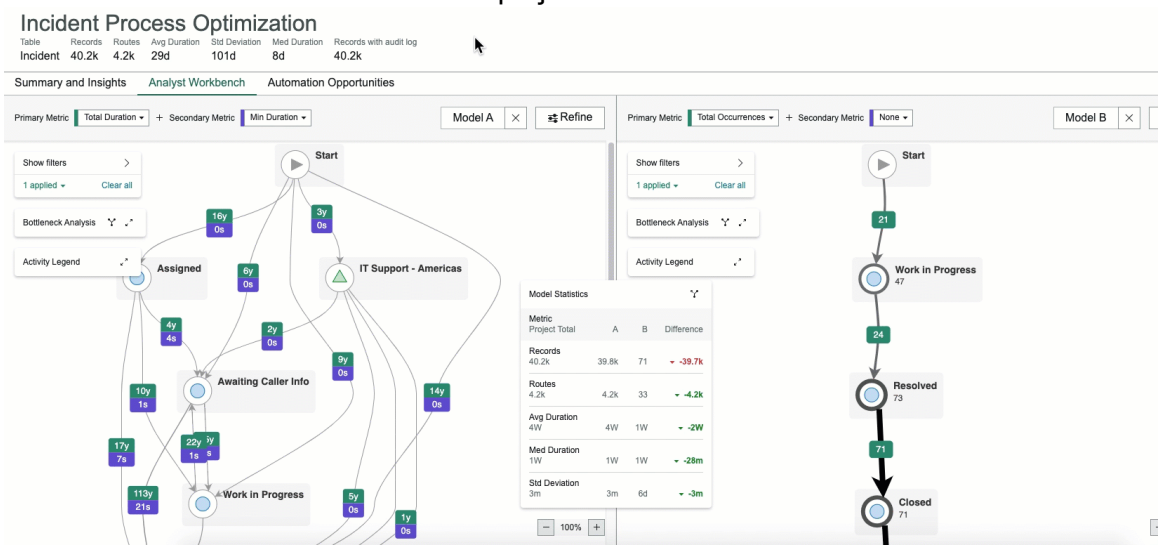
Compare records, routes, average case duration, and transitions of two side-by-side projects.

Before you begin

Role required: none

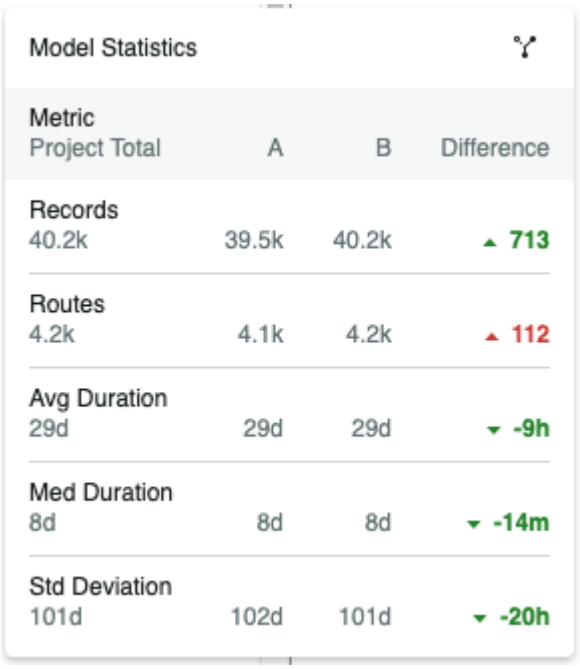
Procedure

1. Expand the Bottleneck Analysis table in either project and select the combine/split icon ( ) to show statistics or transitions for both projects in a combined table.

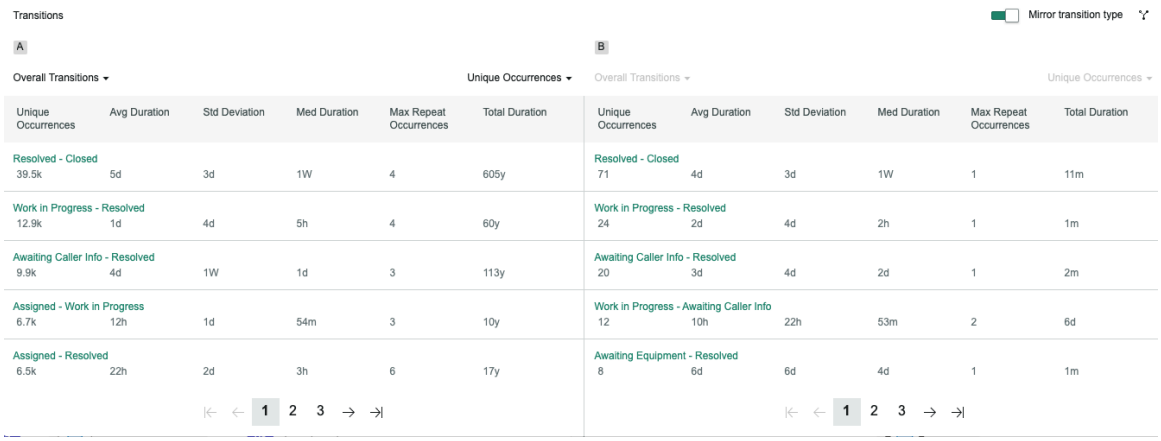


The combined statistics table shows the number of records and routes, and average case duration statistics for each project, as well as the differential statistics between them.

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The combined Transitions table shows a side-by-side view of the **Overall Transitions** or **State Transitions** you specify to display for each project. Enable the **Mirror transition type** toggle to automatically show both projects with the same transition type and metrics. Disable the toggle to be able to select different transition types and metrics between the projects.



2. To reposition each project's statistics table back into their corresponding maps, select the split icon ( ).

What to do next

When you're finished reviewing from the comparison view, select the Stop comparison view icon ( ) of the project you want to stop viewing. The remaining project shows as the main view with any filters you've applied.

Change a project version name

Change the name of a project version for easier referencing when viewing and comparing.

Before you begin

Role required: administrator

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Procedure

1. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
2. Select the project, which has a version whose name you want edit.
3. Select the ellipsis () menu on in the upper right corner of the screen, and choose **Edit Versions**.
4. In the **Edit Versions** list, select the version to change by selecting the name.
5. In the **Project Definition Version** form, enter a new name for the project version in the **Name** field.
6. Select **Save**.

Automated root cause analysis

Find where and why inefficiencies occur within your processes using automated root cause analysis.

Automated root cause analysis finds why and where a particular process performance occurs. This enables you to take appropriate action to solve the root cause of the issue. You will also understand which attributes are impacting them.

Note:
Automated root cause analysis is available only with more than 100 records.

Run root cause analysis from your Insights or on specific map connections within the Analyst Workbench.

Process owners and admins can customize automated root cause analysis to specify which fields are analysed, and optionally configure the analysis to run automatically.

Configure automated root cause analysis

Configure automated root cause analysis from the process configuration record.

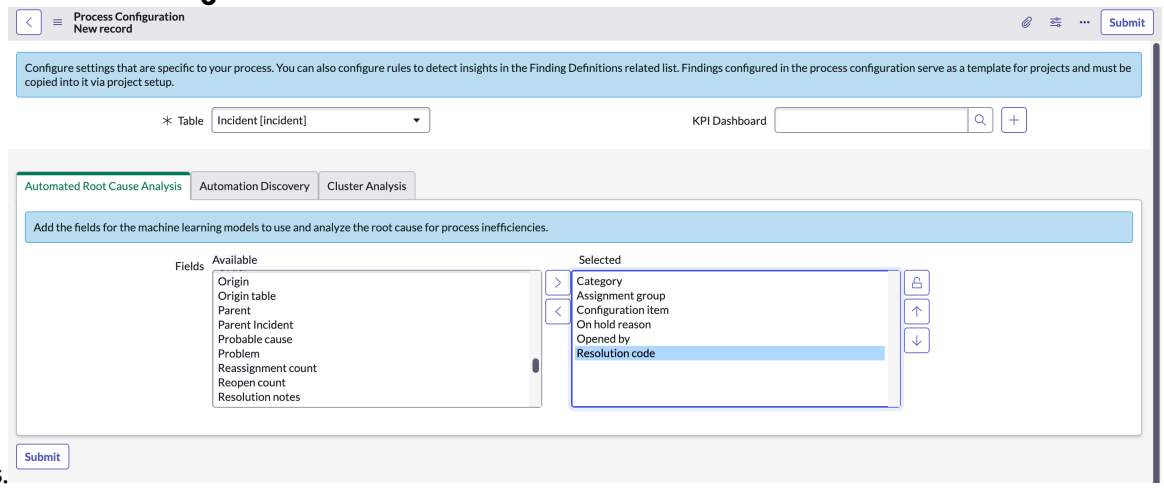
Before you begin

Role required:sn_process_optimization_admin, sn_process_optimization_power_user, or sn_process_optimization_analyst

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Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.



2. Open the process configuration for which you want to configure the automated root cause analysis.
   Alternately, you can also choose to create a new process configuration by selecting **New**. For more information, see Create process configuration using Classic view to set it in the Classic view and Configure investigative features to set it from the guided Process Configurations set up.
3. On the **Automated Root Cause Analysis** tab, select the fields that you want to include in the analysis.
4. Select **Submit** or **Update**.

Result

Automated root cause analysis is configured for the table.

Run automated root cause analysis reports

Execute automated root cause analysis to optimize your processes.

Before you begin

Role required:sn_process_optimization_admin, sn_process_optimization_power_user, or sn_process_optimization_analyst

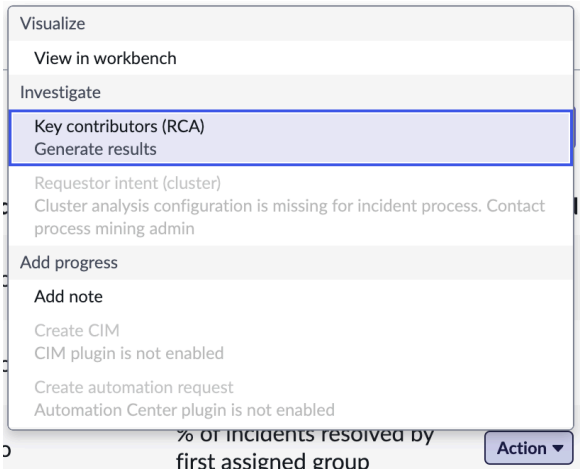
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Procedure

1. Run automated root cause analysis from any of the following locations:

Open a project.

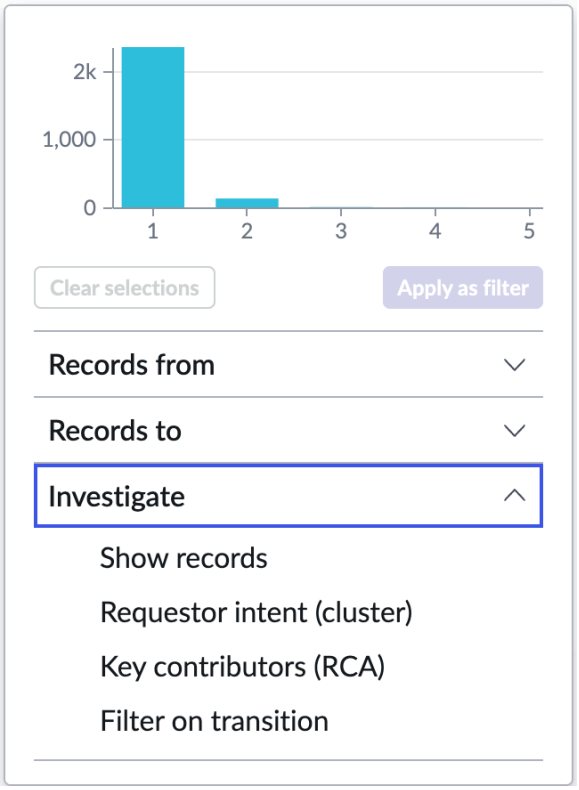
On the **Summary and Insights** page, go to the **Improvement Opportunities** section. From the available improvement opportunities, select **Action** > **Key contributors (RCA)**.



Open a project.

On the **Analyst Workbench** page, select a node or connector.

From the pop-up window, select **Investigate** > **Key contributors (RCA)**.



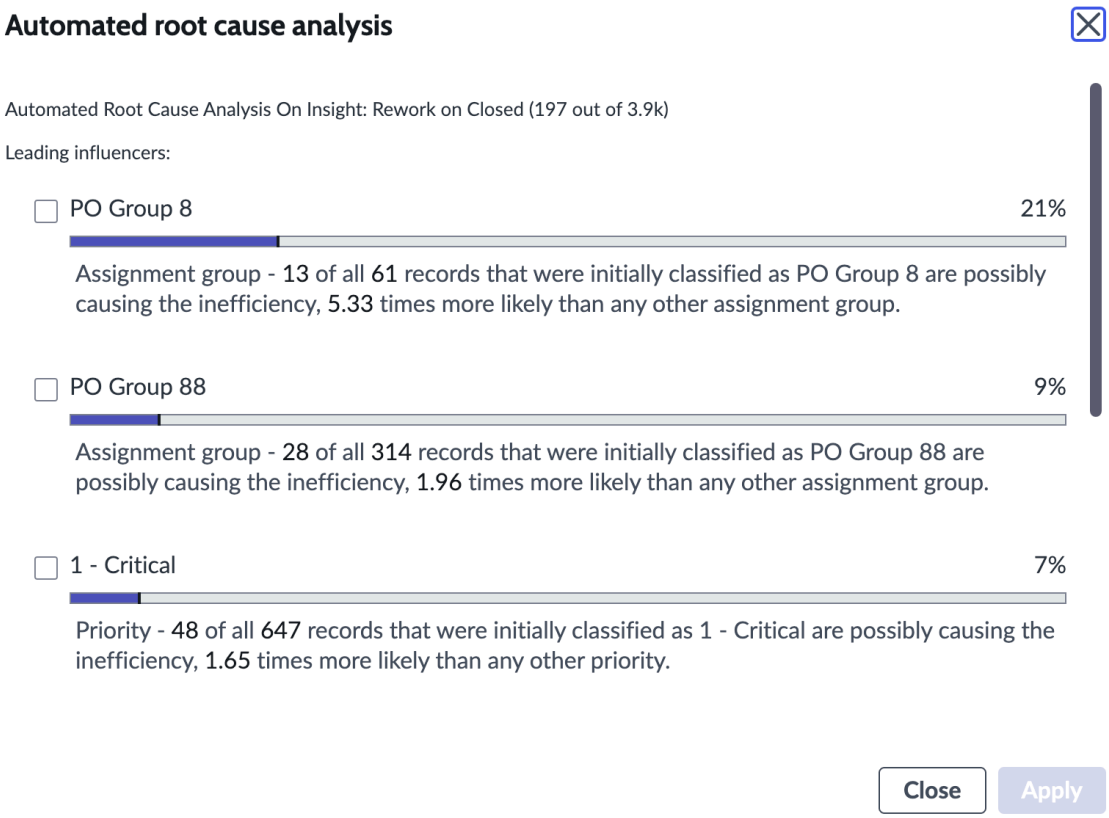
The root cause analysis task will begin to run. After the analysis is complete, you will see a notification. You can select the scheduled task icon ( ) on the right of the screen to see an update on the task's progress.

2. When the root cause analysis completes, select **View result** in the scheduled tasks panel of the Analyst Workbench.

   You can select **View result** from the **Summary and Insights** page too.

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The root cause analysis result is similar to the following:

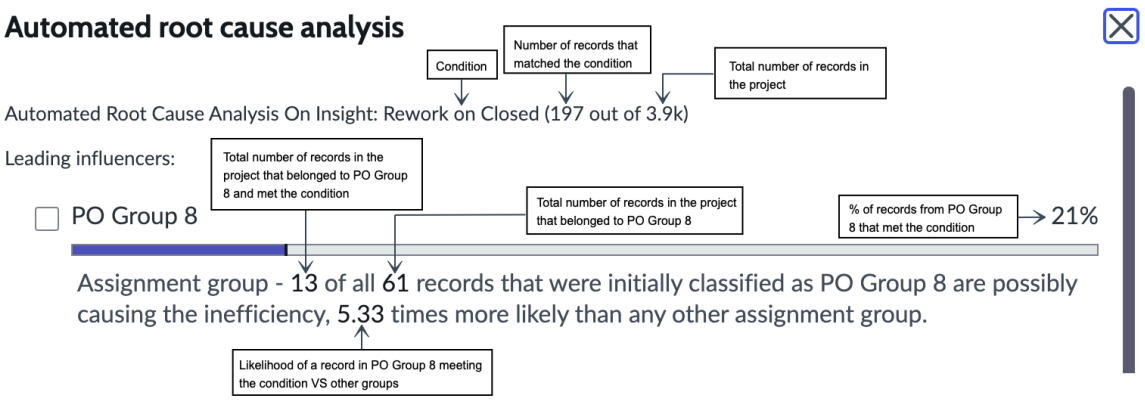


Review and interpret automated root cause analysis

Review the analysis report and understand the root cause of performance issues. Use this information to optimize your processes.

Note:
You must have run automated root cause analysis to review and interpret the results. For more information, see Run automated root cause analysis reports.

You must read and understand the automated root cause analysis results as follows.



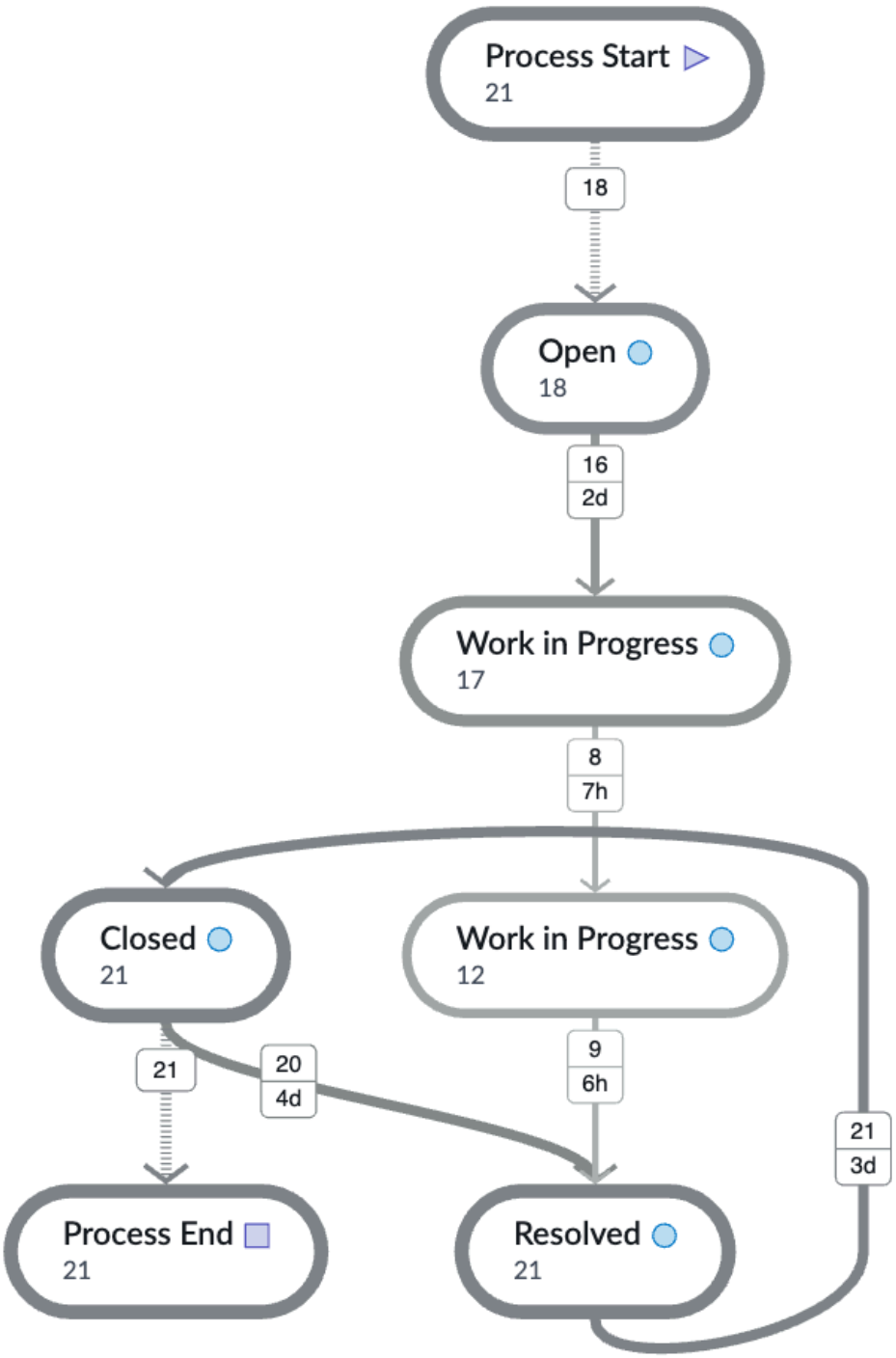
In the above example, the root cause analysis is run on the finding definition of type Rework. We are looking at records for which rework was done after the record was in Closed state. It shows why the records do not go to Process End after the Closed state.

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As per this analysis, 13 of the incidents that were initially assigned to PO Group 8 had rework on Closed status. That number is 21% of the total number of incidents that were assigned to PO Group 8 and mined as part of this project. Incidents that were initially assigned to this group are 5.33 times more likely than any other group to have rework on Closed status.

After you have interpreted your results, you can select a particular influencer to view more details about it. Select an influencer, and select **Apply**. Another scheduled task will start, and you can view the progress and results in the scheduled tasks panel.

From the example, if PO Group 8 is applied, you will see results similar to the following:



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From this graph, you can analyse why some records are moving from Closed to Resolved before going to Process End.

Cluster analysis

When identifying an activity, connection, improvement opportunity, or route as a potential bottleneck, view clusters of keyword descriptions and assignment groups to gain insights.

A cluster analysis groups similar records into a cluster (one group) so you can identify patterns. Data sets divide into various natural similarity groupings rather than groupings based on a specified label. This unsupervised machine learning technique can prevent unrelated cases or records from becoming part of a project.

Note:
Clustering is available for a record count between 100 and 300,000.

Let's use a conceptual example of how clustering works. At an auto repair shop, customers have numerous service options to choose from. The general manager wants to determine which services are least used. The manager wants to decrease costs by utilizing fewer specialists over those areas. The manager begins cluster analysis that generates a view of the keyword descriptions and service category areas. After a cluster of similar groups of service activities generates, the manager has a smaller, more patterned dataset of customer groups using a limited number of services. The manager applies further filters on the smaller dataset for closer analysis.

Configure a process for a clustering solution

Configure a process to be able to generate a cluster analysis.

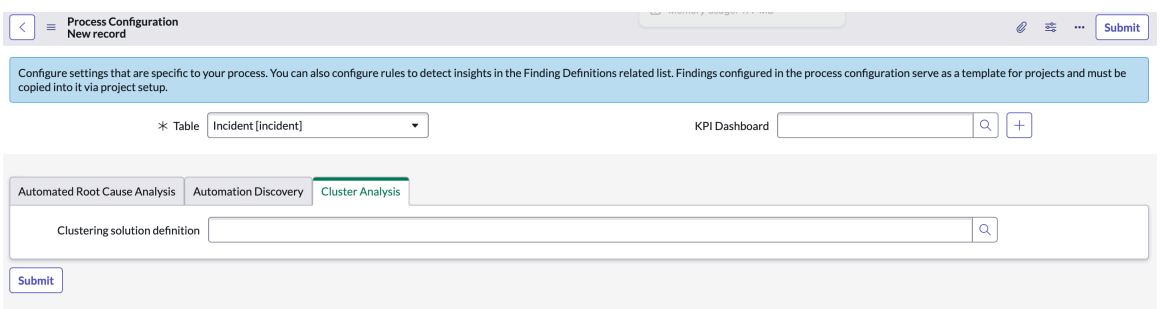
Before you begin

Note:

- You can create one configuration per table for each project based on a process.
- Role required:
  - The sn_process_optimization_admin and sn_process_optimization_power_user roles can associate a clustering solution definition with a project, but cannot create a definition.
  - The sn_process_optimization_analyst role can view a clustering solution definition, but cannot create, edit, associate, or delete a definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.
2. Open the process configuration for which you want to configure the cluster analysis. Alternately, you can also choose to create a new process configuration by selecting **New**. For more information, see Create process configuration using Classic view.



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3. In the **Cluster Analysis** tab, select the search icon from the **Clustering solution definition** field.
4. From the Clustering Definitions list, select an existing definition from the list, or select **New** to create a new clustering solution definition form.
   - The administrator and ml_admin roles can create a new clustering solution definition.
   - If creating a new definition, configure the fields per guidance in creating and training a clustering solution.
5. Select **Submit**.
   A clustering solution definition is associated with the process for the selected table.

What to do next

Perform a cluster analysis

Perform a cluster analysis

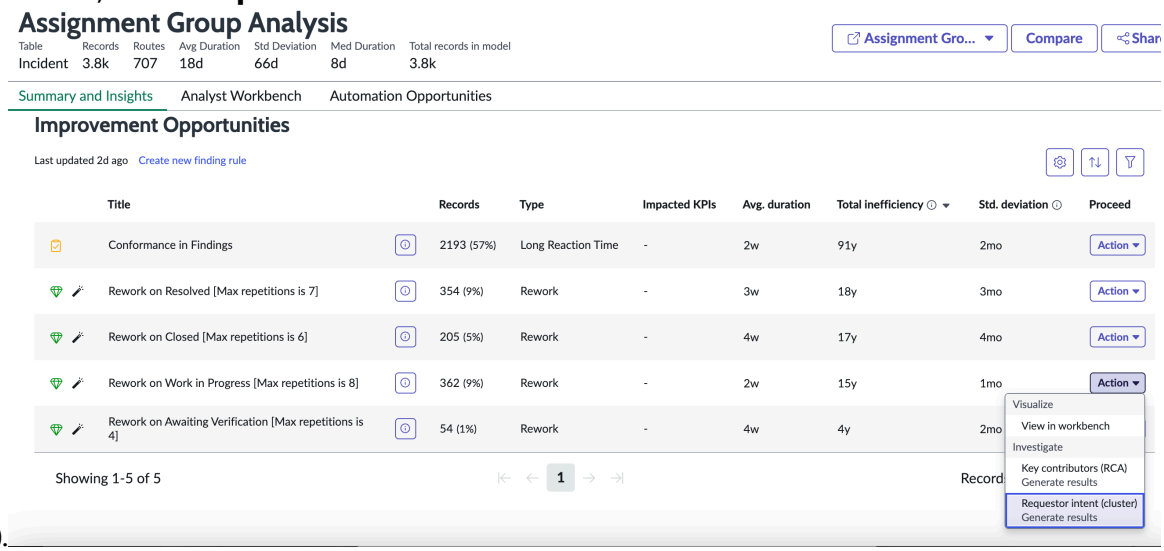
Generate a cluster analysis on an activity, connection between activities, route, or an improvement opportunity.

Before you begin

- Configure a process for a clustering solution. To generate a cluster analysis, the project must have a process configured with a clustering solution on the relevant table.
- Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin
- An analysis can be performed on an activity, connection, improvement opportunity, or combined routes with a minimum of 100 and maximum of 300,000 records.

Run a cluster analysis in one of the following ways.

- From the Summary and Insights page:
  1. From the Improvement Opportunities section, select a finding.
  2. In the **Action** list, select **Requester intent (cluster)**.

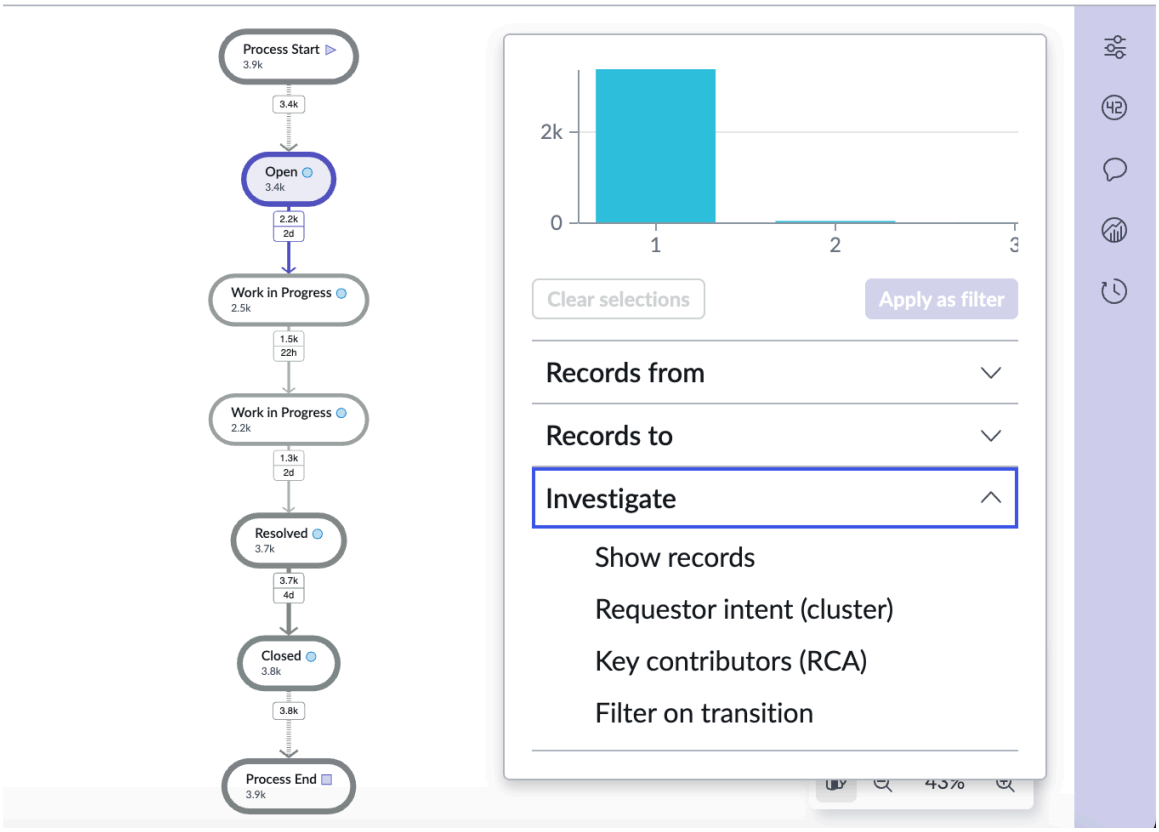


> **Note:**
> The status of the request is displayed in the same option as **In progress** until the task completes.

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- From an activity or connection on the process map:
  1. Select an activity or connection from the process map that you want to perform a cluster analysis on.
  2. From the metrics box, select **Investigate** > **Requestor intent (cluster)**.

     You will get a notification that the task is running in the background. You can close the notification. When the task completes, you will be notified. You can see the details in the **Scheduled tasks** window.



  3. From the Scheduled tasks panel or the metrics box that the cluster analysis was requested on, select **View result** after generation completes.

Related topics

View a cluster analysis

Resubmit a cluster analysis request

In cases when a configuration issue or clustering solution change occurs, you can schedule a followup cluster analysis.

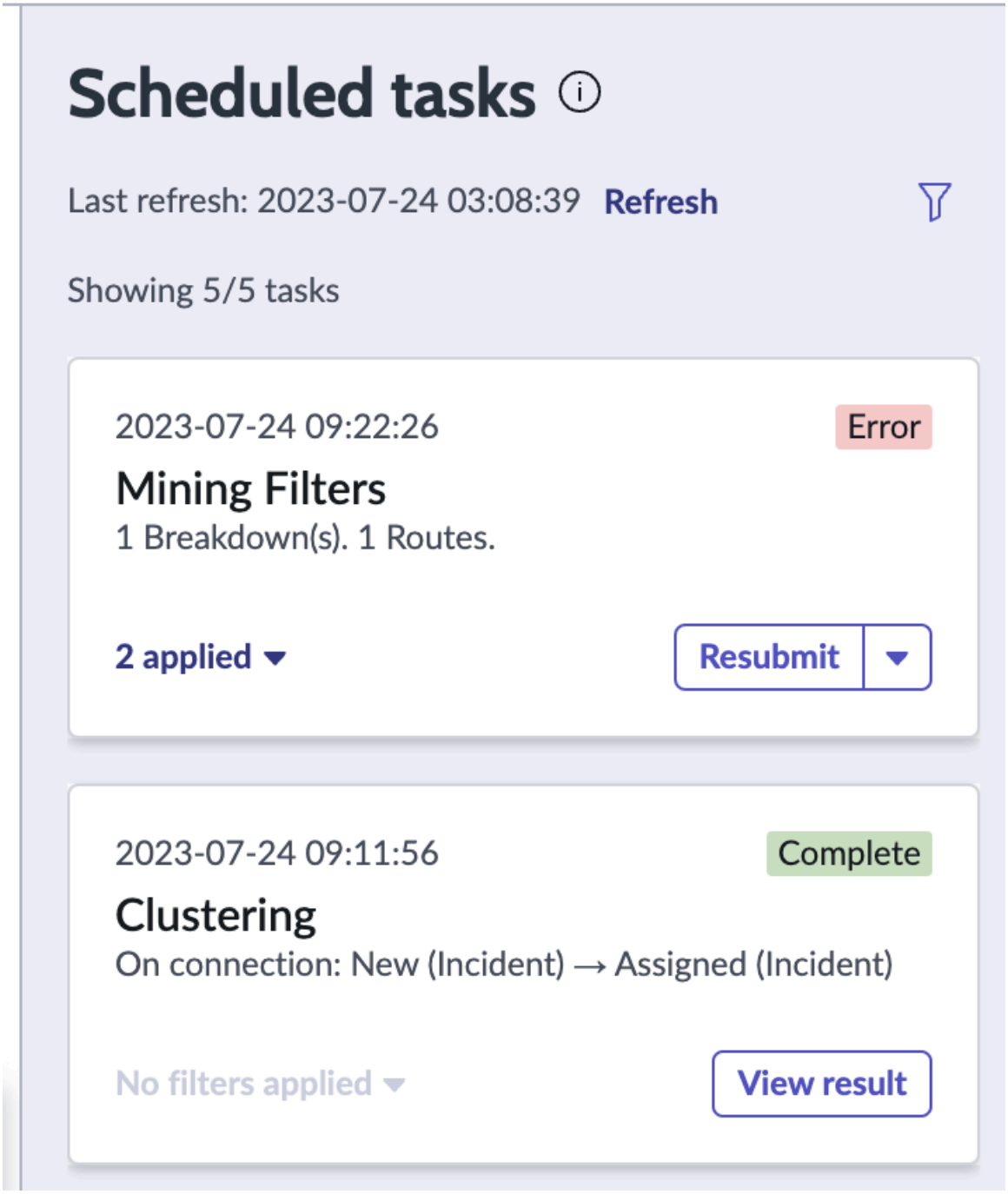
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

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Procedure

1. From the Scheduled tasks panel, select **Resubmit** for the activity or improvement opportunity you want to generate an updated analysis for.



   To see details of the previous cluster analysis request, select **View error details**. View error details navigates you to the ML Solution form for the failed task.

2. When the task completes, select **View result**.

What to do next

View clusters in a treemap

View a cluster analysis

View a cluster analysis of the top three clusters for an activity, connection between activities, or route.

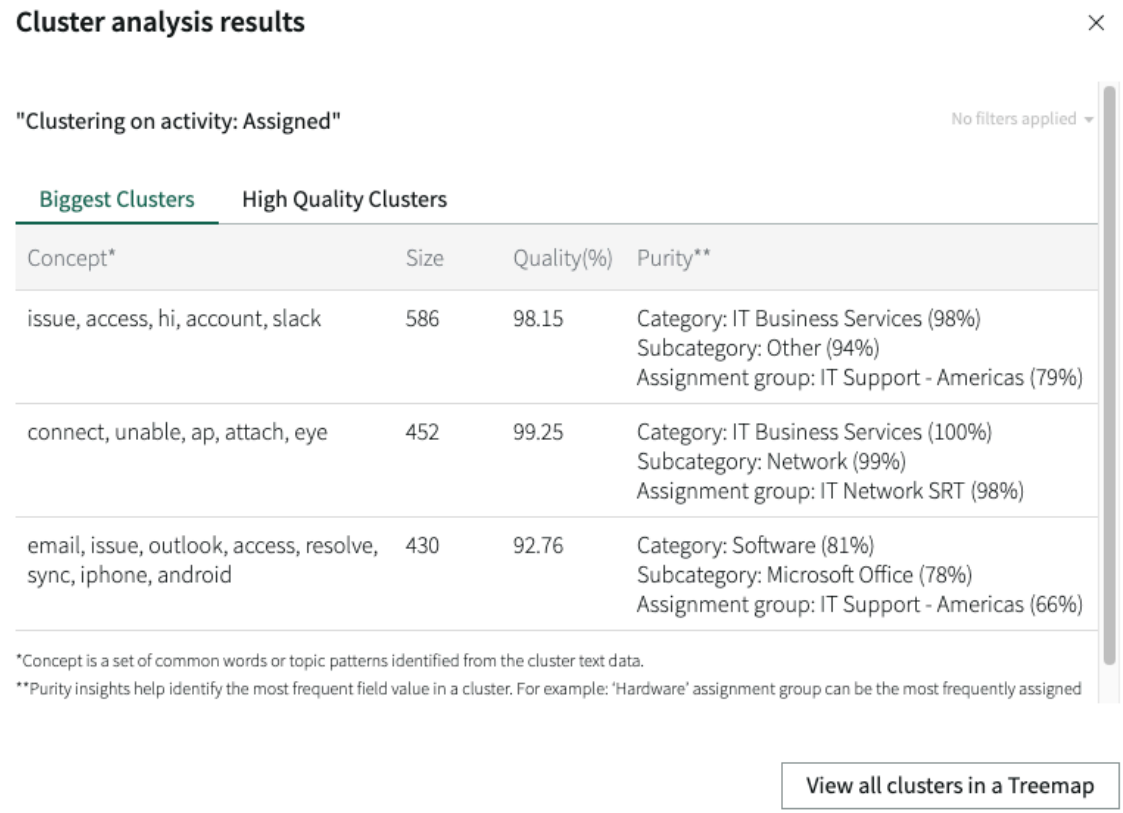
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View a completed cluster analysis one of these ways.

- Select a connection or activity from the process map which has had a cluster analysis performed on it. In the metrics box, select **View**.
- From the Scheduled tasks panel, select **View result** for the selected cluster task.
- From the Summary and Insights page, select **Requestor intent (cluster) View results** in the box for the insight you want to view.

Cluster analysis results

In the Cluster analysis results dialog, the top biggest clusters and the high quality clusters are displayed.



The results dialog shows the title of the connection or activity, or the number of routes the analysis was performed on. Results show these statistics for the top biggest and high-quality clusters.

Concept	List of the most prominent words or content found in a cluster. We have used `Short description` as the input field type that helps the system identify the records we want to include in the cluster. So, the above cluster analysis result displays the most recurring words that appear in the short description of the records.
Size	Number of records in the cluster.
Quality	Percentage value of how similar the cases are.

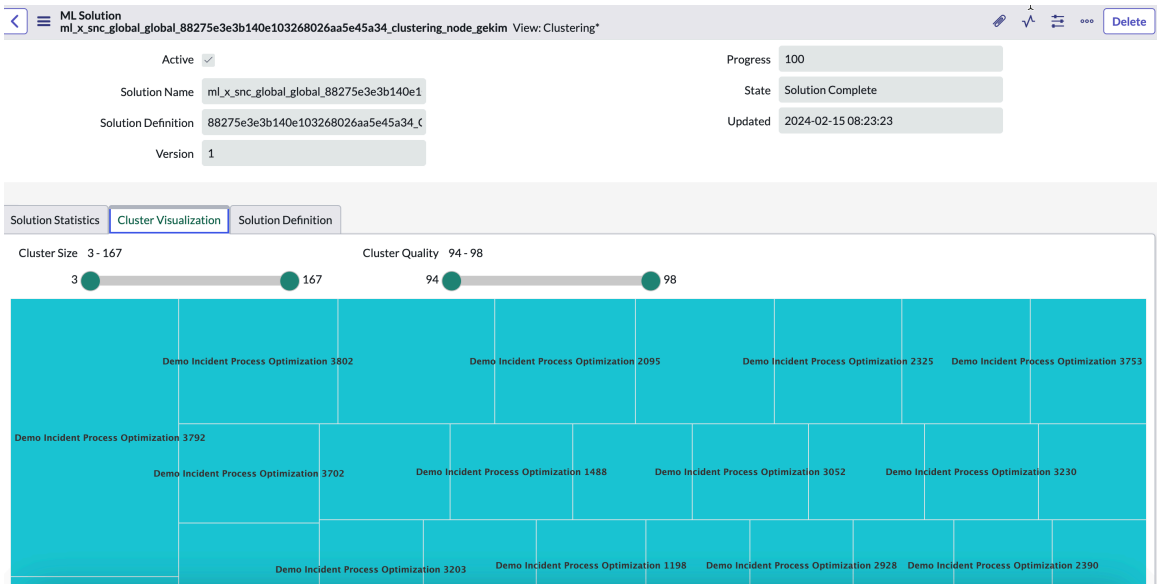
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Purity	Metric for the class which appears most frequently in the cluster, based on distribution significance. Purity insights help identify the most frequent field value in a cluster.

View clusters in a treemap

To see further details about clusters, including clusters beyond the top three listed on the results dialog, if any, select **View all clusters in a Treemap**.

You can use a treemap visualization to help you better understand different aspects of the clusters, and determine which clusters to focus on first. The treemap plot appears on the Cluster Visualization tab.



For additional information on using a treemap, see Create and train a clustering solution.

Work notes analysis

Work notes analysis helps you understand the operational reasons behind activity transitions, as recorded in work notes and comments. Typical examples include transitions from resolved to work in progress or changes in assignment groups, such as from service desk to specialist group.

Analyzing work notes helps clarify the reasons behind a transition. This process involves extracting work notes made by agents and requesters immediately before and after the transition occurs. Subsequently, clustering techniques are employed to categorize records with similar work notes.

There are two types of work notes analysis. You can do a clustering without GenAI capability or with the GenAI capability. For information on using work notes analysis with GenAI capability, see Using Now Assist for Process Mining.

Note:
Work notes analysis is available for a record count between 100 and 300,000.

Configure worknotes analysis

Configure work notes analysis for a process table to view the work notes analysis for a project based on that process table.

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Before you begin

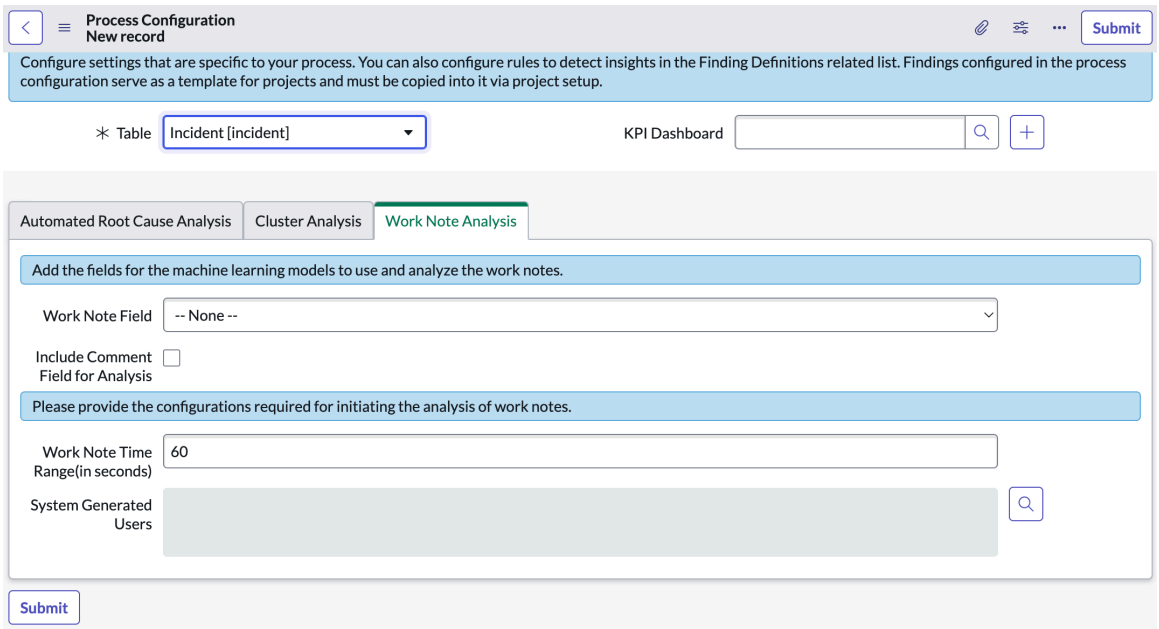
Note:

- You can create one configuration for one process table.
- Role required:
  - The sn_process_optimization_admin and sn_process_optimization_power_user roles can associate work note analysis definition with a project, but can't create a definition.
  - The sn_process_optimization_analyst role can view a work note analysis definition, but can't create, edit, associate, or delete a definition.

Procedure

1. Navigate to **All** > **Process Mining** > **Process Configurations**.
2. Select a table from the list if you want to configure work notes analysis for a table available in the list.
   If you don't have the table listed, select **New**. For more information, see Create process configuration using Classic view.

   Note:
   For information on configuring work notes analysis using the Process Configuration Builder, see Configure investigative features.



3. In the **Work Note Analysis** tab, fill in the fields.

Field	Description
Work Note Field	Select the work notes field that will be considered for analysis. The available options are: ○ None: The analysis will not be available. ○ Additional comments: The analysis is available and the comments are visible to the requester. ○ Work notes: The analysis is available and the comments are visible only to the fulfiller.

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Field	Description
Include Comment Field for Analysis	Select if you want to analyze the comments along with notes.
Work Note Time Range (in seconds)	Enter the time interval in seconds for retrieving work notes before and after the transition. For example, if you specify 60 seconds, then the analysis will capture work notes posted 60 seconds before and after the transition time. This helps to capture recent and relevant work notes for analysis.
System Generated Users	Enter user names that are associated with system-generated work notes to exclude work notes or comments created by those specific system users. System-generated work notes often lack explanations for transitions.

4. Select **Submit**.

Perform work notes analysis

Generate a work notes analysis on a transition.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Note:
Work notes with more than 5 words and fewer than 50 words are considered for the analysis.

Procedure

1. Navigate to **All** > **Workspaces** > **Process Mining Workspace**.
2. From the list of projects, select a project.
3. Select any transition.
   A window is displayed with all the details.

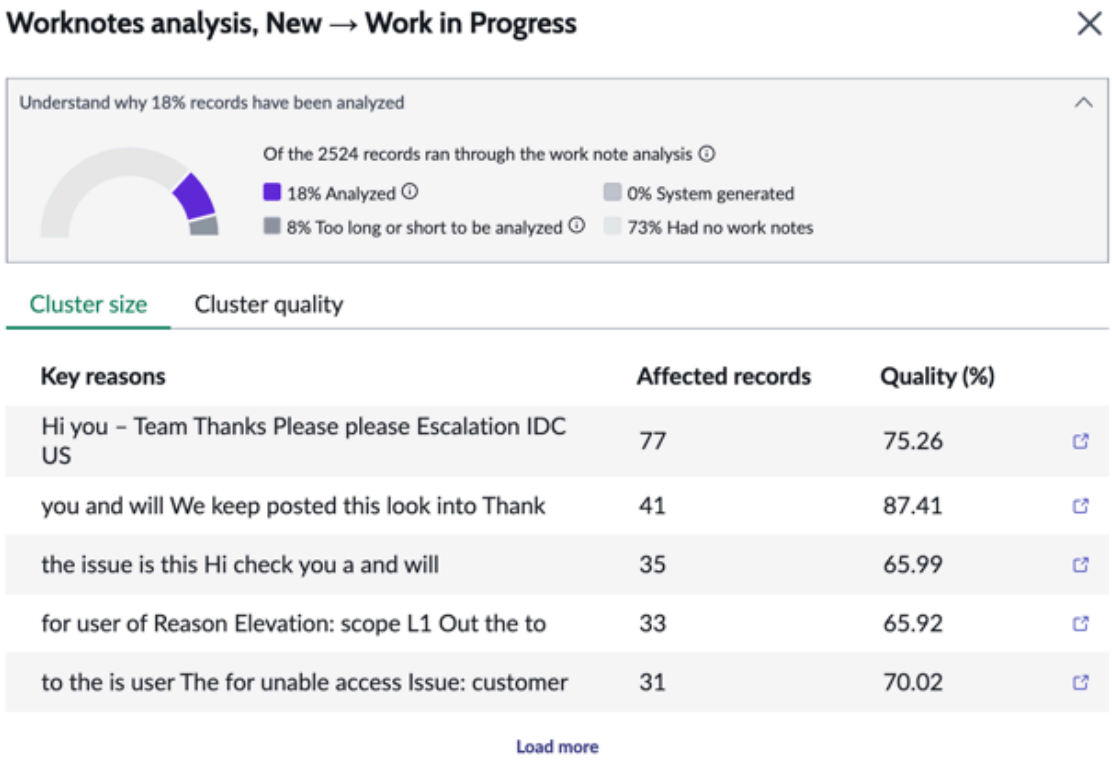
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4. From the **Investigate** section, select **Worknotes analysis**.
   A scheduled task starts.
5. After the scheduled task is complete, select **View result**.

   The result is displayed.

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Select to view all items with the same reasons.

Resubmit work notes analysis

If a work notes analysis fails for some reason, you can resubmit it.

Before you begin

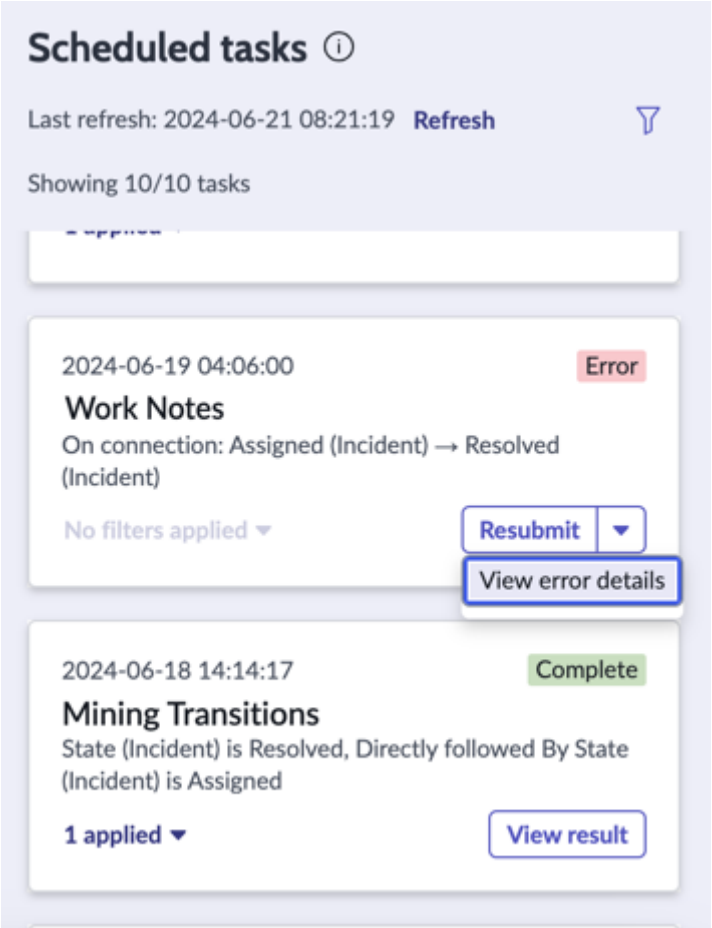
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **All** > **Workspaces** > **Process Mining Workspace**.
2. From the list of projects, select a project.
3. From the Scheduled Tasks pane, select **Resubmit** for the Worknotes analysis that has failed.

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To view the error details, select **View error details**.



Now Assist for Process Mining

Use ServiceNow Now Assist for Process Mining to minimize time, maximize effort, and reduce complexity in project setup, identifying bottlenecks and retrieving process inefficiencies. Gain clear insights into operational issues behind inefficiencies through summarized agent transition work notes.

Important:

- Some Now Assist products/features are currently unavailable for customers in the FedRAMP, NSC DOD IL5, or Australia IRAP-Protected data centers, self-hosted customers, or in other restricted environments. For more information, see the KB0743854 article in the Now Support Knowledge Base . Be sure to check for availability updates in future releases.
- Some Now Assist products/features are currently available only for customers in some regions. For more information, see the KB1699552 article in the Now Support Knowledge Base. Be sure to check for availability updates in future releases.

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Get started

Explore	Configure	Use
		
Learn about the Now Assist feature for Process Mining	Activate Now Assist for Process Mining and configure the skills	Identify the work notes and generate insights about inefficiencies

AI limitations

This application uses artificial intelligence (AI) and machine learning, which are rapidly evolving fields of study that generate predictions based on patterns in data. As a result, this application may not always produce accurate, complete, or appropriate information. Furthermore, there is no guarantee that this application has been fully trained or tested for your use case. To mitigate these issues, it is your responsibility to test and evaluate your use of this application for accuracy, harm, and appropriateness for your use case, employ human oversight of output, and refrain from relying solely on AI-generated outputs for decision-making purposes. This is especially important if you choose to deploy this application in areas with consequential impacts such as healthcare, finance, legal, employment, security, or infrastructure. You agree to abide by ServiceNow's AI Acceptable Use Policy, which may be updated by ServiceNow.

Data processing

This application requires data to be transferred from ServiceNow customers' individual instances to a centralized ServiceNow environment, which may be located in a different data center region from the one where your instance is, and potentially to a third-party cloud provider, such as Microsoft Azure. This data is handled per ServiceNow's internal policies and procedures, including our policies available through our CORE Compliance Portal.

Data collection

ServiceNow collects and uses the inputs, outputs, and edits to outputs of this application to develop and improve ServiceNow technologies including ServiceNow models and AI products. In addition, this application will collect information about work notes in Process Mining. Customers can opt out of future data collection at any time, as described in the Now Assist Opt-Out page.

Exploring Now Assist for Process Mining

Use ServiceNow Now Assist for Process Mining to minimize time, maximize effort, and reduce complexity in project setup, identifying bottlenecks and retrieving process inefficiencies.

Now Assist for Process Mining overview

Identifying the root cause of inefficient transitions is challenging and time-consuming, requiring manually examining numerous records for each transition. With thousands of transitions in a process, this task becomes overwhelming and leads to missed opportunities.

This feature is accessible to customers with both Process Mining and GenAI. Once activated and configured, Now Assist for Process Mining uses an LLM to analyze all work notes related to inefficient transitions and provide the most important reasons for the transition. This feature is visible in the Process Mining workspace and Platform Analytics PM components.

When a transition analysis job is initiated, relevant work notes from records in the transition are gathered. Work notes are grouped into clusters, and one LLM call is used for each cluster to explain why the transition occurred.

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Work Notes Analysis skill

Now Assist for Process Mining includes the Work Notes Analysis skill. This skill must be activated to use Now Assist for Process Mining. For more information, see Activate work notes analysis skill.

What to explore next

To learn more about configuring and using Now Assist for Process Mining, see:

- Configuring Now Assist for Process Mining
- Using Now Assist for Process Mining

Configuring Now Assist for Process Mining

Configure Now Assist for Process Mining to use the feature.

Configuration overview

Configure how you can use the Now Assist for Process Mining in the first skill.

- Activate work notes analysis skill
- Configuring work notes analysis in Process Mining

Now Assist for Process Mining plugin

To work with generative AI capabilities, you need Now Assist for Creator. For information on how to install Now Assist for Creator, see Install Now Assist for Creator.

After Now Assist for Creator is installed, the plugin (Now Assist for Process Mining) and Generative AI Controller are automatically installed.

Activate work notes analysis skill

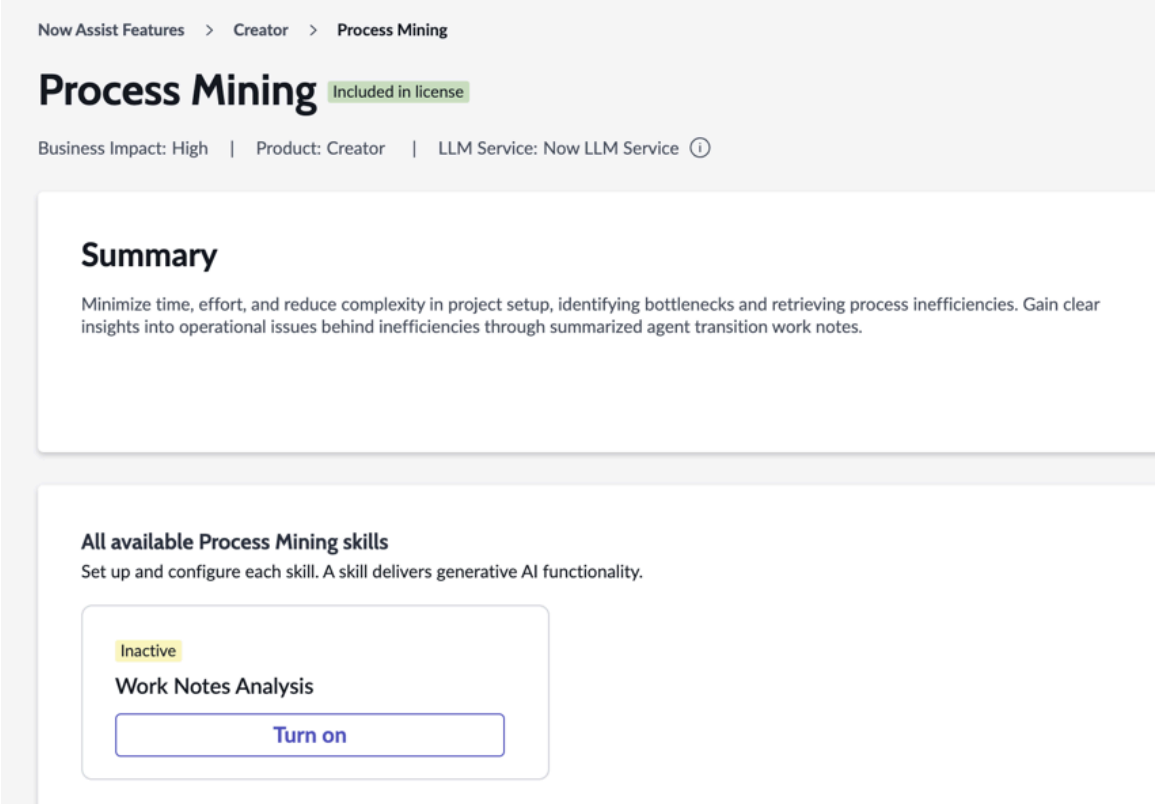
Activate the work notes analysis skill to be able to use Now Assist for Process Mining.

Before you begin
Role required: admin

Procedure

1. Navigate to **All** > **Now Assist Admin** > **Features**.
2. Select **Creator**.
3. Select **View details** on the **Process Mining** card.
4. Select **Turn on** for the Work Notes Analysis skill.

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The skill is activated for your instance.

Configuring work notes analysis in Process Mining

Configure work notes analysis for a process table so that any project that is based on the process table has work notes analysis configured.

For the detailed procedure of configuring work notes analysis, see Configure investigative features.

There are system properties that determine how work notes analysis work. For information about the system properties, see Work notes analysis properties.

Using Now Assist for Process Mining

Run work notes analysis on a transition to identify the work notes and generate insights about inefficiencies, challenges, and other reasons that cause reassignment of work.

This section covers the following topic:

Run work notes analysis

Generate a work notes analysis on a transition. 50 transition records are required to trigger work notes analysis, and 25 work notes must be eligible.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin and you must have the `now.assist.creator` role.

Note:
Work notes with more than 5 words and fewer than 100 words are considered for the analysis.

Now assists are charged dynamically.

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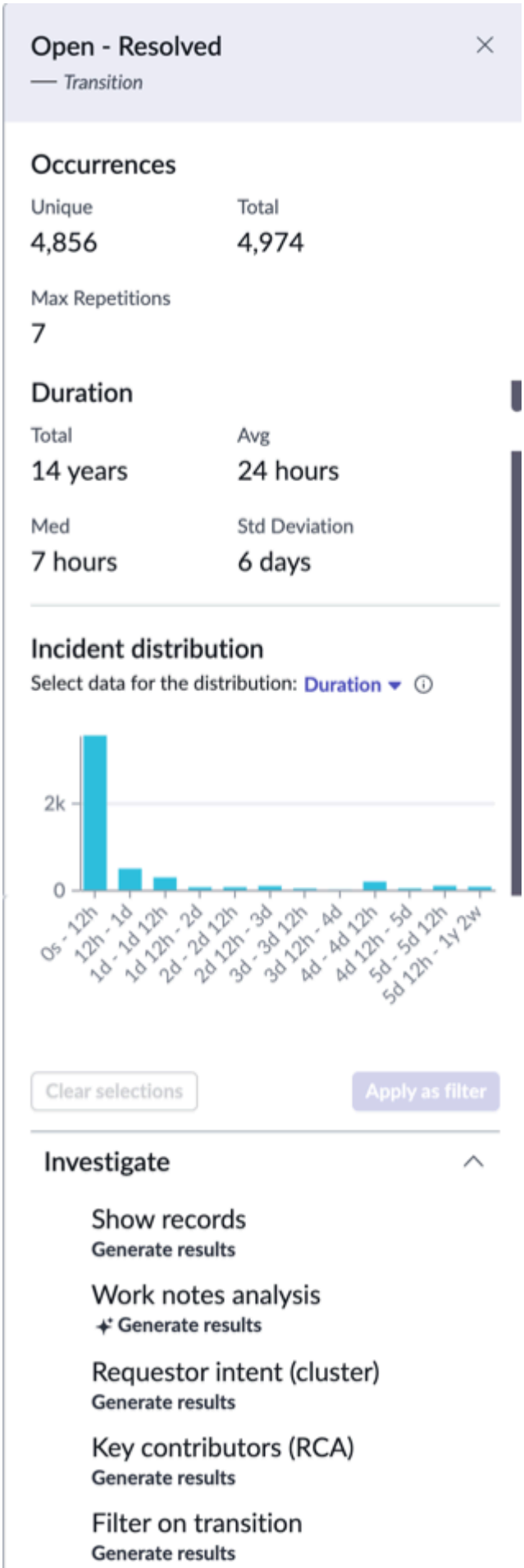
Important:

- 250 Now assists are charged per request. There is no limitation of work notes per request. You can load more results for the same request with no extra charge.
- If results are not displayed, then Now assists are not charged.

Procedure

1. Navigate to **All** > **Workspaces** > **Process Mining Workspace**.
2. From the list of projects, select a project.
3. Select any transition.
   A window is displayed with all the details.

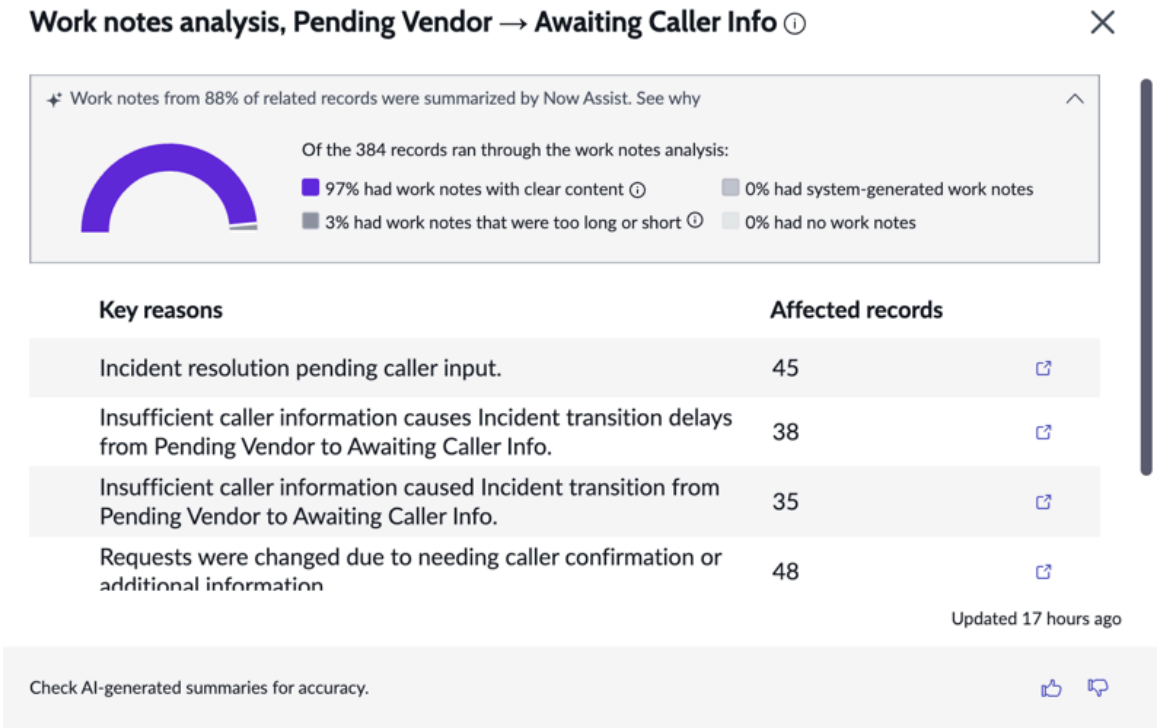
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4. From the **Investigate** section, select **Work notes analysis**.
   A scheduled task starts.
5. After the scheduled task is complete, select **View result**.

   The result is displayed.



   Use the thumbs up and thumbs down icons to provide feedback for the result that you have received.

Creating and tracking improvement initiatives

View, create, and associate improvement initiatives from within the Process Mining application.

An improvement initiative contains goals to measure success, and phases that contain tasks with specific actions to complete the improvement.

To view, create, or associate an improvement initiative, the Continual Improvement Management plugin must be activated, and the user must have privileges to view or create an initiative.

View the initiatives list

View a list of improvement initiatives created for or associated with a process project.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Open the project view.
2. Select the Initiatives icon ( ) in the Notes and initiatives panel.
   The initiatives list displays, showing the CIM ID, short description, creation details, and current state for each initiative. You can:

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- Select whether to show:
  - Current Model Initiatives - Shows initiatives created on the process you're currently viewing.
  - Main Model Initiatives - From a linked process, shows initiatives created on the main process.
  - All Linked Initiatives - Shows all initiatives created on the main and all linked processes.
- Optionally sort the list in ascending or descending order by Created On, Created By, or State.
- Search for a specific initiative by entering into the search field a minimum of three subsequent characters in the short description or CIM number.

3. **Optional:** Select the context menu of an initiative to see further details, edit, or remove it.

Create an improvement initiative from Process Mining

Create an improvement initiative associated with the project you're analyzing in Process Mining.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Open the project view.
2. Open a new Improvement Initiative form one of the following ways:
   - Select the overview panel menu and select **New Improvement Initiative**.
   - From the Notes and initiatives panel:

   a. Select the Initiatives icon ( ).

   b. Select **Create** > **New Initiative**
   A new Improvement Initiative form displays in a separate tab.
3. Fill in the form fields.
   For more information the fields, see: Create an improvement initiative .
4. **Optional:** If you want to attach a supporting document, select **Browse** and select the file.
5. Select **Save**.
6. From the project view, select the Initiatives icon to refresh the list.

Result

You can view the improvement initiative created for the project.

What to do next

To change a record, from the CIM record:

- Update a record: Make a change on the record, then select **Save**.
- Delete an initiative: From the record, select the menu icon and select **Delete**.

Associate an initiative

Associate an existing improvement initiative with a project.

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Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure
1. Open the project view.
2. Select the Initiatives icon ( ) from the Notes and initiatives panel.
3. Search for and check one or more initiatives to associate with the project.
4. Select **Link**.

Result
The associated improvement initiative displays in the refreshed initiatives list.

Remove an initiative

Remove an associated improvement initiative from a project once you complete or cancel the relevant task.

Before you begin
Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

About this task
An improvement initiative can be removed from the main or linked process in which it was created. Removing an initiative doesn't delete it, but unlinks the initiative from the project.

Procedure
1. Open the project view.
2. Select the Initiatives icon ( ) from the Notes and initiatives panel.
3. From the list, select the context menu of an initiative, then select **Remove**.
4. Confirm you want to remove the initiative by selecting **OK**.

Result
The initiative is removed from the refreshed initiatives list.

Inflow and outflow analysis: node star diagram

View the process graph as a node star diagram. The node star diagram explicitly displays the activities that are coming into the selected node and the activities that are going out of the selected node.

When you view a process graph, and want to know the details of one node in the graph, you must use the node star diagram.

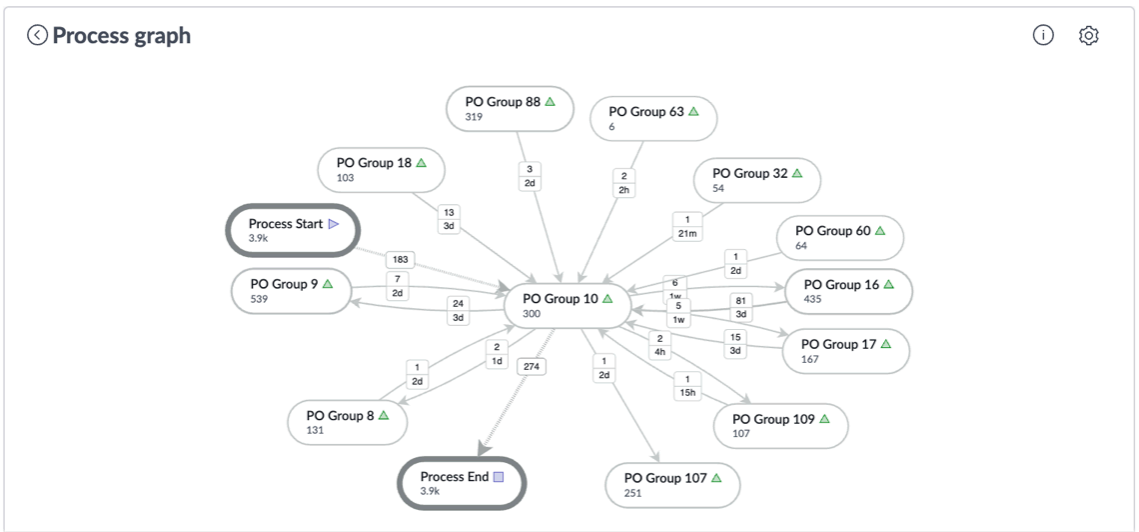
The following process graph displays details about the reassignment analysis.

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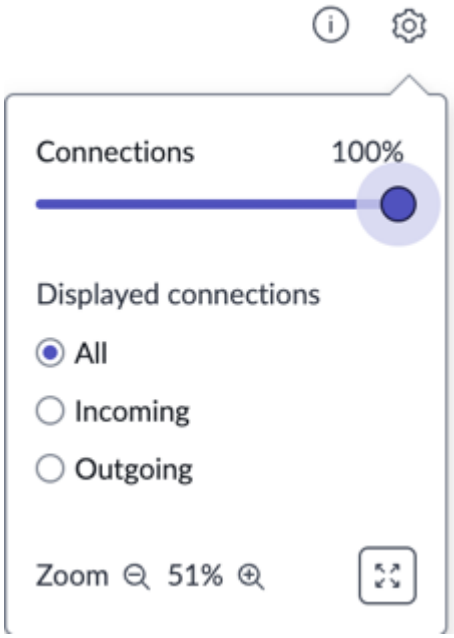
Select any node of the process graph and the graph changes to the node star diagram displaying all the incoming and outgoing arcs from the selected node. When you select the **Process graph** button again, the entire graph is displayed as a process graph.

If you select PO Group 10, a node star diagram similar to the following figure is displayed. You can view the records assigned to PO Group 10. You can also view the records that are assigned from PO Group 10 to other groups.

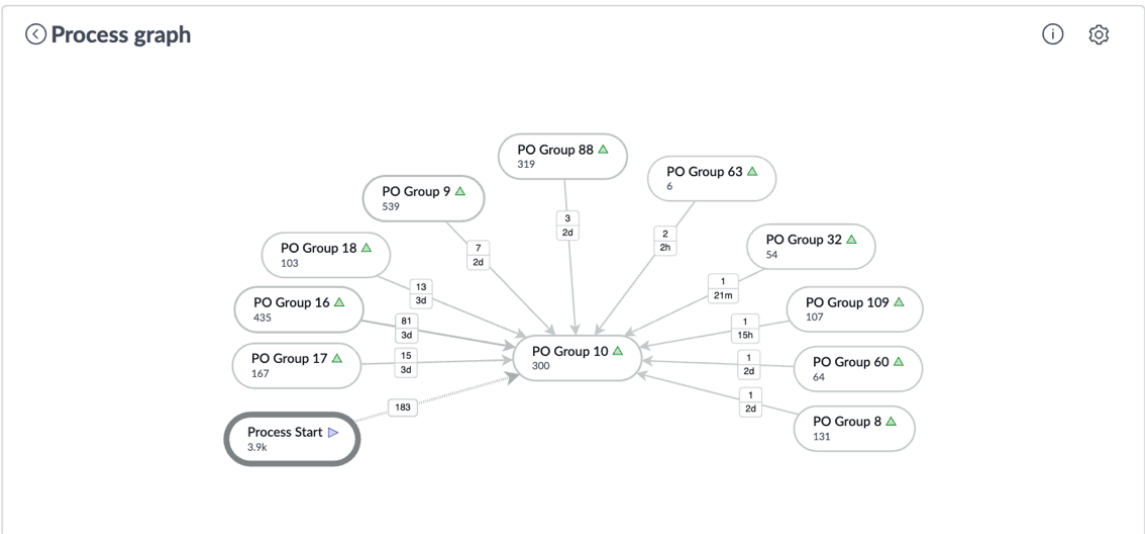


You can filter either by the outgoing or incoming records.

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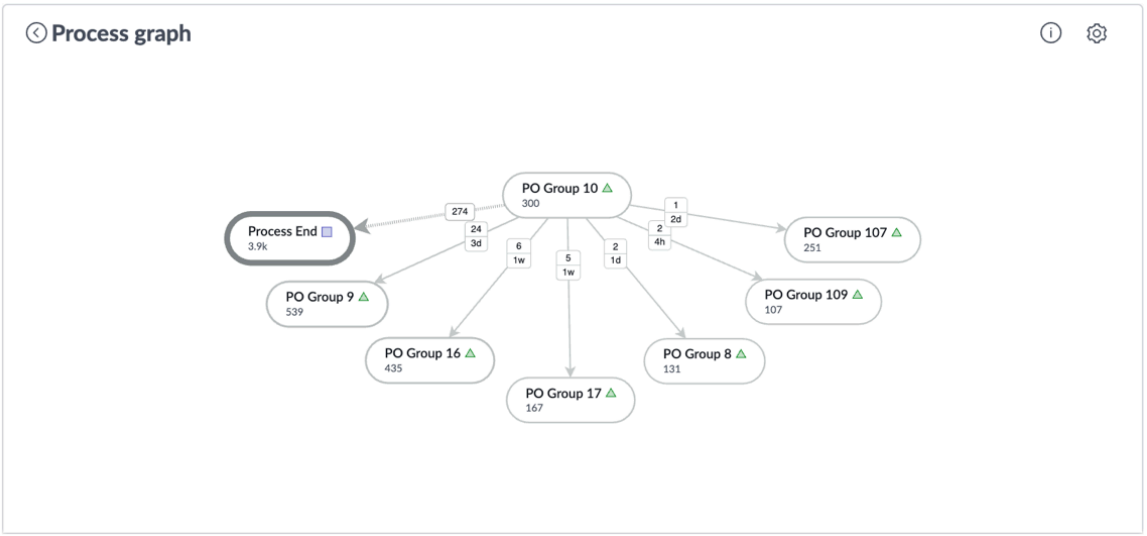


If you filter by **Incoming**, all the records that are assigned to PO Group 10 are displayed. If you're the manager for PO group 10, you can see which groups are assigning how many records to your group. You may then focus on fixing any issues that you see.



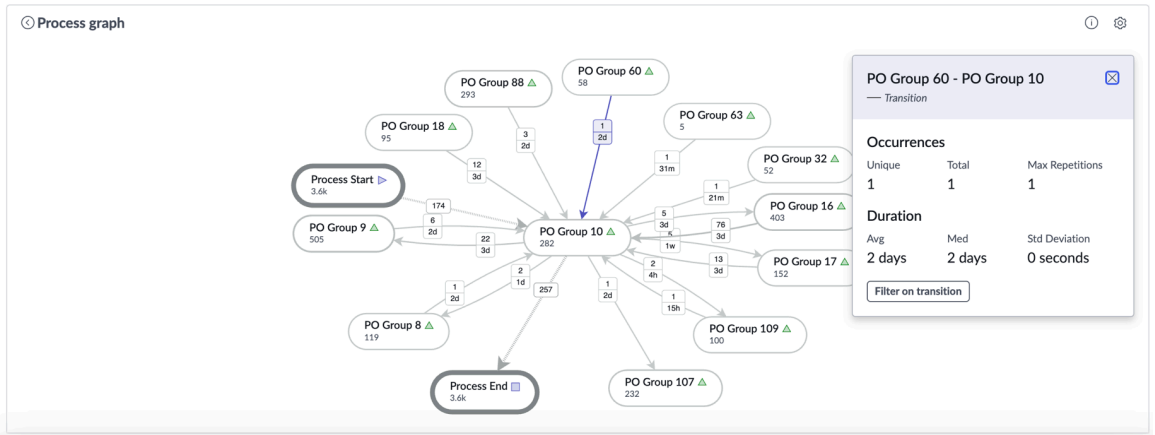
If you filter by **Outgoing**, all the records that are assigned by PO Group 10 to other groups are displayed. If you're the manager for PO group 10, you can see how many records have been reassigned from PO Group 10 to which groups. You may then focus on fixing any issues that you see.

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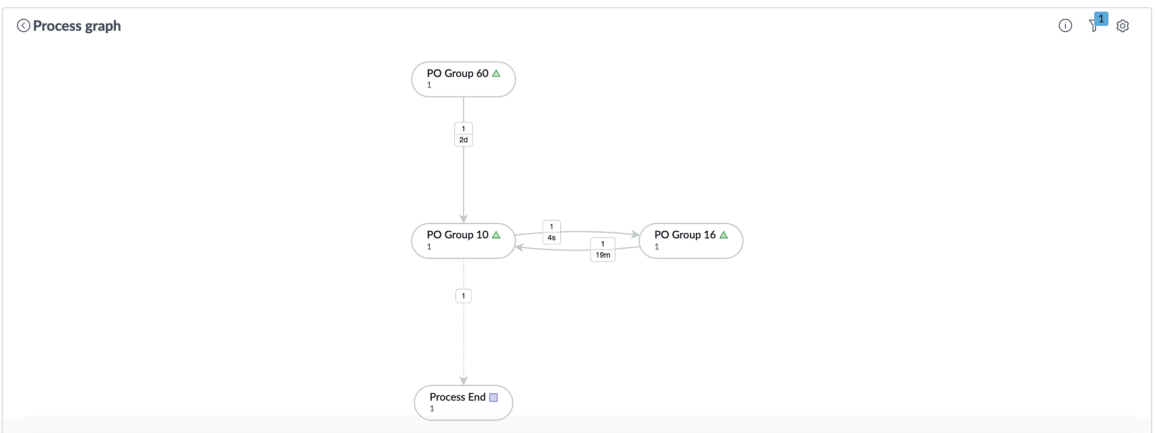


You can filter on transitions too. Select any arc, a window is displayed with the details of the transition.

If you select PO Group 60, you see a window similar to the following.



Select **Filter on transition**. The node star diagram displays results only for that one transition. As the image shows that PO Group 60 assigned records to PO Group 10. PO Group 10 then assigned the records to PO Group 16. PO Group 16 then assigned the records to PO Group 10. Finally, the records were closed.



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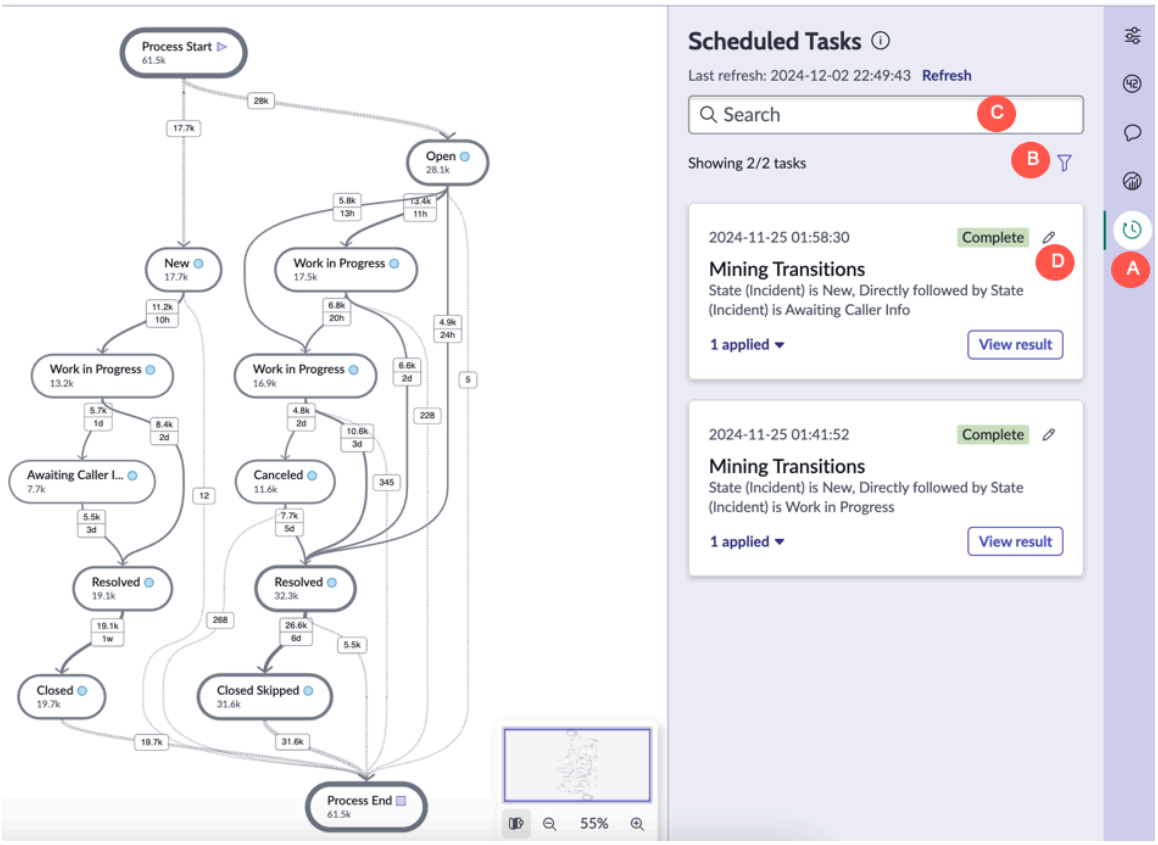
Select any node or arc, the **Show records** button is displayed. Select the **Show records** button. A scheduled task starts. After the scheduled task is complete, select **View result** in the Scheduled Tasks pane.

Viewing scheduled tasks

From the **Scheduled Tasks** panel, view statuses and access the results of on-demand scheduled mining tasks, such as a requested cluster analysis or applied filter view.

The **Scheduled Tasks** panel shows the Queued, In progress, Error, or Complete statuses of these scheduled mining tasks:

- Cluster analysis requests
- Linked process mining
- Applying filters, breakdowns, transitions, and routes



You can further access their results or views from the **Scheduled Tasks** panel.

- A: (Scheduled Tasks icon) Select this icon to open the **Scheduled Tasks** panel.
- B: (Filter icon) Select this icon to filter the scheduled tasks.
- C: (Search field) Use this field to search for specific schedules tasks.
- D: (Rename icon) Select this icon to rename the scheduled task from the default name. The name can have a maximum of 100 characters.

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Working with external datasets

Use the data available outside of ServiceNow® environment in Process Mining to optimize your processes and solve business problems. To use external datasets, you must first import them into ServiceNow® environment.

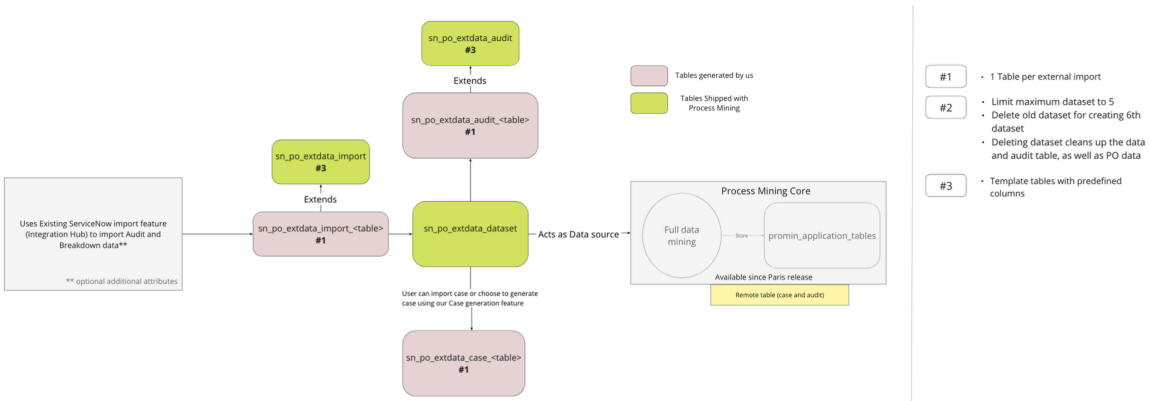
Note:
For Process Mining for External Data subscription, please contact your account team. You can request for the purchase of this feature from ServiceNow® Store.For more information, see Request Process Mining for external data.

Importing external datasets into ServiceNow® environment lets you use Process Mining on any data without thinking about its source, thus making your life easy.

To import external datasets into ServiceNow® and create a project with it and mine it, you must do the following steps:

- Create an audit table
- Import external data into the audit table
- Validate the imported data
- Create a records table
- Create a project and mine it

External dataset architecture



Create an audit table

Create an audit table to store data. Audit table is a staging table that is created with the required columns to populate the external data.

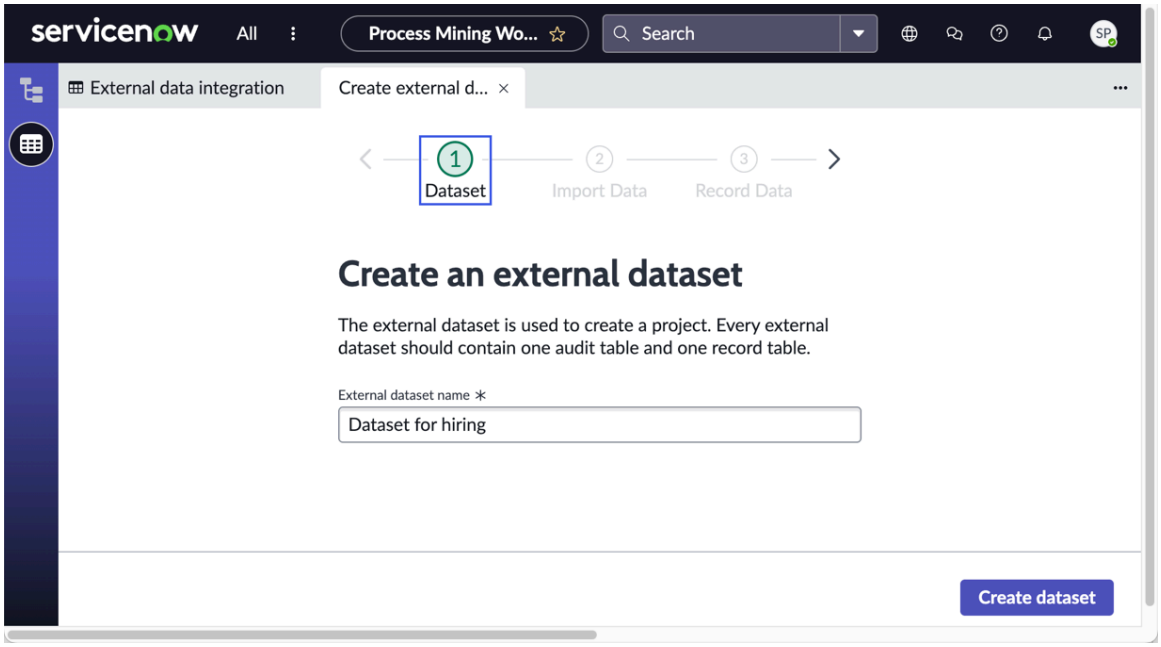
Before you begin

Role required: sn_process_optimization_admin

Procedure

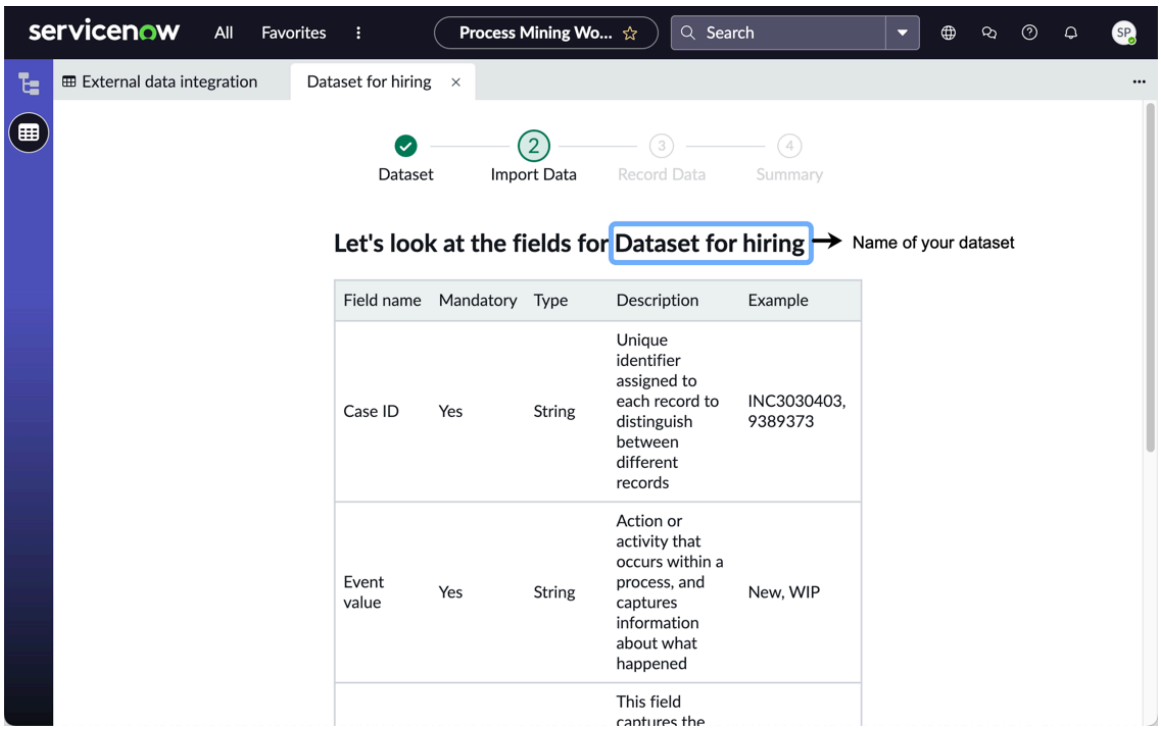
1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select **Create dataset**.
   The **Create an external dataset** tab opens.
4. Provide a name for your dataset.

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Note:
The dataset name must be unique. Ensure to have a user-friendly name that clarifies the type of data and the source for ease of use later.

5. Select **Create dataset.**
   The next screen displays a list of columns for the audit table with their descriptions and examples.
6. Select **Next**.



The next screen enables you to add custom columns for the table. If you need more columns than what is already provided, you can do it here.

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Columns that are automatically added to the table

Column title	Description
Case ID	Refers to a unique identifier that is assigned to each record to distinguish between different records.
Event value	Refers to an action or activity that occurs within a process, and captures information about what happened.
Timestamp	Captures the date and time when an event occurred.
User	(Optional) Refers to the person who performed the action.
Event type	(Optional) Refers to the specific kind of activity that is being recorded in an event log. Event types are often used to group together similar types of events in a single column.

7. Select **Next**.

Add custom fields to the audit table

The custom fields form as breakdown filters when viewing the process graph. Without custom fields, there won't be any breakdown filters.

Before you begin

Role required: sn_process_optimization_admin

Procedure

1. On the **Add additional fields** page, select **Add a custom field**.

   Note:
   You can add a maximum of 10 custom fields.

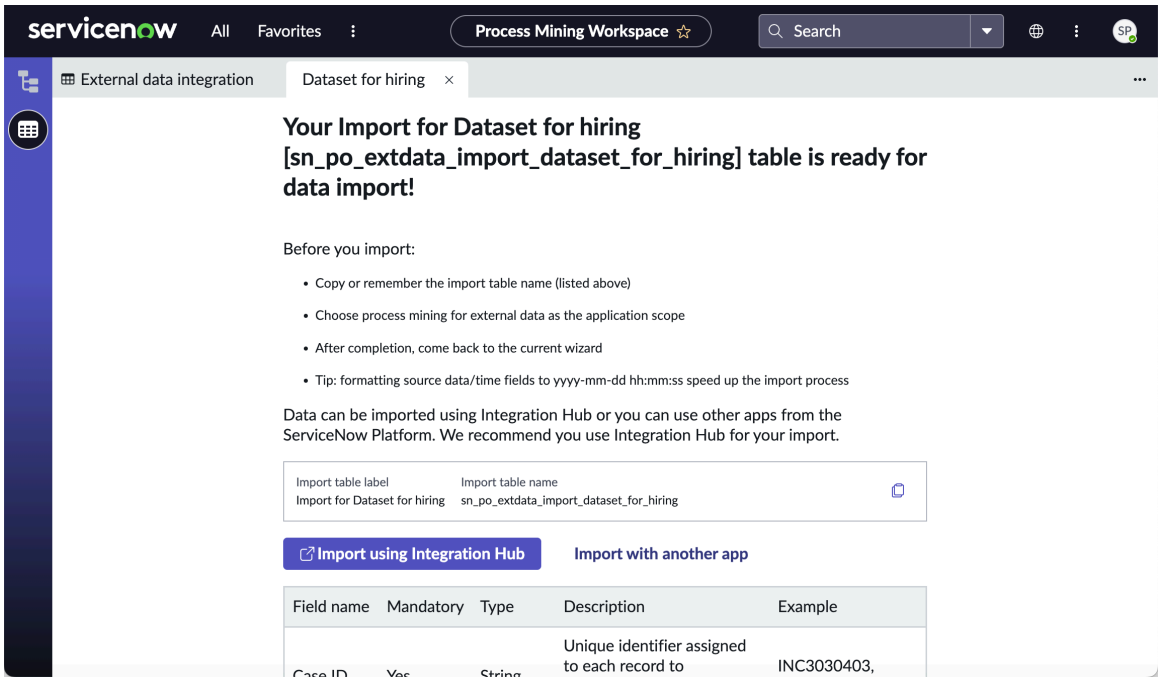
2. Provide a name, and select the type.
   The type has the following options:
   - **String**: For the size, the maximum length permitted is 4000 characters. The default value is 80.
   - **Boolean**
   - **Datetime**
   - **Date**
   - **Decimal**: For the size, the maximum length permitted is 20 characters. The default value is 15.
   - **Integer**: For the size, the maximum length permitted is 20 characters. The default value is 15.
   - **Reference**: If you select **Reference**, you must then select a reference table and a reference field. This will enable you to configure the source and target fields when doing a multi-dimensional mining using external dataset.
3. Select **Next**.

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The next screen displays all the columns for the audit table that you're creating.

4. **Optional:** Select **Go back to add or remove additional details** if you want to change the custom fields.
   After making the change, select **Next**.
5. After validating the list of columns, select **Create import table**.

> **Note:**
> This screen provides you with the name of the table that is created. You'll need this table name in the next steps while importing data.



The audit table is ready. You're now set to import data into the table.

Import data into the audit table

Import external dataset into the audit table to start working with the data in Process Mining.

Before you begin

- Create an audit table

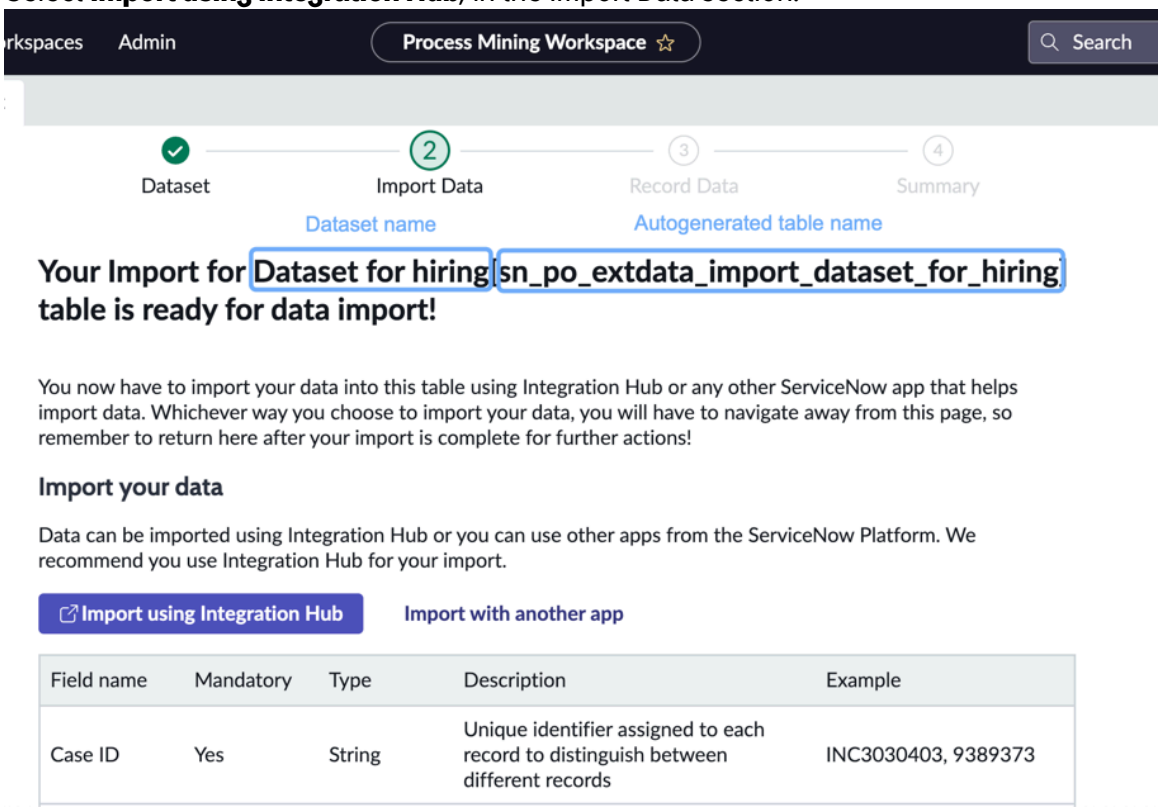
You can import using ServiceNow Integration Hub or any other application. This section describes how to import data using ServiceNow Integration Hub.

Role required: sn_process_optimization_admin

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Procedure

1. Select **Import using Integration Hub**, in the Import Data section.

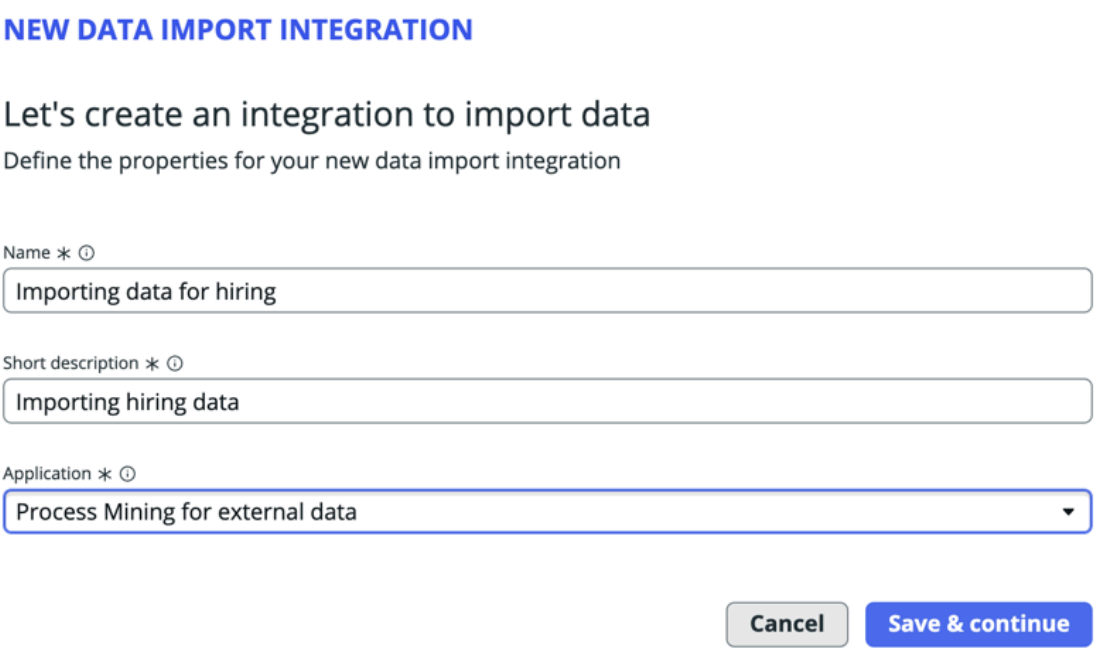


   A dialog box appears requesting you to confirm your selection, and reminding that after importing data from Integration Hub, you must come to this page again.

2. Select **Proceed to Integration Hub**.
   Integration Hub opens in a new tab.
3. Select **Create new integration**.
4. On the NEW DATA IMPORT INTEGRATION page fill the fields.

> **Note:**
> Ensure to specify `Process Mining for external data` in the **Application** field.

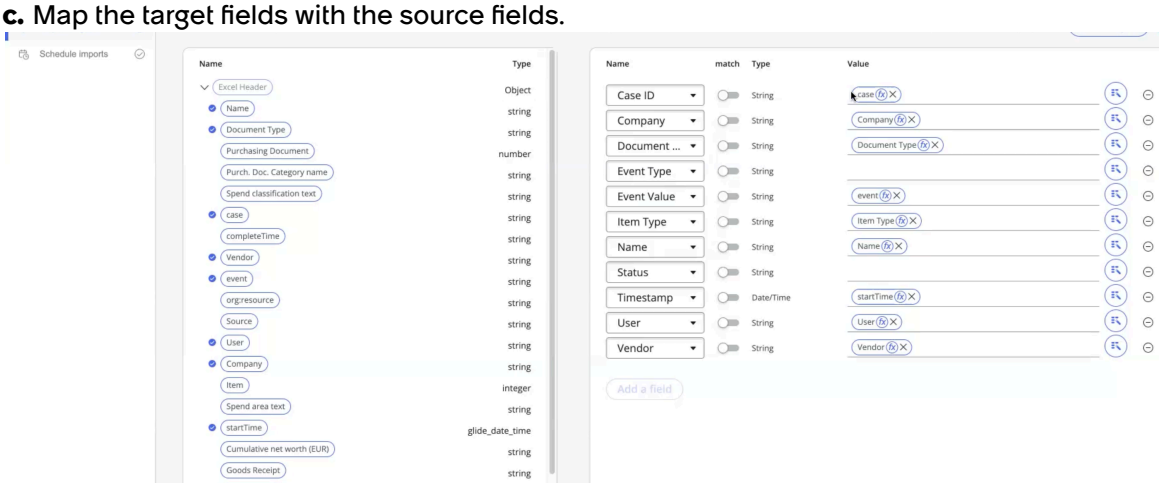
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5. Select **Save & continue**.
6. Select and configure your data source.
   a. Select **File** as a source type from the drop-down list.
   b. Select either Excel or CSV depending on how your data is stored.

> **Note:**
> It is good if you have the date formatted as jjjj-mm-dd uu:mm:ss. This reduces the transformation time in Integration Hub. Also, it is recommended that you use a CSV file for ease of import.

7. You must now map source to target.
   a. Select **Add a table**.
   b. Select a target table. This must be the same table that you created.
   c. Map the target fields with the source fields.



8. Schedule your imports.
   For detailed information, see Integration Hub - Import.

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Verify the imported data

Verify the data that was imported and validate that the data is accurate. The success of your data mining depends on the accuracy of your imported data.

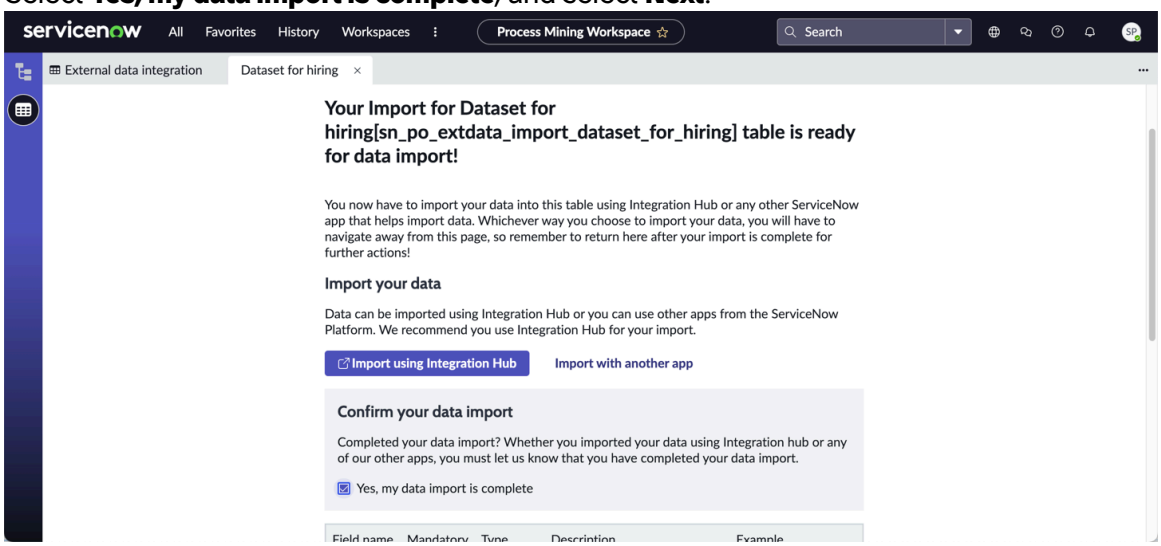
Before you begin

- Create an audit table.
- Import data into the audit table.

Role required: sn_process_optimization_admin

Procedure

1. Navigate to the step where you selected **Import using Integration Hub** in the Import data into the audit table section.
2. Select **Yes, my data import is complete**, and select **Next**.



3. On the next page, select **Preview** to verify the data you've imported.
   Verify that the mandatory and custom fields have the value that you had specified in your source file.
4. **Optional:** Select **edit your dataset** link if you want to import your dataset again or edit the imported dataset.
5. Select **Confirm and continue** after validating your data.

Create case records for the imported data

Create case records for the imported data as it is important for creating a project and mining it. Without a record table, a project can't be created.

Before you begin

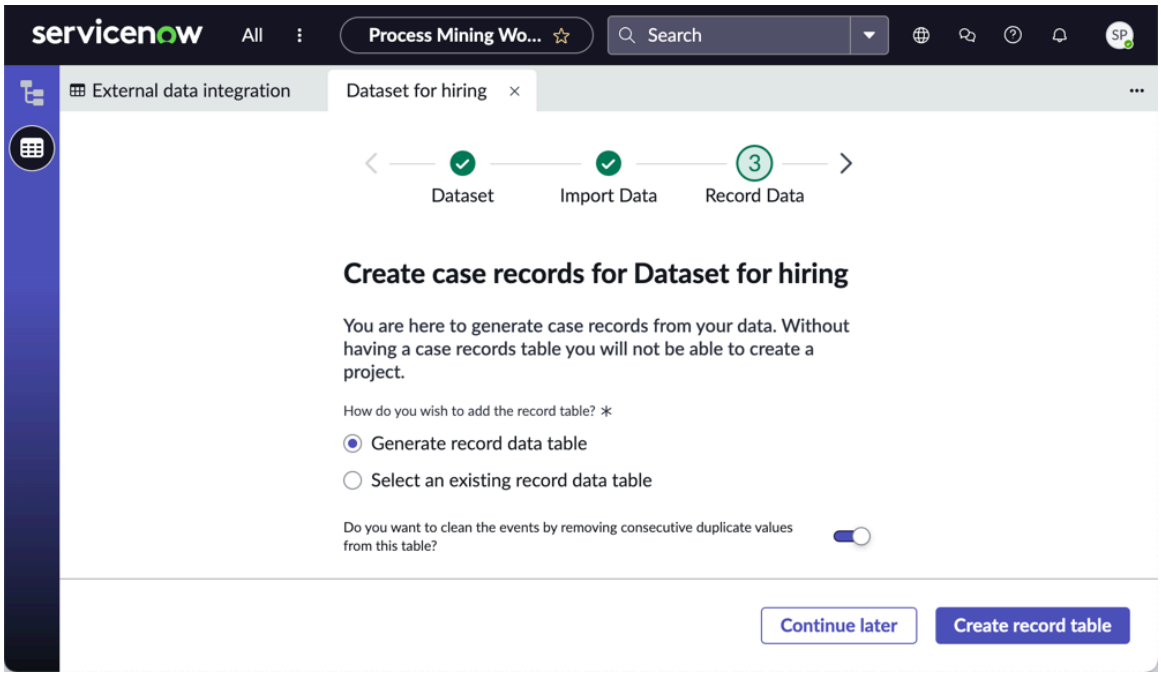
- Create an audit table
- Import data into the audit table
- Verify the imported data

Role required: sn_process_optimization_admin

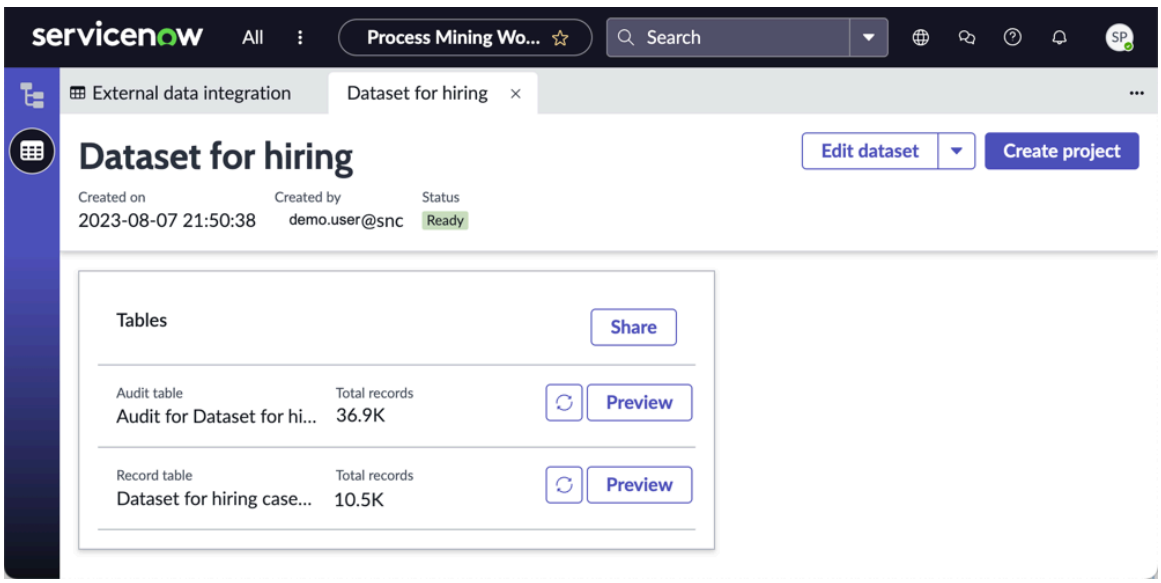
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Procedure

1. After you've validated your imported data, create a record table from the Record Data section.
2. Select an option under **How do you wish to add the record table?**.
   If your audit table has custom fields, then the two options are grayed out. By default, **Generate record data table** is selected.
3. Select **Create record table**.



After the record table is created, a tab opens displaying details of the audit and record tables.



Create a project

Create a project with the imported external data. You must mine the project to analyze your data and improve your processes.

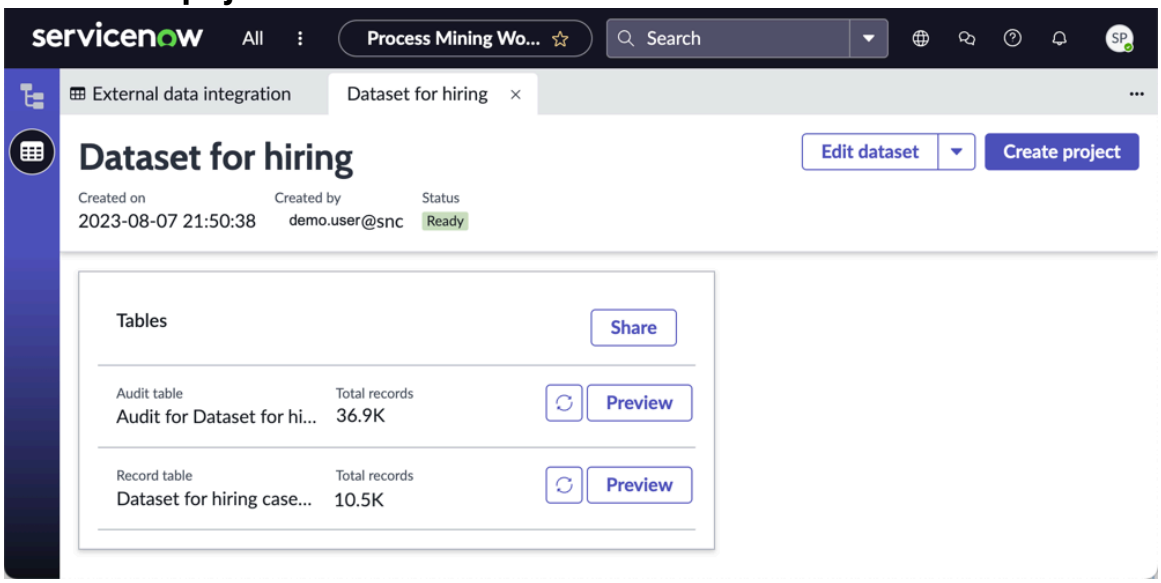
Before you begin

Role required: sn_process_optimization_admin

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Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select a dataset based on which you want to create a project.
   The dataset opens in a new tab.
4. Select **Create project**.



   You are automatically taken to the **Scope your analysis** page on Project Builder.
5. Add activity definitions to the project.

   You can add breakdown filters if required.

   For information, see Scoping your analysis
6. **Optional:** Select **Add child entity**.

   Note:
   You must add a child entity if you are doing multi-dimensional mining using external data.

7. **Optional:** On the form, fill in the fields.

New child table form

Field	Description
Source	You can select one of the following source type: ○ Table: Any database table ○ Report source: Select a table that has reports ○ Archived data: Select an archived table.
Select	Select the table that you want to link with the external dataset.
Parent table	Select the external data table that you are using to create the project.
Relation	Select **Reference** as this will be a reference field.

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Field	Description
Source field	This is automatically populated.
Target field	Select the target reference field. **Note:** To provide a value for this field, you must create a custom field of the type **Reference** while creating the audit table. This will enable you to configure the source and target fields accordingly. For more information, see Add custom fields to the audit table.

Note:
You can add any activity definitions or breakdown filters that is required.

8. Select Next.
9. Create improvement opportunities if required.
   For information, see Set improvement opportunities.
10. Review and mine the project.
    For information, see Review and mine your project.

Managing an audit table

After the audit and record tables are created with the imported data, you can use them to create a project. You can also share, edit, empty, or delete the tables.

Share the audit and record tables

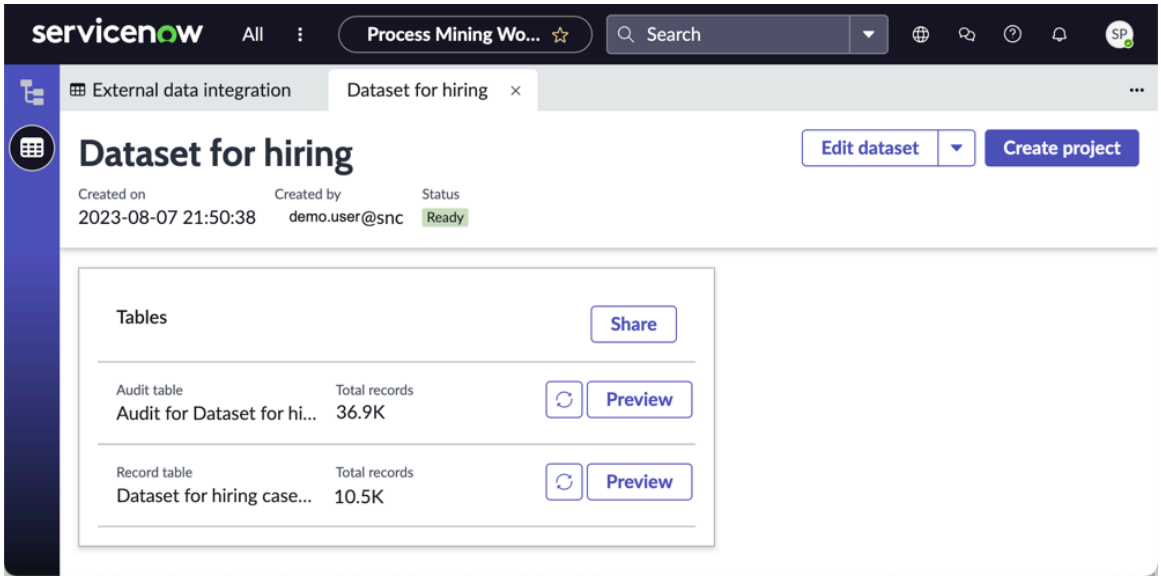
Share the audit and record tables with the analyst to analyze the data. The audit and record tables are available only to the administrator. However, the administrator might want an analyst to look at the tables and create projects.

Before you begin
Role required: sn_process_optimization_admin

Procedure

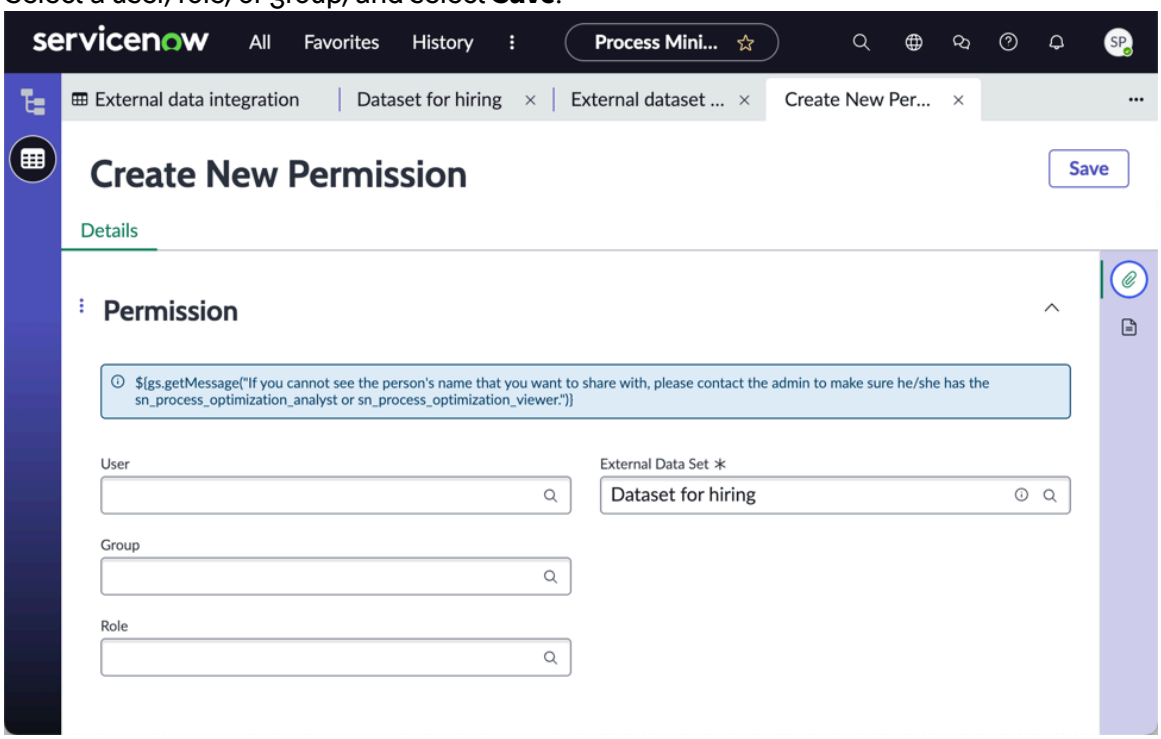
1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select a dataset that you want to share.
   The dataset opens in a new tab.
4. Select **Share**.

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The **External dataset permissions** tab is displayed.

5. Select **New**.
   The **Create New Permission** page is displayed.
6. Select a user, role, or group, and select **Save**.



Every user with the specified permission can access the audit and record tables.

Edit a dataset

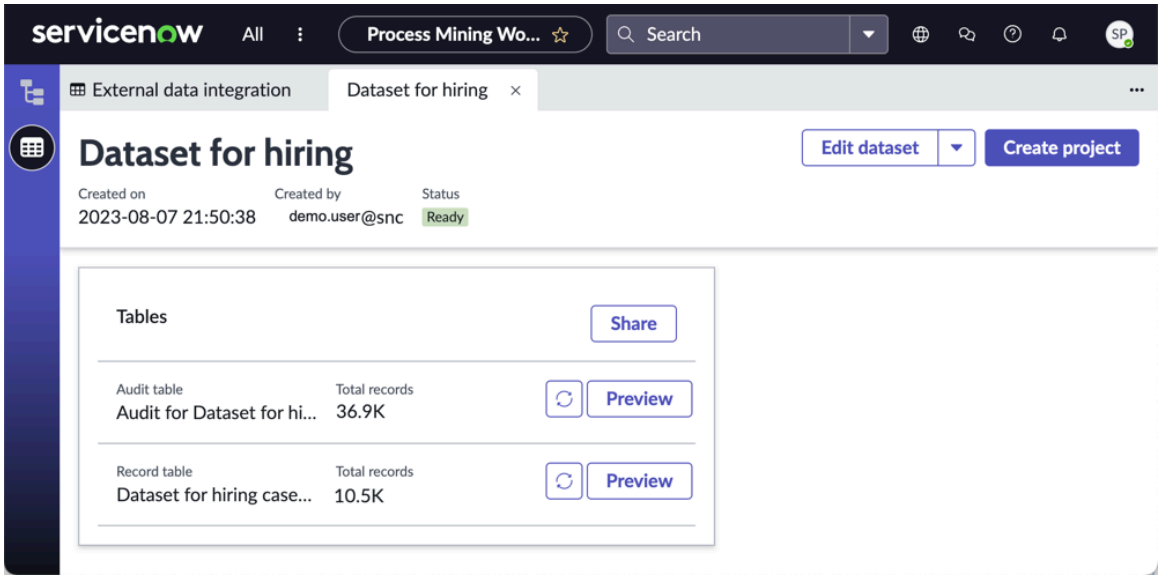
Edit a dataset if you want to change the dataset, such as add or delete data from the current dataset.

Before you begin
Role required: sn_process_optimization_admin

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Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select a dataset that you want to edit.
   The dataset opens in a new tab.
4. Select **Edit dataset** from the dataset tab.



You are taken back to the **Import data** tab. You can import the new data that you want to populate in the table. For steps to import data, see Import data into the audit table.

Empty a dataset

Empty a dataset when you want to remove the old data and import new data from the same external system to the same table.

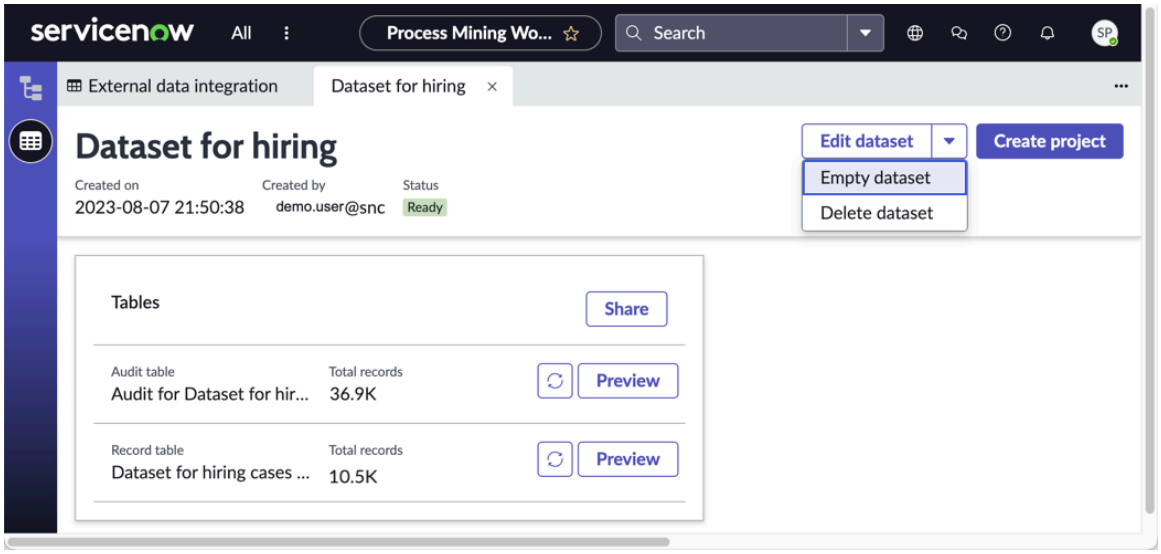
Before you begin

Role required: sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select a dataset that you want to empty.
   The dataset opens in a new tab.
4. Select **Empty dataset** from the dataset tab.

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A dialog box appears requesting you to confirm that you want to empty the selected dataset.

5. Type “Empty” in the confirmation area, and select **Empty dataset**.
   The content from the audit and record tables are removed. After you’ve emptied the dataset, you can import any dataset again. For steps to import data, see Import data into the audit table.

Delete a dataset

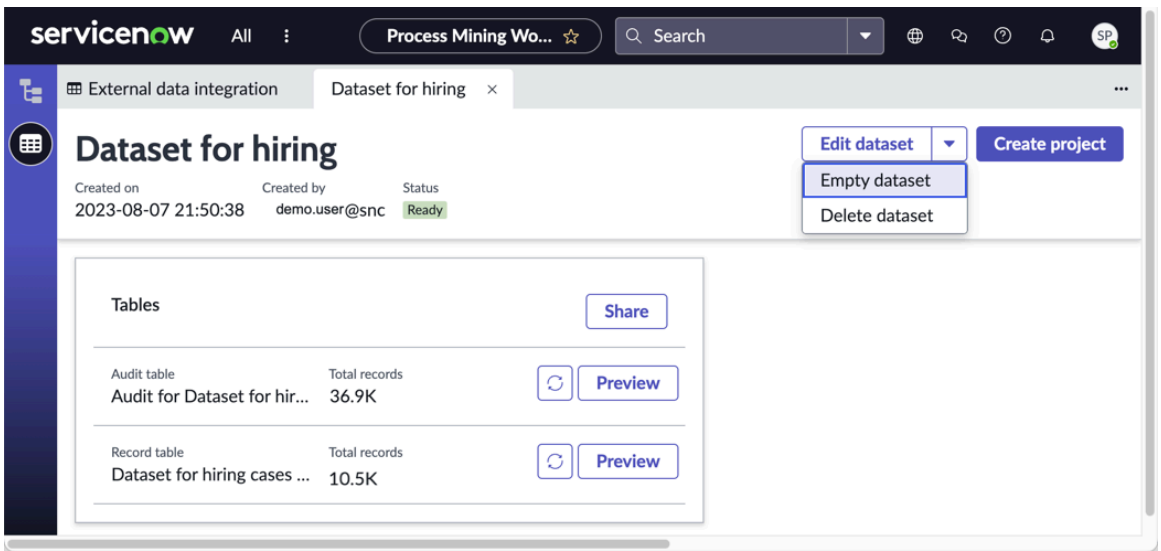
Delete a dataset when the dataset is no longer needed. Your analysis is complete, and you want to delete the entire tables.

Before you begin

Role required: sn_process_optimization_admin

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. On the left of the page, select the External data integration icon ( ).
3. Select a dataset that you want to delete.
   The dataset opens in a new tab.
4. Select **Delete dataset** from the dataset tab.



A dialog box appears requesting you to confirm that you want to delete the selected dataset.

5. Type “Delete” in the confirmation area, and select **Delete dataset**.

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The data from the audit and record tables, and the associated Process Mining projects are removed.

Note:
The tables aren't deleted. Only data is deleted. If you want to delete the tables, the administrator must delete them manually. The administrator must delete the tables periodically.

Share a Process Mining project

Share a project to let others see what you see, and enable a process owner to analyze further.

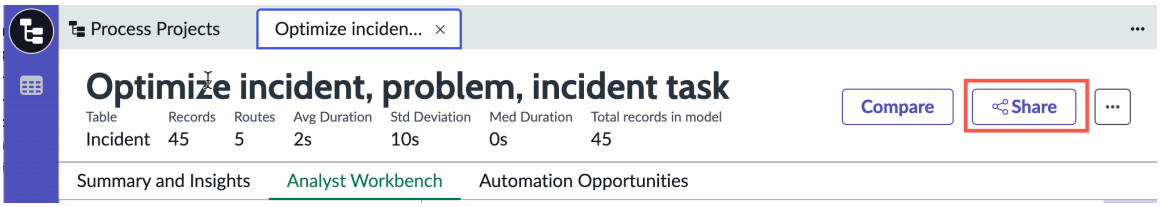
Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Note:
If the user does not have access to a table, the user cannot access the project even if you have shared it with them.

Procedure

1. Navigate to **Workspaces** > **Process Mining Workspace**.
2. From the **Summary and Insights**, **Analyst Workbench**, or **Automation Opportunities** tab, select the **Share** button.



The Share project window is displayed.

3. Type any user, role, and group that you want to share the project with, and select the exact name from the drop-down list.
4. Select **Add**.
5. Select **Confirm**.
On this window, you will see all the users, roles, and groups that the project is shared with. This list gets filtered by the value you select in the **Audience type** list (**All**, **Users**, **Roles**, or **Groups**).
6. **Optional:** To remove any user, group, or role from giving the access to the project, from the **Actions** list for that user, group, or role select **Remove**.

Refresh project data

To refresh the data for a project, mine the project from the Analyst Workbench.

Before you begin

Role required: none

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Procedure

1. From the application navigator, navigate to **All** > **Process Mining** > **Process Mining Workspace**.
2. Select the context menu on the project you want to refresh the data for.
3. Select **Mine project (Full)**.

   a. Select ranges on histograms and multiple finding rules.
   If repetitions are selected in the first rule, you cannot find any other finding rule.

4. Verify you want to mine the project data by selecting **OK**.

   The progress window opens showing audit log analysis and project mining progress.

5. After the mine completes successfully, select **View in Workspace** to view the refreshed project data.

Copy a project

Copy an existing definition to apply its related configurations to a new project definition.

Before you begin

Role required: sn_process_optimization_analyst, sn_process_optimization_power_user, or sn_process_optimization_admin

Procedure

1. Navigate to **All** > **Process Mining** > **Process Mining Workspace**.
2. From the Projects list, select the ellipses beside the project you want to copy.
3. Select the **Copy**.
4. Select **OK** to confirm you want to copy the configuration and create a project definition from it.
   A new process model definition creates with the following:
   - same description
   - source type
   - filter conditions
   - activity definitions
   - breakdown definitions
   - child table definitions
5. Change the name, description, filter conditions, or definitions as needed, and select **Update**.

What to do next

Mine a project

Process Mining reference

Reference topics provide additional information about the lists and forms that you use to configure and administer Process Mining.

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Components installed with Process Mining

Several types of components are installed with activation of the com.sn_po plugin, including tables, user roles, and scheduled jobs.

Note:
The Application Files table lists the components that are installed with this application. For instructions on how to access this table, see Find components installed with an application.

Scheduled jobs installed

Scheduled job	Description
ProminVersionCleanup	Deletes older backup versions.

Tables installed

Table	Description
Process Mining Definition [ml_capability_definition_promin]	A discriminator to identify process mining solutions.
Process Mining Interactive Definition [ml_capability_definition_interactive]	A discriminator to identify process mining on the fly solutions.
Process Mining Record Definition [ml_capability_definition_record]	A discriminator to identify process mining view records solutions.
Activity Definition [promin_activity_def]	Stores the activities depicting the audit log changes to a field on the process graph.
Process Connection [promin_arc]	Stores connections statistics for a project.
Breakdown Definition [promin_breakdown_field]	Stores the breakdowns by which the process map gets categorized.
Breakdown Stats [promin_breakdown_stats]	Stores breakdown statistics for a project.
Filter set [promin_filter_set]	Stores multiple sets of filters applied on a project definition.
Extract Data Log [promin_log]	Stores the extracted audit log data entries generated when mining a project version.
Scheduled Process Mining Jobs [promin_job]	Stores Process Mining scheduled jobs.

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Table	Description
Process Model [promin_model]	Stores multiple model statistics for a project version.
Version [promin_model_def_version]	The version of a mined project.
Process Node [promin_node]	Stores activities for a project definition.
Process Node Statistics [promin_node_stats]	Stores statistics for an activity.
Note [promin_note]	Stores the note records.
Permission [promin_permission]	Stores the users/groups for whom the project definition is shared.
Process Route [promin_route]	Stores route statistics for a specific project.
Case Record [promin_case_record]	Stores record details from an activity, connection, or route.
Process Mining Tracker [promin_ua_mining_tracker]	Stores information regarding the previous mines.
Filter Set Condition [promin_conditions]	Stores the filter conditions corresponding to a project.
Process Scheduled Task [promin_scheduled_task]	Stores requested cluster analysis, data mining, and Process Mining tasks.
Process Configuration [promin_process_def]	Stores process configuration defaults.
Finding Definition [promin_finding_def]	Stores finding definition records.
Finding [promin_finding]	Stores findings discovered for projects.
Finding Rule	Stores finding rule records.

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Table	Description
[promin_finding_def_rule]	
Finding Condition [promin_finding_def_condition]	Stores finding conditions.
Finding Constraint [promin_finding_def_constraint]	Stores finding constraints that act on 2 conditions.
Automated Finding Definition [promin_automated_finding]	Stores definition for the Automated findings.
Automated Finding Configuration [promin_automated_finding_configuration]	Stores configurations for Automated findings.
Process Route Statistics [promin_route_stats]	Stores statistics for the Routes.
Promin case data [promin_case_data]	Stores the log collected during full mine.
Job Process Mining Project [promin_job_m2m_project]	Stores information about the project attached to a job.

Process Mining roles

Process Mining adds these roles.

Roles control access to features and capabilities in applications and modules.

After access has been granted to a role, all the groups or users assigned to the role are granted the access. Roles can contain other roles, and any access granted to a role is granted to any role that contains it.

Process mining administrator [sn_process_optimization_admin]

Access all projects and manage all project settings and configurations and schedule background and jobs.

Contains Roles

The Process mining administrator [sn_process_optimization_admin] role contains the sn_process_optimization_power_user role.

Groups

List of groups this role is assigned to by default.

None.

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Special considerations

Note:
Avoid granting an admin role when more specialized roles are available.

Process mining power user [sn_process_optimization_power_user]

Perform the following actions when assigned to this role.

- Can access all projects and manage all project settings and configurations.
- Can create and share projects.
- Can view projects created by other users and shared with them.
- Can schedule Process Mining jobs.

Contains Roles

The Process optimization power user [sn_process_optimization_power_user] role contains the sn_process_optimization_analyst role.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

Process Mining Analyst [sn_process_optimization_analyst]

Perform the following actions when assigned to this role.

- Create and share projects.
- View projects created by other users and shared with them.

Contains Roles

None.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

Users with this role cannot access all projects.

Process Mining properties

System properties control system behavior. The properties in this section are specific to the Process Mining application.

These properties are available for Process Mining.

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Note:
To open the System Properties [sys_properties] table, enter `sys_properties.list` in the navigation filter.

Properties for Process Mining

Property	Description
promin.limit.node_def	Defines the maximum number of activities for parent nodes in the Process Mining process map. • Type: Integer • Default value: 10 **Note:** Avoid performance issues and a cluttered UI by setting this value no higher than 10.
promin.limit.child_node_def	Defines the maximum number of activities for child nodes in the Process Mining process map. • Type: Integer • Default value: 5 **Note:** Avoid performance issues by setting this value no higher than 5.
promin.limit.breakdown_def	Defines the maximum number of breakdowns for parent nodes in the Process Mining process map. • Type: Integer • Default value: 10 **Note:** Avoid performance issues by setting this value no higher than 10.
promin.limit.child_breakdown_def	Defines the maximum number of breakdowns for child nodes in the Process Mining process map. • Type: Integer • Default value: 5 **Note:** Avoid performance issues by setting this value no higher than 5.
promin.primary_metric	Primary metric used in the Analyst Workbench. • Type: Choice List • Default value: caseFreq • Available values

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Properties for Process Mining (continued)

Property	Description
	○ Avg duration=avgDuration ○ Max duration=maxDuration ○ Median duration=medianDuration ○ Min duration=minDuration ○ Standard deviation=stdDeviation ○ Total duration=totalDuration ○ Total occurrences=absoluteFreq ○ Unique occurrences=caseFreq
promin.rca.min_condition_and_effect	Minimum percentage of records needed to show in the leading influencers list. • Type: Integer • Default value: 10
promin.rca.min_odds_ratio	Minimum required odds ratio. • Type: String • Default value: 1
promin.rca.result_count	Number of top leading influencers to display. • Type: Integer • Default value: 20
promin.secondary_metric	Secondary metric used in the Analyst Workbench. • Type: Choice List • Default value: avgDuration • Available values ○ Avg duration=avgDuration ○ Max duration=maxDuration ○ Median duration=medianDuration ○ Min duration=minDuration ○ Standard deviation=stdDeviation ○ Total duration=totalDuration ○ Total occurrences=absoluteFreq ○ Unique occurrences=caseFreq
promin.perf.result_page_size	Configures the mining result page The default value is 700.

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Process Mining key terms

Key terms used in Process Mining.

Process Mining Key Terms

Term	Description
Activity	A selection of captured tasks or actions from the audit log that are used for visualizing the project, including tracked fields. An activity consists of one step within a process, or which occurred within a route. A connection runs between activities.
Attribute of interest	Activities that are not visible in the process graph, breakdowns, or in variance stats. These definitions are still available to use in rule findings logic.
Audit log	The record of operational system events or activities that occur when a task is performed, such as date, time, and activity.
Connection	Line joining two activities, or process steps, in a map. A connection reflects a part of a process with two sequential, connected steps.
Finding	Key performance insights discovered for a business process. Findings help you review areas that need further attention.
Generate	The process of extracting or mining data from an operational system's event logs and applying algorithms that reveal trends and a detailed picture of how a business process flows.
Linked process	A connected, or subprocess linked to a main process.
Process map	A project generated after a data extraction has been performed that visually represents events gathered from a system's audit log which are part of a defined business process. The map represents actual events, or routes, consisting of a series of steps taken from a defined start to finish. A process map also compares the actual routes to a defined target route to provide a view of business process performance.
Project	Process Mining term for a configured process model.
Record	A business record of a process cycle (project) that runs through a route. Many records can run through a route. In Process Mining, the number of records can change when filters are applied.
Repetitions	Repeated steps (activities) or step sets (connections).
Route	An occurrence of a process where at least one activity within the sequence of steps differs from all other occurrences of the process. Routes can include an optimally defined successful route, as well as variant or possible routes that may be alternate success paths or faulty exception paths. Several routes can be simultaneously represented on a process map.
Sliders	Activity and connection slider tools on the process map screen for showing process steps. Using the sliders can show sequential connections between them in a more or less detailed view.
Transition	A change of activity state.

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Domain separation and Process Mining

Domain separation is supported in Process Mining. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can then control several aspects of this separation, including which users can see and access data.

Support level: Basic

- Business logic: Ensure that data goes into the proper domain for the application's service provider use cases.
- The application supports domain separation at run time. The domain separation includes separation from the user interface, cache keys, reporting, rollups, and aggregations.
- The owner of the instance must set up the application to function across multiple tenants.

Sample use case: When a service provider (SP) uses chat to respond to a tenant-customer's message, the customer must be able to see the SP's response.

For more information on support levels, see Application support for domain separation.

Overview of Process Mining

Process Mining provides a way to generate business process flows from monitoring audit trails and analyzing effectiveness, so you can quickly discover inefficiencies in your processes. This allows in-depth analysis of business processes for improving outcomes.

How domain separation works in Process Mining

A project is configured to generate the process flow. All entities related to a process model definition, such as activity definitions, breakdown definitions, child table definitions, extract data logs, filter sets, notes, and CIM initiatives are created in the same domain as the process model definition.

When you create a new project definition, you set up its domain in the current user's domain. Since you place all related entities for a model definition so they reside in the same domain, when you then create a related entity for a domain separated project definition, the entity is assigned to the project definition's domain.

You can share a project with its own domain or with global domain users.

A Process Mining scheduled Job can include project definitions within the corresponding job's domain only.

A project definition launched from Performance Analytics KPI is created in the current user's domain.

A new CIM initiative added from a Process Mining workspace is created in the project definition's domain.

Use cases

1. Project definition created in the ACME domain: A user belonging to the ACME domain, its parent, or the global domain, can view the project definition.
2. A Process Mining scheduled job created in the ACME domain: A user belonging to the ACME domain, its parent, or the global domain, can view the Process Mining scheduled job.

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3. A Process Mining scheduled job created in the ACME domain: A user can include only a project definition belonging to the ACME domain.

Note:
Cascade domain changes are not supported.

Related topics

Domain separation for service providers

Project definition form

Use the Project definition form to create a project.

Project Definition form

Field	Description
Number	Project number. This number is automatically generated when the record is created.
Project status	Status of the project. **New** Project is new. This is the default state for newly created projects. **Draft** A project in the setup phase that is not yet in use. **Published** Project is ready for use by entitled users. **Retired** Project should no longer be used to analyze the process. Process analyst users must manually update this field, to track the state of the project. This can be essential if there are multiple projects for a given process.
Name	Name of the project
Mining state	Current mining state for this project.
Short description	Short description for the project.
Last mined	Date of the last time the project was mined.
Goal	The goal associated to this project selected from existing goal records.
Auto Retire	Select the **Auto Retire** check box if you want to automatically retire the project based on inactivity for a specified number of days (Default: 90 days). You can extend the retirement by moving it back to published or draft state before the versions get cleaned in another 90 Days (default). If you don't change the retired status within the specified days, the mined versions are permanently deleted. However, the project definition isn't deleted. You can opt out of auto retirement by clearing this check box.

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Project Definition form (continued)

Field	Description
	The default value of 90 days can be changed by the administrator in the System Properties. For more information see, Data cleanup properties.
Template	Whether to create a default or Workforce Optimization template.
Watch list	Users who receive notifications regarding the status of the generated project.
KPI dashboard	The PAR dashboard [par_dashboard] associated with this project. Select an existing dashboard or use the Plus (+) icon to create a dashboard. For details on creating these dashboards, see Create and use dashboards **Note:** Adding a dashboard in this field links the dashboard at the project level. To add the dashboard at the process configuration level, use the same field on the process configuration [promin_process_def] record.

Create new process start/end condition

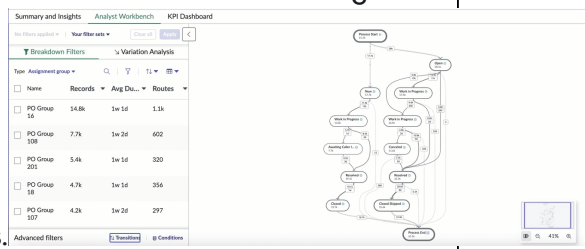
Crop your process by setting the new process start condition and new process end condition. This configuration defines which part of the process should be included in the Process Mining project and made available for analysis. The Create new process start and end condition forms have the same fields.

Create new process start condition form

Field	Description
Name	Name of the condition.
Table	Table for the condition. This field is automatically populated with the table selected in your table configuration record.
Condition type	The condition type used for this condition. • Field/Value condition • Contextual field/Value condition • Performed by • And • Or • Process start condition • Process stop condition
Language	Language for the condition. This field is automatically populated with the current language.
Field	Field used for the condition. These are field from the table in the **Table** field. The designated start and stop field should be

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Create new process start condition form (continued)

Field	Description
	configured as activity definition to make the start or stop condition working.
Predicate	The qualifier for the condition. • is • is not • is anything • is one of • starts with • ends with • contains • does not contain **Note:** When you select "is one of", you can select multiple values at once. Type the first two letters, and select the **Select all** icon to select all matching values. 
Field value	The value use along with the predicate to define this condition. If the field is a reference field, you can select values using the reference icon ( ).
Occurrence(s) to match	Select the occurrence to match for this condition. • All • First only • Last only
Contextual Condition	Additional condition that must be true when the current condition is triggered. For example, you configure your condition to trigger when a record is in the New state. If you wanted to also specify that the **Priority** is high, you can do that using the **Contextual Condition** field.

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Activity definition form

Use the Activity Definition form to report on steps that occur within your business process.

Activity Definition form

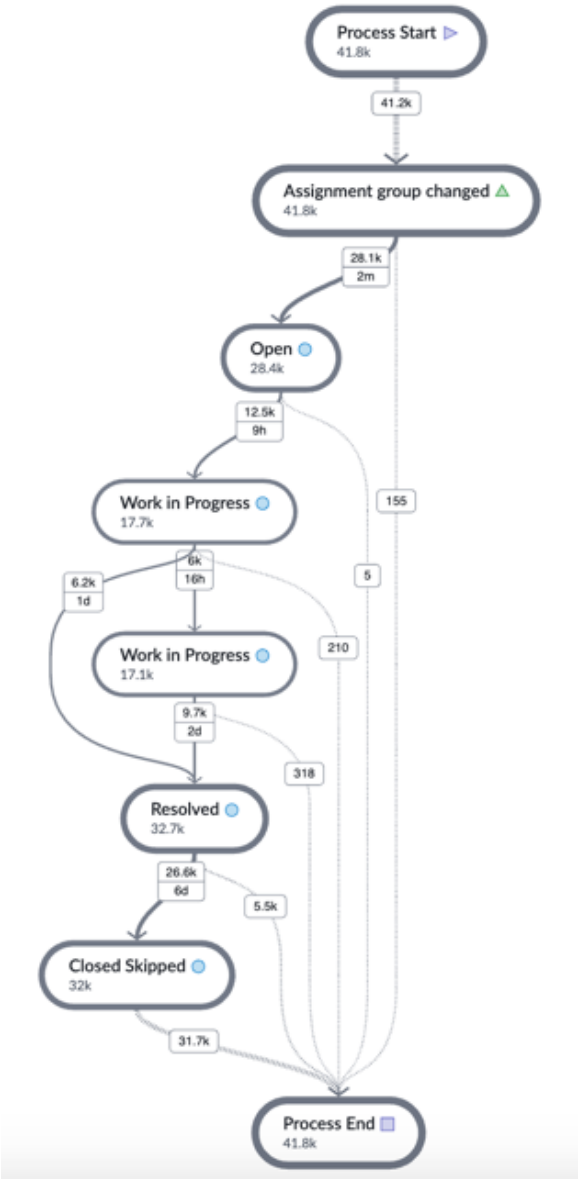
Field	Specify the field or column from the table whose data you want to view in the process graph.
Type	The type of values you want to mine. You have the following values: • Field Values (Default): This is the default selection. This option is available whenever you create an activity definition. • Date Time: Uses date time value from the actual record rather than the audit history and is displayed as a grouped node on the process map. • Compound: One node or process graph representing change in the multiple field value from the actual record rather than the audit history. • Child Attached: This option is available when you have selected two tables for table configuration and have set a child-parent relationship. This option is available only for the parent table configuration. In the visualization, you will see when the child was attached in the process. • Parent Attached: This option creates a node on the child process representing when a parent record was attached to a child.
Display Name (Optional)	Name to display for this activity. If no name is entered, the activity name displays the value provided for **Field**.
Choose activity values	You can choose to mine specific activity values for the selected field.
Activity values	This field is available only if you select the **Choose activity values** field. This field provides a list of values for the selected field that you want to mine. For example, you have chosen the **Incident** table. Now, you want to see records that went through Assignment group Service Desk and Assignment group Database. To see this data, you must select **Assignment group** as the **Field** and add **Service Desk** and **Database** from **List of values**.
Group activities	If you select to group activities, the process map reflects the group of changes for the activity as one change item. For example, suppose you configure **Assignment group** to report on and select group activities. • Changes to assignment group occur and list in the audit log as: Group A > Group B > Group C. • Result: The data in the process map reflects as one change: 'Assignment group changed'. If this option is not checked, the process map reflects records of each instance of change individually. Example: You configure **Assignment group** to report on, but don't select to group activities.

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Activity Definition form (continued)

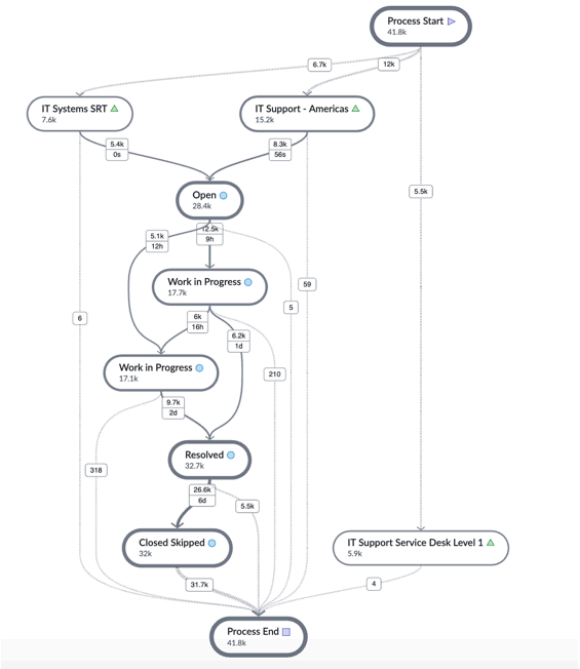
- Changes to assignment group occur and list in the audit log as: Group A > Group B > Group C.
- Result: The process map reflects each individual change made, continuing to reflect the changes as is standard from the audit log: 'Change: Group A > Change: Group B > Change: Group C'.

Changes are grouped



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Activity Definition form (continued)

	Changes shown as standard 
Grouped Activities name	Auto-generated name for grouped activities, or you can enter a different name for changes to the field that will reflect in the visualization. **Note:** This field is only available when the **Group activities** field is selected.
Activity of Interest	Whether field changes appear in the analyst workbench. **Note:** When this option is selected, field changes don't appear in the analyst workbench, but can still be used in contextual conditions in transitions or findings.
Include empty start node	Includes an empty node on the process graph when the selected activity definition field is empty at the time of record creation.

Automated finding definition form from Finding Builder

Use the Create Improvement opportunity definition form to create an automated finding definition from the Finding Builder.

Create Improvement opportunity definition form

Field	Description
Name	Specify a name for your automated finding definition.
Pattern type	This field is auto-populated. The automated finding definition that you chose to create is displayed here. You can change it if necessary.

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Create Improvement opportunity definition form (continued)

Field	Description
Field to detect the pattern on	Select any field from the table on which you want to detect this pattern. The entire finding definition works on this field.
Category	Specify a category to which the automated finding definition belongs. The available options are: • Quality • Automation • Conformance • Performance
Active	Select the field if you want this finding definition to be active. By default, it's selected.
Table	Displays the table name that you have selected. This field is non-editable.
Apply to process	Displays the table name that you have selected. This field is non-editable.
Impacted KPIs	Select the KPIs most likely impacted by the findings. Choosing the affected KPIs enables you to assess the business impact. You can view the KPI-related findings in the insights panel of the Process Mining workspace.

Automation finding definition form from Classic view

Use the Automated Finding definition form to create a finding definition from the Classic view.

Automated Finding Definition form

Field	Description
Name	Title for the improvement opportunity. This text appears at the top of the Insights card on the Summary and Insights page.
Type	Type of finding. You can select from the list available. Three options are available: • Rework: Refers to a repeating step or activity in the process. It happens when a process step must be redone or revisited. • Ping-Pong: Refers to a repetitive pattern where a record bounces between two process steps or activities without interruption, indicating a loop. • Extra step: Compares each route to identify the existence of different routes that deviate in only one step, thus pinpointing process steps where unnecessary transitions occur.

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Automated Finding Definition form (continued)

Field	Description
	• Repeating patterns: Detects unnecessary repeating sequence of steps. • Extreme duration: Finds records with a very long transition time compared to other transition records. • Extreme repetition: Finds records with a very high number of arc repetitions compared to other records on the same arc. • Slow transition: Identifies situations where there is a cluster of records with similar durations, and this cluster has a higher average duration compared to other group of records. This detector also offers a breakdown of the significance of the identified cluster, providing further insights into the root cause.
Category	Category for this finding definition. • Quality • Automation • Conformance • Performance
Field	A field on which the finding definition is used.
Active	Whether the finding definition is active.
Process Configuration	Name of the process table that you have selected to create the finding definition for.
Table	Name of the table. This field is non-editable.
Select impacted KPIs	Select the KPIs most likely impacted by the findings. Choosing the affected KPIs enables you to assess the business impact. You can view the KPI-related findings in the insights panel of the Process Mining workspace.

Rule-based finding definition form from Finding Builder

Use the Create Improvement opportunity definition form to create a finding definition from the Finding Builder.

Create Improvement opportunity definition form

Field	Description
Message	Specify a description for your rule-based finding definition.

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Create Improvement opportunity definition form (continued)

Field	Description
Process Configuration	This field is available when you're creating a rule-based finding definition for a process table. The table name is displayed. This field is non-editable.
Project	This field is available when you're creating a rule-based finding definition for a project. The project name is displayed. This field is non-editable.
Category	Specify a category to which the automated finding definition belongs. The available options are: • Quality • Automation • Conformance • Performance
Active	Select the field if you want this finding definition to be active. By default, it's selected.
Table	Displays the table name that you have selected. This field is non-editable.
Apply to process/ project	Displays the table or project name that you have selected. This field is non-editable.
Impacted KPIs	Select the KPIs most likely impacted by the findings. Choosing the affected KPIs enables you to assess the business impact. You can view the KPI-related findings in the Insights panel of the Process Mining workspace.

Rule-based finding definition form from Classic view

Use the Finding Definition form to configure rule-based finding definitions to deliver discovered insights to your Summary and Insights page.

Finding Definition form

Field	Description
Class	Whether this finding definition applies to a **Process** or a **Project**.
Active	Whether the finding definition is active.
Process Configuration	The process configuration associated with this finding definition. This field is automatically populated.

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Finding Definition form (continued)

Field	Description
	Note: This field appears only when you are creating an improvement opportunity for a process table.
Project	The project associated with this finding definition. **Note:** This field appears only when you are creating a finding definition for a project.
Type	Type of finding. You can select from the list available.
Category	Category for this finding definition. • Quality • Automation • Conformance • Performance
Message	Title for the insight. This text appears at the top of the insight card on the Summary and Insights page.
Select impacted KPIs	Select the KPIs most likely impacted by the findings. Choosing the affected KPIs enables you to assess the business impact. You can view the KPI-related findings in the Insights panel of the Process Mining workspace.

Finding rule form

Use the Finding Rule form to configure finding rules for your finding definition. Finding rules define what record criteria triggers your finding definitions.

Finding Rule form

Field	Description
Chain number	Chain to which this finding rule belongs. **Note:** Finding rules can consist of multiple chains.
Finding definition	Finding definition associated with this finding rule. This field is automatically populated.

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Finding Rule form (continued)

Field	Description
Sequence	Order in which rules in the same chain execute. Rules with a lower value execute before those with a higher value.
Start condition	Event that triggers a finding rule. You may select an existing rule, or create one using the plus (+) button to the right of the field. **Note:** For details on creating a condition, see Configure advanced conditions: crop process.
Relation	Connection between the event defined in the **Start condition** field and event defined in the **End condition** field. • -- None -- • directly followed by • eventually followed by • not directly followed by • not eventually followed by **Note:** Order rule sequences appropriately for how you want the rule set to execute relevant to selected relations. If you select an option other than **none**, you'll want to create a rule, which completes the expression in the desired sequence.
End condition	Event that concludes a finding rule. You may select an existing rule, or create one using the plus (+) button to the right of the field. **Note:** For details on creating a condition, see Configure advanced conditions: crop process.
Track duration	Whether the duration between the start and end conditions are tracked.

Finding constraint form

Use the Finding constraint form to configure finding constraints for your finding definition. In addition to finding rules, finding constraints further narrow down the scope of your finding definitions using metrics like duration and relation constraints.

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Finding Constraint form

Field	Description
Name	Name of the finding constraint
Finding Definition	Finding definition associated with this finding constraint. This field is automatically populated.
Start Condition	Event which triggers a finding constraint. You may select an existing rule, or create a new one using the plus (+) button to the right of the field. **Note:** For details on creating a condition, see Configure advanced conditions: crop process.
End Condition	Event that concludes a finding constraint. You may select an existing rule, or create a new one using the plus (+) button to the right of the field. **Note:** For details on creating a condition, see Configure advanced conditions: crop process.
Duration min	The minimum duration between when the event defined in the **Start condition** field and event defined in the **End condition** field. The event in the **End condition** field must occur after the amount of time specified in this field.
Relation constraint	Optional constraint conditions to further define when the constraint triggers. **-- None --** No relation constraint **has the same** Records must have the same value in a specific field. Specify this field in the **Relation constraint field** field. **has different** Records must have different values in a specific field. Specify this field in the **Relation constraint field** field. **performed by the same user** Start and end conditions must be triggered by the same user. **performed by different user**

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Finding Constraint form (continued)

Field	Description
	Start and end conditions must be triggered by different users. **is same event** **is different event**
Relation constraint field	Field associated with the relation constraint. This field appears when **has the same** or **has different** is selected in the **relation constraint** field. **Note:** The available relation constraint field will appear empty if there are no selections in the **Start Condition** or **End Condition** fields.
Duration max	The maximum duration between when the event defined in the **Start condition** field and event defined in the **End condition** field. The event in the **End condition** field must occur before the amount of time specified in this field.
Relation constraint field	**Note:** This field only appears if the **Relation constraint** field is set to **has the same** or **has different**.

Task Mining

Task Mining helps process owners collect and analyze workstation activities to understand how tasks are performed, identify inefficiencies, and make data-driven decisions.

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Get started

Explore



Learn about Task Mining concepts and features

Configure



Learn how to set up Task Mining

Using



Learn how to use Task Mining

Reference



Get details about Task Mining key terms and background information

Troubleshoot and get help

- Ask questions and explore other resources for Task Mining in the ServiceNow Community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Exploring Task Mining

Use Task Mining to identify inefficiencies in work tasks.

Task Mining overview

Task Mining combines a desktop agent, workstation user activities, and dashboards to process data and deliver organized information. Specific information can be extracted to provide answers to business questions.

Task Mining users

Task Mining roles

User role	Description
Task Mining admin	Access all Task Mining system configurations, settings, and projects. The admin role contains the power user role.
Task Mining power user	Access all Task Mining system configurations and settings. The power user role contains the analyst role.

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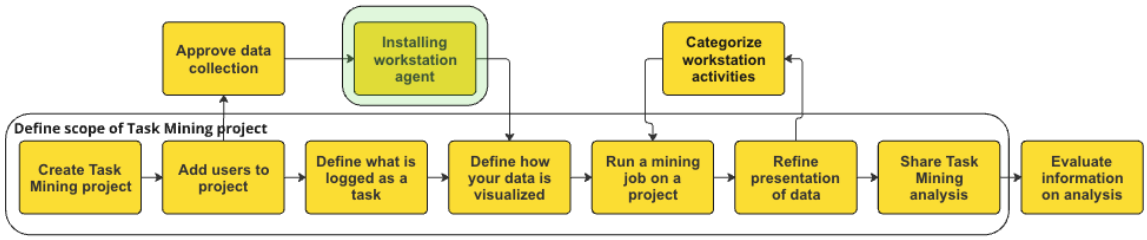
Task Mining roles (continued)

User role	Description
Task Mining analyst	Create and share Task Mining projects, and access projects that another user has shared with them. Request data logging to be enabled for workstation users.

Task Mining workflow

The following workflow shows the primary activities for using Task Mining.

Task Mining workflow



1. As an admin, you configure Task Mining, including modifying notifications, data retention, and event filters.
2. As a Task Mining analyst or power user, you create Task Mining projects to analyze team activities, identify insights, and support business decisions.
3. As a Task Mining analyst, you submit a data request separate from projects to create a data pool to store the data for future analysis.
4. As a manager of a workstation user, you approve data requests.
5. When the request is approved by the workstation user's supervisor, as a power user or admin you make sure the Task Mining agent is installed on the user's workstation.
6. As a Task Mining analyst, define how you want to group tasks in your project and select how you want Task Mining to aggregate your data.
7. As a Task Mining analyst, you run a mining job on a project to generate data so you can categorize activities.
8. As a Task Mining power user, you categorize activities to organize and add context to your data by grouping similar workstation activities with user-friendly category names when shown on Task Mining analyses.
9. As a Task Mining analyst, you run a mining job again on a project to generate an analysis of your project data according to your categorization rules.
10. As a Task Mining analyst, you share the insights with relevant business stakeholders.

Task Mining benefits

Task Mining benefits

Benefit	Value	Example use cases
ITSM and CSM analysis	Gain insights into the effectiveness and specifics of	Uncover precise analytics from team operations analysis and monitoring:

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Task Mining benefits (continued)

Benefit	Value	Example use cases
	how time is spent by workstation users with an analysis of how workstation users engage with processes.	• In vs. out task time distribution • Active vs. idle time • Time distribution per app • Use of specific apps • Time spent per specific activity
IT landscape analysis	View your company's IT landscape to uncover gaps, challenges, and potential compliance threats.	Explore application use beyond the ServiceNow AI Platform to understand how applications are used across an organization: • Multiple apps with the same purpose • App monitoring (time distribution) • License usage • Use of unapproved apps • Suspicious websites monitoring

What to explore next

To learn more about configuring and using Task Mining, see the following topics:

- Configuring Task Mining
- Using Task Mining
- Task Mining Reference

Task Mining Workspace

Explore the Task Mining interface to understand how to identify inefficiencies and make data-driven decisions by collecting and analyzing workstation activities.

Access Task Mining Workspace

Open the workspace by navigating to **Workspaces**>**Task Mining Workspace**.

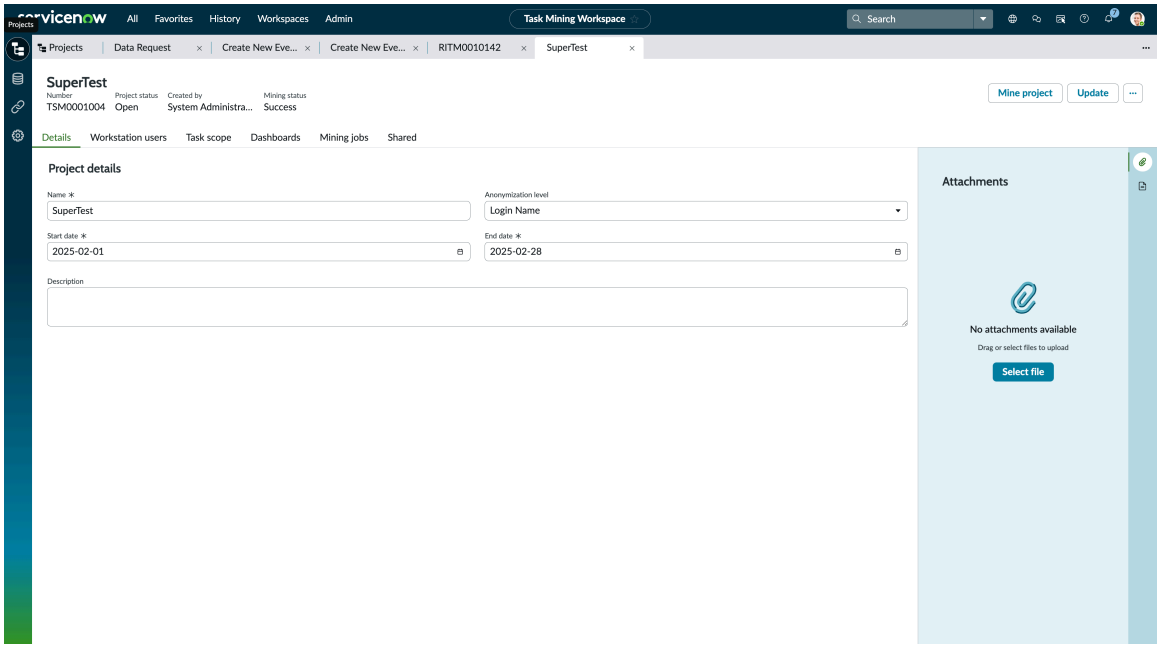
Projects page

You access the Projects page by selecting the Projects icon ( ).

Create projects to define the activities you want to analyze, the workstation users you want to track, and the period over which to collect data. The Projects overview page is your home page, which presents details of the dates and statuses of your projects.

Selecting a project opens the Project details page on which you can see project details and manage project settings. For more information, see Defining the scope of Task Mining projects.

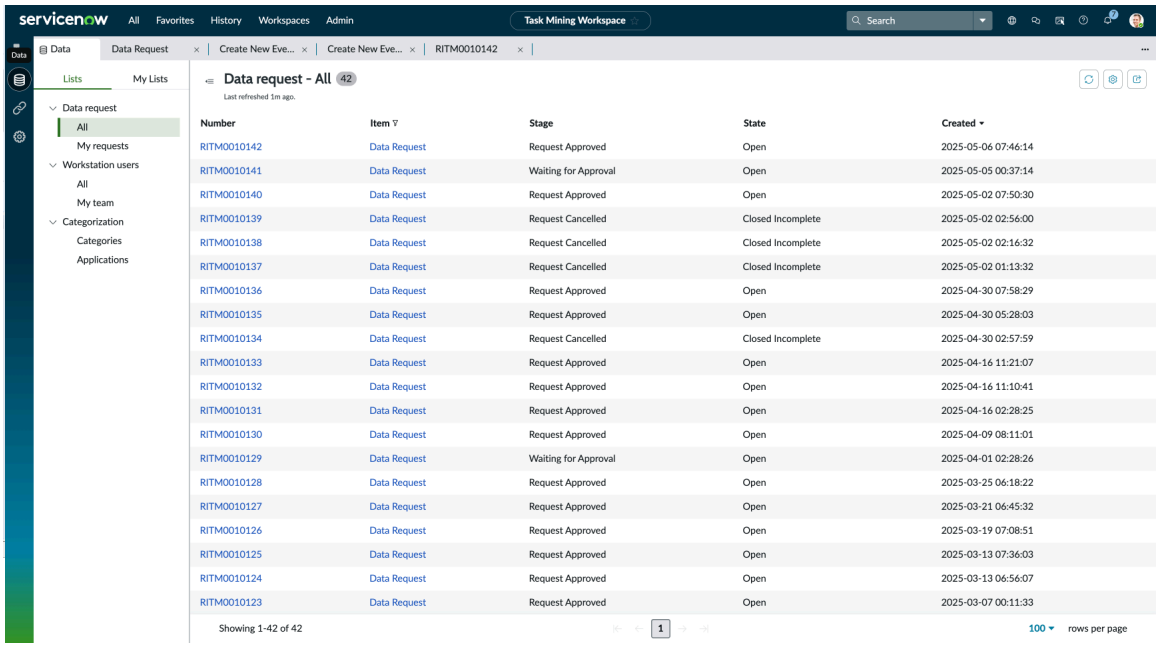
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Data page

You access the Data page by selecting the Data icon ( ).

Access data requests to confirm approvals are completed, manage categorization groups to organize activities, and review workstation user information from the Data page. For more information about managing data requests, see Follow data request progress.

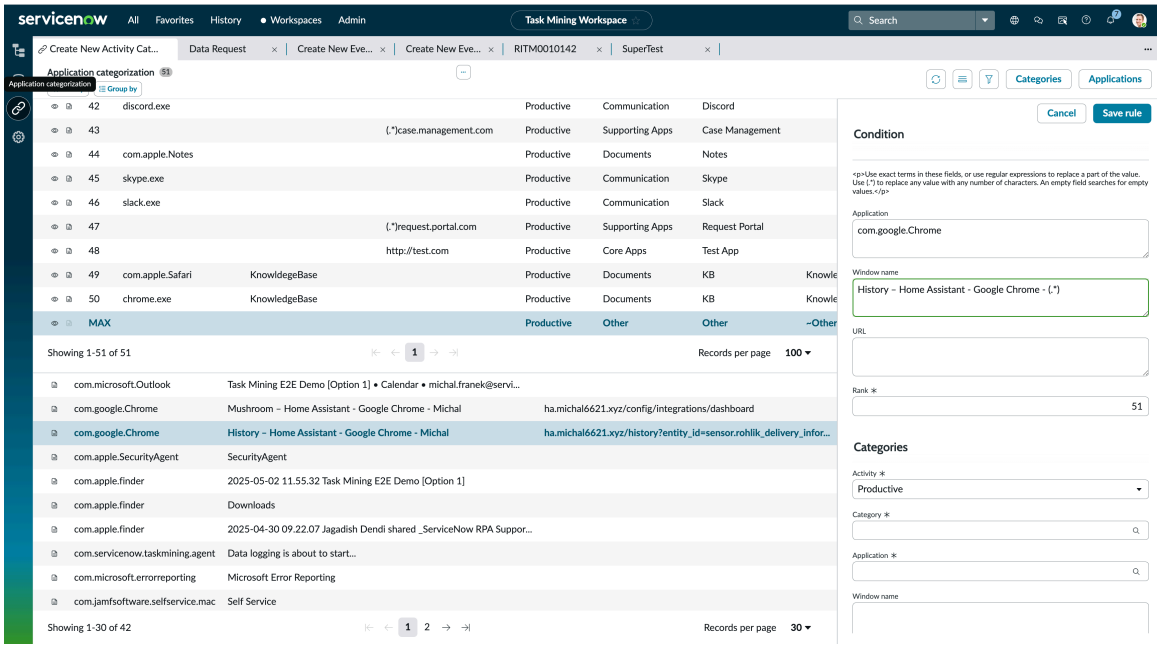


Application categorization page

You access the Application categorization page by selecting the Application categorization icon ( ).

Create rules from the Application categorization page to organize your data by grouping similar workstation activities with user-friendly names. For more information, see Categorize workstation activities to simplify analysis.

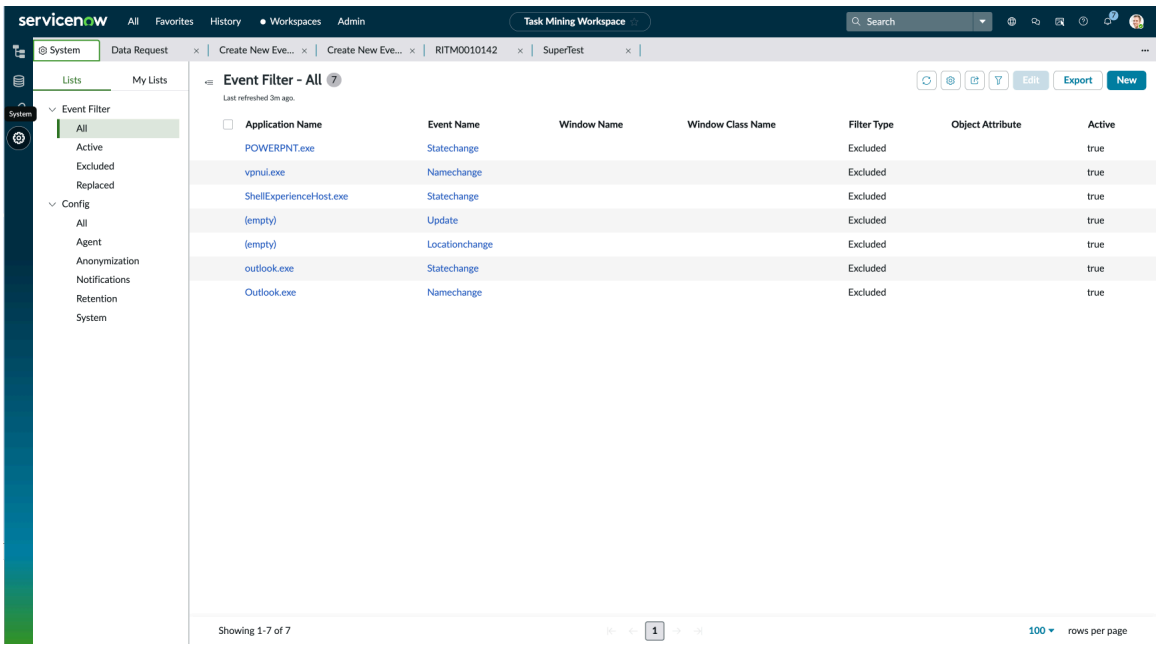
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Configuration page

You access the Configuration page by selecting the Configuration icon( ).

Configure system setting and create event filters on the Configuration page. The list is divided into event filters and configuration records. From the Event Filters list, you can prevent the Task Mining agent from collecting application details by replacing application details that match event filters. From the Configuration list, you can modify system-level Task Mining agent records, anonymize personally identifiable information, adjust notifications to workstation users, and modify retention rules. For more information, see Configuring Task Mining.



Task Mining data model

Task Mining collects and processes workstation data to provide insights into workstation user activities and interactions.

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Task Mining components and data flow



The Task Mining agent is a service installed on a user's workstation that collects data from workstation users on their workstation. This data is sent as a data file to the data processing server. After processing, the data is forwarded to the Task Mining application where it's stored in user data tables. The data is then used in projects and presented to authorized users through dashboards for analysis.

Workstation users

A workstation user is an employee whose daily workstation activities are monitored and logged by the Task Mining agent. Workstation users generally interact with the Task Mining system passively, as the agent operates in the background to collect data on their interactions with various applications and tasks. Workstation users have access to certain features provided by the agent, such as pausing data collection. Their primary role is a source of task-related data and they're a data subject, meaning their personal data is processed under applicable data protection regulations.

Appropriate safeguards must be in place to protect their privacy and promote compliance, as described in the "Data privacy" section.

Important:
Workstation users must log in to their workstation using the same login credentials as they're registered in their organization's ServiceNow instance.

Multi-user support

Task Mining agents support multiple users working on the same workstation.

- The Windows agent supports multiple users accessing the same workstation one at a time. The Windows agent also supports multiple users working simultaneously on the same workstation through remote desktop protocol (RDP), virtual desktop infrastructure (VDI), and virtual apps.
- The macOS agent supports multiple users accessing the same workstation one at a time.

Data collected by the Task Mining agent

The Task Mining agent collects various types of data. Review this list for personally identifiable information (PII) in the collected data.

- Workstation user identifiers associate collected data with a specific workstation user while preserving the user's privacy.
- Application name, window titles, and web app URLs provide context and dashboard data by identifying the applications and web pages that workstation users interact with. Although these activities are essential for providing insights, the PII contained in window titles and URLs isn't needed for analysis. Manage this data carefully to avoid the unintentional exposure of sensitive information such as session tokens, user names, or email addresses.
- The Task Mining agent tracks user interactions with specific UI elements such as input fields, drop-down lists, and buttons. UI object attributes can contain PII, especially when they're related to other data subjects such as customer names or personal details entered into forms.

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In addition to the data collected by the Task Mining agent, Task Mining uses audit trail data that is collected from the Sys Audit [sys_audit] table. This audit trail is used to identify and track activities that were performed during task execution, such as incident processing. This data provides a fuller view of the task, enabling a deeper view of the sequence and nature of activities. For more information, see Data collected by Task Mining.

For a complete list of tables installed with Task Mining, see Components installed with Task Mining.

Data collection methods

Task Mining analysts initiate the collection of workstation user data in the following ways:

- Adding a workstation user to a Task Mining project to collect data in the scope of a given project
- Submitting a data log request for a specified time to create a data pool that you can pull from later for future projects

Data privacy

These data privacy measures safeguard the data collected, reduce the risk of exposing sensitive information, and provide users with control over data collection.

- Data encryption of all data during transmission and while stored.
- A predefined list of applications to exclude from monitoring by the agent that is applied at the system level.
- Event filters to exclude specific types of events from being captured, and to replace with replacement values.
- Event masking to enable the system to protect sensitive information by masking specific attributes of an event rather than excluding the event entirely.
- A private mode on the Task Mining agent controlled by workstation users that temporarily pauses data collection so users can perform personal or sensitive tasks without having their activities logged.
- Required approval by the workstation user's manager (or similar role) for any data collection from workstation users. This role is responsible for reviewing and approving data collection on a case-by-case basis.
- Required explicit consent from workstation users when data collection is enabled on their workstation.
- Restricted workstation user data tables that conceal the identity of the workstation user from whom the data originated and are accessible only to system admins.
- Automatic deletion of data that is not linked to an active project for analysis is deleted after a specified amount of time, so that unused data doesn’t remain in the system indefinitely.
- Restricted access so only authorized users can create and modify Task Mining projects or view or manipulate project data.
- The ability to mask specific activity details such as application names, window titles, and URLs.

Categorization concepts in Task Mining

Categorization rules organize and add context to your data by grouping similar workstation activities with user-friendly category names.

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Purpose of categorization

Task Mining categorization determines how information displays in analyses and provides several benefits.

- Grouping apps into categories makes dashboards more easily readable and enables you to distinguish between different types of activities.
- Displaying only categorized apps avoids cluttering the analysis with unwanted information.
- Anonymization of personal information such as a client name in window names for specific categories with replacement text you specify.
- Grouping similar activities using categories and application groups making dashboards clearer.

Categorization workflow

The process to categorize activities is as follows:

1. A Task Mining analyst mines a sample of data of the applications and windows used in your project. Starting with mined data makes categorization easier as you have the exact values used to categorize activities already available in the data.

   For more information, see Generate a project data analysis.

2. The Task Mining power user creates categorization rules with fixed order values that determine how data from apps and windows is shown on dashboards.

   For more information, see Categorize workstation activities to simplify analysis.

3. The Task Mining analyst previews the analysis to see how the collected data is visualized and handles requests.

   For more information, see Refine the presentation of your data.

4. The Task Mining power user adjusts categorization rules. Applications and application categories are added and modified to provide more detail.
5. A Task Mining analyst mines the project data again.
6. Activities are categorized until uncategorized activities represent no more than approximately 10% of the total data. This level of detail provides a comprehensive view. Further refinement beyond this amount provides diminishing returns.

Predefined categorization rules

Rules are ordered to define which rule applies first. The following four categorization rules can't be changed. These rules are ordered 1,2,3, and MAX. The first three rules apply first by default, and the MAX rule applies last.

1. **Private**: Defines the activity as non-productive, and is used when the agent is in private mode and used when activities are defined as private.
2. **Lock**: Defines the activity as a break, and is used when the workstation is locked.
3. **Off**: Defines the activity as off, and is used when the workstation is turned off.
4. **MAX**: Applies to uncategorized apps that don’t match any rule and are anonymized by default.

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Category and application names

Organizing your activities with categories and application names adds context to your data by grouping similar workstation activities with user-friendly names. Add sensible category and application names to the list available on the categorization rule form before creating the rule for the activity.

Category

Describes the type of work that applications are related to. Don't use the **Other** category as other is used by the Max rule and represents uncategorized apps that don’t match any rule. For example, if you have an app that doesn't fit any category, either use Misc or add a category to the list available on the categorization rule form to describe the type of work that application is related to.

Application

Describes the application names available for creating categorization rules. Don't use an application name with more than one category as it corrupts the treemap chart. For example, you could use the user-friendly application name "Teams" with categories Communication or Core Desktop Apps. However, if you create rules for activities in both the native application and accessing the application in a browser, don't use different categories for the two rules.

Related topics

Categorize workstation activities to simplify analysis

Task Mining analysis

Project analyses enable you to gain insights from your categorized data.

You can access two types of analyses for Task Mining projects: Overall activity and Task activity.

- The Overall activity analysis provides a complete, layered overview of all categorized applications used by workstation users.
- The Task activity analysis shows time spent and frequency of activities and applications used during scoped task, such as resolving incidents. Workstation user actions must be grouped as a task that can be logged to provide data for a Task activity analysis. For more information about defining tasks, see Define user actions for task logging.

For both analysis types, view when and from whom data is collected in the top section of the analysis. Use the drop-down selectors to adjust the time, categories, activities, and users that are shown in the charts.

Overall activity analysis

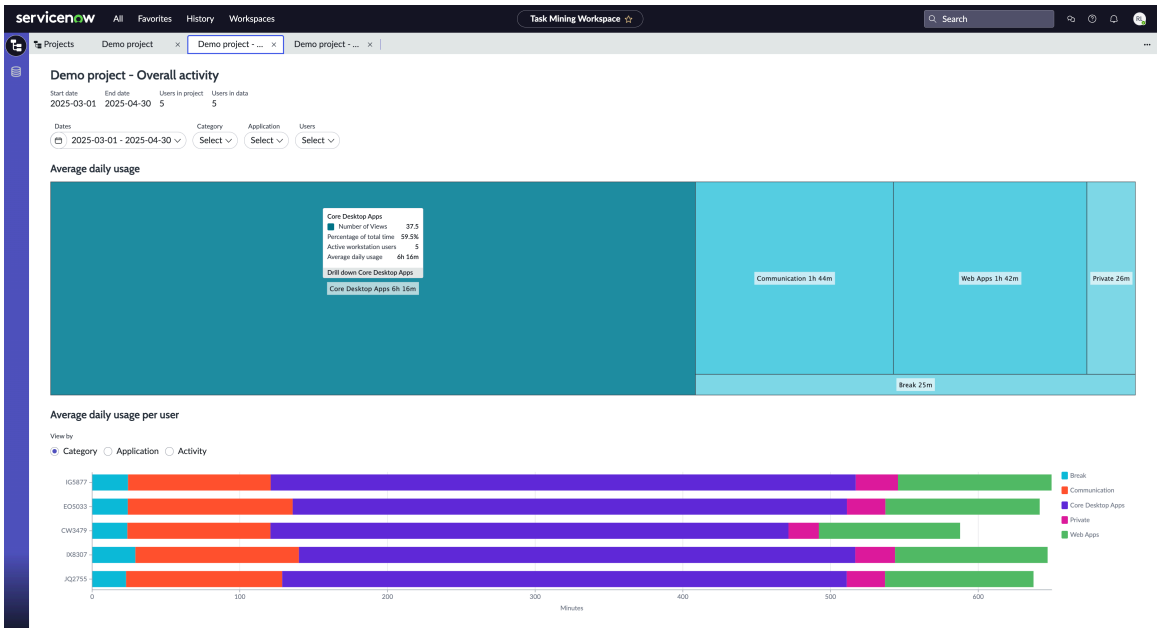
The overall activity analysis provides a layered view of user activities. View data by activity categories, applications, and users to analyze usage trends and user engagement at different levels of detail.

The overall activity analysis includes the Average daily usage and Average daily usage per user charts.

- Average daily usage - This treemap chart shows project data according to the categorization rules set up by the Task Mining power user. View details such as the number of views percentage of total time, number of active workstation users, and average daily usage by hovering over a tile.

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- Average daily usage per user - The stacked bar chart shows project data broken down by workstation users.
  - See workstation user data according to application categories, applications, or activities by changing the view.
  - View detailed information on the categories, applications, or activities by changing the view and hovering over a column bar.



Task activity analysis

The task activity analysis shows the time spent and frequency of task-related activities within tasks that are defined to provide data for the Task activity analysis. In the task activity analysis you can view the number of tasks in the project and the average task duration in addition to when and from whom data is collected in the top section of the analysis.

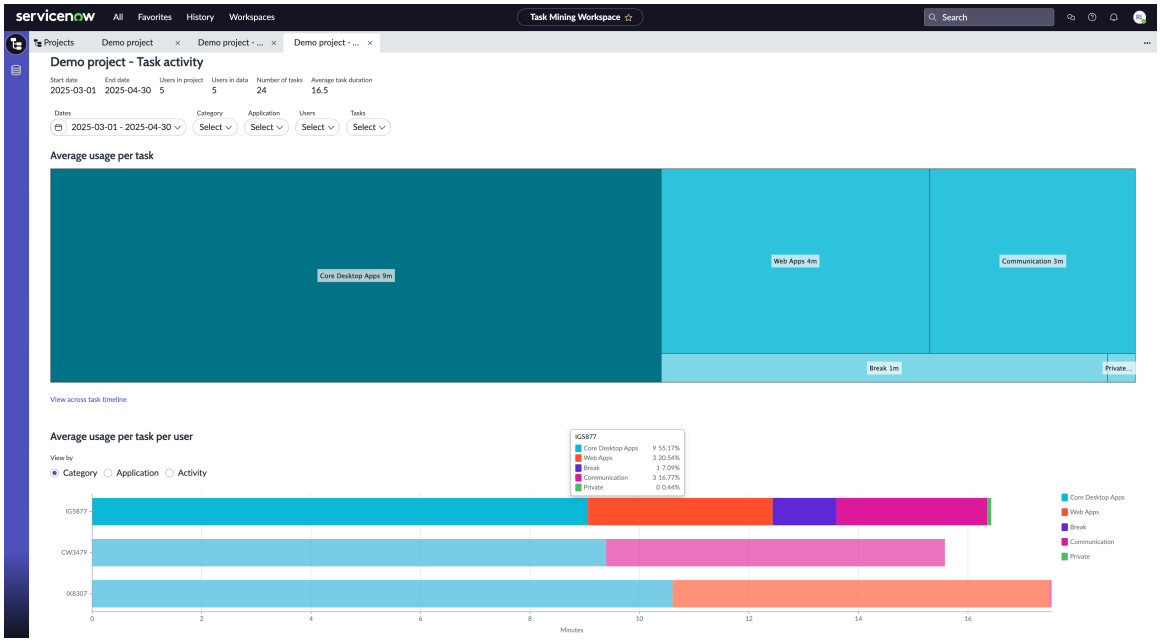
View the data by tasks, categories, applications, and users to analyze task execution details at multiple levels. Use the drop-down selector to adjust the tasks that are shown in the charts as well as time, categories, activities, and users.

The task activity analysis includes the Average usage per task and Average usage per task per user charts.

- Average usage per task - This treemap chart shows project data according to the categorization rules set up by the Task Mining power user. View details such as the number of views percentage of total time, number of active workstation users, and average daily usage by hovering over a tile.

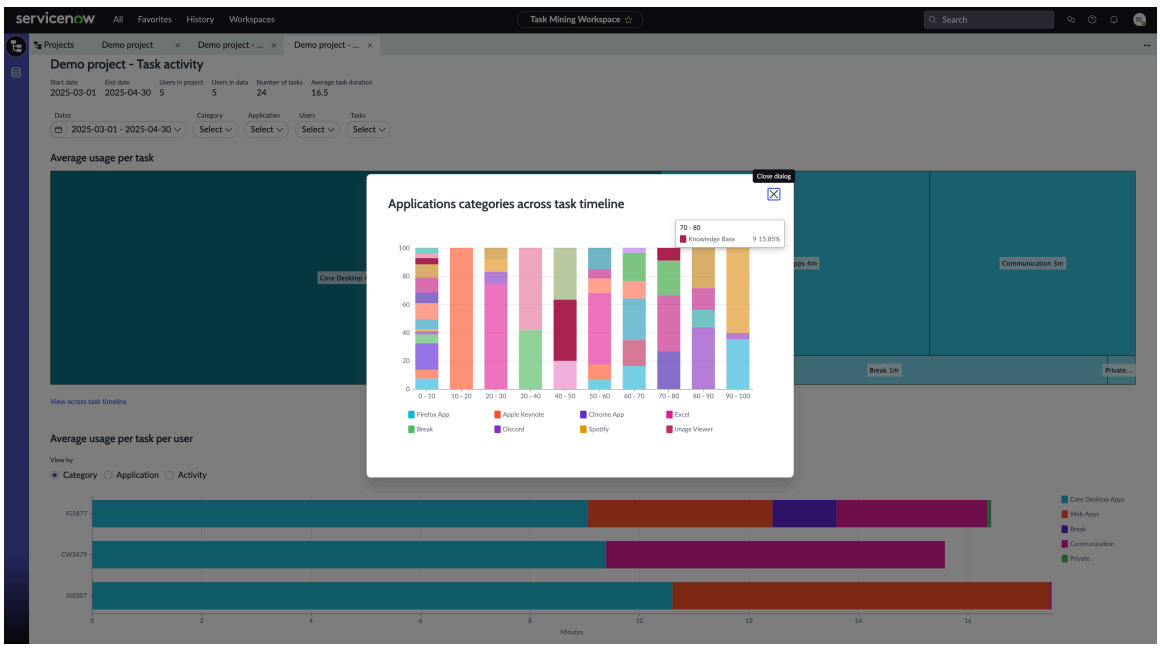
- Average usage per task per user - The stacked bar chart shows project data broken down by workstation users.
  - See workstation user data according to application categories, applications, or activities by changing the view.
  - View detailed information on the categories, applications, or activities by changing the view and hovering over a column bar.

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Selecting the **View across task timeline** link displays the Applications categories across task timeline chart, which shows how applications are being used by the selected workstation users. This chart is accessible only from the Task activity analysis.

The stacked column bar chart divides the task length into percentages. For example, if the task takes 200 minutes, the first section shows 20 minutes of activity.



Installing Task Mining agent

The Task Mining agent is a service installed on workstations that logs certain events from desktop applications.

Role required: Task Mining Agent Install

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Note:
You must be a part of the Task Mining Agent Install group with roles itil, sn_tm_core.service_user, and agent_client_collector_admin to install the Task Mining agent. If the group doesn't exist, create a group with that name and those roles manually. For more information, see Assign a role to a group.

The process to install a Task Mining agent is as follows:

1. Data log request is submitted by a Task Mining analyst or power user.
2. The manager approves the request.
3. Installation is performed by an IT or security user who is a part of the Task Mining Agent Install group with admin rights on the target workstation.

   For more information, see the article in the Now Support Knowledge Base for your operating system:

   - macOS - Task Mining agent installation guide for MacOS [KB2225974]
   - Windows - Task Mining agent installation guide for Windows [KB2225869]

   Note:
   This process isn't performed by a person with a Task Mining role.

4. Workstation users are notified about workstation monitoring.

For more information about the data collected, see Data collected by Task Mining.

Configuring Task Mining

Plan and configure your Task Mining implementation so that Task Mining analysts and power users can access the Task Mining Workspace and create and manage projects.

Configuration overview

These configuration tasks must be performed on each instance being used. After installation, these activities don't have to be performed in any specific order.

Warning:
Do not modify default excluding filters.

Install Task Mining

Install the Task Mining application (sn_tm_core) if you have the admin role.

Adjust Task Mining agent parameters

Modify system-level Task Mining agent and system records.

Define Task Mining anonymization

Replace personally identifiable information with alias data to protect sensitive user information.

Customize Task Mining notifications for workstation users

Use Task Mining notifications to notify workstation users that their work is being monitored, request consent, and inform them if they have any actions to take.

Modify the Task Mining data retention period

Modify the default retention configuration rules to delete data automatically.

Avoid capturing and displaying application details

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Prevent the Task Mining agent from collecting application details but still collect timestamps by replacing application details that match event filters.

Assign roles for Task Mining users

Assign roles to control access to features, capabilities, and data in the Task Mining application.

Install Task Mining

You can install the Task Mining Core application (sn_tm_core) if you have the admin role. The application includes demo data and installs related ServiceNow® Store applications and plugins if they aren't already installed.

Before you begin

- Ensure that the application and all of its associated ServiceNow Store applications have valid ServiceNow entitlements. For more information, see Get entitlement for a ServiceNow product or application.
- Review the Task Mining Core application listing in the ServiceNow Store for information on dependencies, licensing or subscription requirements, and release compatibility.

Role required: admin

About this task

The following items are installed with Task Mining:

- Plugins
- Store applications
- Roles
- Tables

For more information, see Components installed with Task Mining.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the Task Mining Core application (sn_tm_core) using the filter criteria and search bar.

   You can search for the application by its name or ID. If you can't find the application, you might have to request it from the ServiceNow Store.

   In the list next to the **Install** button, the versions that are available to you are displayed.
3. Select a version from the list and select **Install**.

   In the Review Installation Details dialog box, any dependencies installed with your application are listed.
4. If you're prompted, follow the links to the ServiceNow Store to get any additional entitlements for dependencies.
5. **Optional:** If demo data is available and you want to install it, select the **Load demo data** check box.
   Demo data are sample records that describe application features for common use cases. Load the demo data when you first install the application on a development or test instance.
6. Select **Install**.

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Adjust Task Mining agent parameters

Modify system-level Task Mining agent records.

Before you begin

Set the application scope to Task Mining core using the application picker.

Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task

Note:
You can't add new agent configuration records. Be sure to modify only the **Value** field of a configuration record.

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Configuration icon( ).
3. Under **Configuration**, select **Agent**.
4. Select the Task Mining agent configuration record that you want to modify.
   For information on the agent configuration records, see Agent configuration records in Task Mining.
5. Modify the **Value** field.
6. Select **Save**.

Define Task Mining anonymization

Replace personally identifiable information with alias data to protect sensitive user information.

Before you begin

Set the application scope to Task Mining core using the application picker.

Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task

Note:
You can't add new anonymization configuration records.

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Configuration icon( ).
3. Under **Configuration**, select **Anonymization**.
4. Select the anonymization configuration record that you want to modify.
   The available records are:

   Event Field Replacement Value

   Determines the replacement term for any event fields when the replaced event filter is applied. The default value is **BLOCKLISTED**. For more information, see Avoid capturing and displaying application details.

   Minimum level of anonymization

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Determines at the system level the minimum available level of anonymization when setting up a Task Mining project. This value defines how users are identified for the project that you're creating. The default value is **LOGIN NAME**. The other possible values are **INITIALS** for the user's initials or **ANONYMIZED CODE**.

5. Modify the **Value** field.
6. Select **Save**.

Customize Task Mining notifications for workstation users

Use Task Mining notifications to notify workstation users that their work is being monitored, request consent, and inform them if they have any actions to take.

Before you begin

Set the application scope to Task Mining core using the application picker.

Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task

Note:
You can't add new notification configuration records.

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Configuration icon( ).
3. Under **Configuration**, select **Notifications**.
4. Select the notification configuration record that you want to modify.
   The available records are:

   Consent text

   Determines the text displayed to users when assigned to a project.

   Private Startup Text

   Determines the text displayed to users when switching to private mode.

   Note:
   If you leave the private startup text empty, workstation users can't use private timeout.

   Private Timeout Text

   Determines the text that is displayed to users before the private mode timeout.

   Note:
   If you leave the private timeout text empty, workstation users can't extend their private timeout.

5. Modify the **Value** field.
   If the **Value** field is empty, the notification will not appear on workstations.
6. Select **Save**.

Modify the Task Mining data retention period

Modify the default retention configuration rules to delete data automatically.

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Before you begin
Set the application scope to Task Mining core using the application picker.

Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task
Note:
You can't add new data retention configuration records.

Procedure
1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Configuration icon( ).
3. Under **Configuration**, select **Retention**.
4. Select the retention record that you want to edit.

   Task Mining does daily checks for potential deletions.

   The available records are:

   User data retention period

   User data is the workstation data transferred to Task Mining. The retention period for user data is based on the start date and time value of the record. The default value is 30 days. Only records not associated with any project are deleted.

   Project retention period

   The project retention period is based on when a project status is set to Closed. Only projects closed for the retention period are deleted. The default retention period is 10 days.

   DataMart retention period

   A datamart is the mined data with categorization rules applied. The retention period is based on the last opened date for each project. Only data associated with projects that aren't interacted with are deleted. The default retention period is 10 days.
5. In the **Value** field enter the number of days for the retention period.
6. Select **Save**.

Avoid capturing and displaying application details

Prevent the Task Mining agent from collecting application details by replacing application details that match event filters. Application details include the application name, URL, and window name that appear during application categorization and in dashboards.

Before you begin
Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task
Set up event filters before starting a Task Mining project you want the filter to apply to. To create or change an event filter during a project, workstation users must manually restart the Task Mining agent on their workstation.

Use a replacement filter to anonymize sensitive data for either the details of a native application or a specific page in any application.

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- Replace the details of a native application to prevent the Task Mining agent from collecting any information from a specific application while still collecting correct timestamps of activities. For example, you might not want to collect any data from workstation users working in a native app supporting payroll data.
- Replace a page in any of its occurrences to prevent the Task Mining agent from collecting sensitive information from a specific page in any application. For example, you might not want to collect data from a personal payslip page through whatever browser workstation users use.

The Event Field Replacement Value anonymization value affects the output of this filter. For more information, see Define Task Mining anonymization.

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Configuration icon( ).
3. Select **Event Filter**.
4. Select **New**.

   Note:
   Not all fields on the Create New Event Filter form are required to create a replacement filter.

5. In the **Filter Type** field, select **Replaced**.
6. Create a Replaced filter for either the details of a native application or a page in all applications where the page occurs.
7. In the **Object Attribute** field, select all attributes in the raw data you want to replace.
   - To replace URLs that can be exposed in the categorization process, select **URL**. Use this option in most situations. For example, you don't want to see personally identifiable information (PII) in Workday activity URLs, but you still want to categorize Workday activity.
   - To prevent the Task Mining agent from collecting any sensitive or personally identifiable information and transferring it in the raw data, select **All**. This option still collects timestamps for the activities and displays the activity as BLOCKLISTED in analyses, but captures no details. For example, you might have regulatory or security requirements for anonymization.
   - To replace the field names that can be transferred in the raw data, select **Name**. This option still collects details for the activities, but displays BLOCKLISTED in the data. Use this option when you have sensitive field names you don't want exposed in the data.
   - To replace the value of fields that might contain PII that can be transferred in the raw data, select **Value**. This option still collects details for the activities, but displays BLOCKLISTED in the data. Use this option when you have fields containing sensitive data you don't want exposed in the data.
8. Select **Save**.

Assign roles for Task Mining users

Assign roles to control access to features, capabilities, and data in the Task Mining application.

Before you begin

Set the application scope to Task Mining core using the application picker.

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Role required: sn_tm_core.admin or admin

About this task

For detailed information about roles that are installed with Task Mining, see Components installed with Task Mining.

Procedure

Assign roles to users and groups using the ServiceNow AI Platform user administration feature.

- Assign a role to a user.
- Assign a role to a group.

What to do next

Users responsible for installing Task Mining agents must be a part of the Task Mining Agent Install group with roles itil, sn_tm_core.service_user, and agent_client_collector_admin to install the Task Mining agent. For more information, see Installing Task Mining agent.

Using Task Mining

Collect and analyze workstation activities to understand how tasks are performed, identify inefficiencies, and make data-driven decisions.

The following processes are performed using Task Mining to collect workstation data so you can analyze how your people get work done to increase business efficiency.

Defining the scope of Task Mining projects

Start a Task Mining project to analyze data for a specific purpose. Define how long the project lasts, who to collect data from, how to group activities, and how to visualize data.

Requesting workstation user data

Complete data requests for workstation users in the Employee Center to create a pool of data that you can use in future analysis.

Categorize workstation activities to simplify analysis

Organize and add context to your data by grouping similar workstation activities with user-friendly names.

Defining the scope of Task Mining projects

Create a Task Mining project to specify what activities you want to analyze, from which workstation users, and over what period.

The process to request workstation user data is as follows:

1. Create a Task Mining project to analyze data for a specific purpose and define how long project data is collected for.

   For more information, see Create a Task Mining project.

2. Select the workstation users you want to collect activity data from and create data requests.

   For more information, see Add workstation users to a Task Mining project.

3. Group workstation user actions as a task that can be logged to provide data for a Task activity analysis.

   (Optional) For more information, see Define user actions for task logging.

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4. Determine how the Task Mining project aggregates your workstation data.

   For more information, see Define how your data is analyzed and visualized.

5. Run a mining job on a Task Mining project to generate an analysis of your project data according to your categorization rules so you can make data-driven decisions.

   For more information, see Generate a project data analysis.

6. Improve your Task Mining project's analysis before sharing the project to identify gaps in categorization. If you request modifications, you can then run the mining job again to check the result.

   For more information, see Refine the presentation of your data.

7. Determine which process owners have access to the project's analysis.

   For more information, see Share a Task Mining analysis.

Create a Task Mining project

Create a Task Mining project to analyze data for a specific purpose, and define how long project data is collected for.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select **New project**.
3. On the form, fill in the fields.

Task Mining Project details form

Field	Description
Name	Name for the project.
Anonymization level	How users are identified for the project. Available options are determined by the Minimum level of anonymization configuration record. The available options are: • **Login Name**: Identified by name. • **Initial**: Identified by initial. • **Anonymized Code**: Identified by a string of random characters.
Start date	Date to start collecting workstation user data.
End date	Date to stop collecting workstation user data.
Description	Optional description of the project.

4. Select **Save**.

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What to do next
Select workstation users you want to collect activity data from and create data requests. For more information, see Add workstation users to a Task Mining project.

Add workstation users to a Task Mining project

Select workstation users you want to collect activity data from and create data requests.

Before you begin
Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

About this task
All data requests to collect data for the workstation users for a project must be approved before the project can begin.

Procedure
1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the name of the project you want to add workstation users to.
3. Select the **Workstation users** tab.
   If the workstation user list is empty, no workstation users have been added to this project.
4. Remove any users who were previously associated with the project that you no longer want to be included.
   a. Select the workstation user.
   b. Select the More Actions icon ( ).
   c. Select **Delete**.
5. Select **Add users**.
6. **Optional:** Filter the user list by location or department.
7. Select the workstation users that you want to add to this project, and select **Add**.
8. Select **Save**.
9. Obtain permission to collect a workstation user's data if no data request has been approved for that user.

   Note:

   If you want the request to be for a time period independent from a project, request workstation user data through an Employee Center data request. For more information, see Requesting workstation user data.

   a. In the list of workstation users, select any user for whom the **Data request status** is **Required**.
      If a workstation user's data request status is **Requested**, consider reviewing the request details and contacting the approver to urge action on the data request before the project is set to begin. For more information, see Follow data request progress.
   b. Select **Request data**.

Result
A data request is sent to all managers of every workstation user. Once a data request is approved, **Approved** shows in the **Data request status** field and you can work with the workstation user data.

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What to do next

Group actions as a task for an Activity analysis. For more information, see Define user actions for task logging.

Define user actions for task logging

Group workstation user actions as a task that can be logged to provide data for a Task activity analysis.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the name of the project you want to group tasks for.
3. Select the **Task scope** tab.
   If the list of active tasks is empty, no tasks have been defined for this project.
4. Select **Create task**.
5. On the form, fill in the fields.

Task Definition form

Field	Description
Name	Name for the task.
Source Table	The table from which you choose what actions to group.
Filter	Condition based on the selected source table that determines the required task.
Activity Mapping	Activity that you want to group and from which you want to retrieve task state changes.
Start Pattern Point	State that triggers the starting point of the task.
End Pattern Point	State that triggers the end point of the task.

6. Select **Submit**.

Example: Task definition for P1 incidents

To configure a task to track the status of P1 incidents from creation to closing, you would set the values in the following table.

Example: P1 incident tracking task

Field	Value
Source Table	Incident
Activity Mapping	State
Start Pattern Point	New
End Pattern Point	Closed

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What to do next

Select an analysis from available templates to tailor how the Task Mining project aggregates your workstation data. For more information, see Define how your data is analyzed and visualized.

Define how your data is analyzed and visualized

Determine how the Task Mining project aggregates your workstation data.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the name of the project you want to select an analysis for.
3. Select the **Analysis** tab.
4. Select **Select analysis**.
5. Select the analysis you want to use for this project.
   The available options are:

   Overall activity

   Creates a layered overview of all categorized applications workstation users use. Use the Overall activity analysis to see how workstation users use applications in your organization.

   Task activity

   View the time spent and frequency of activities and applications workstation users use during tasks you grouped, such as resolving incidents. Workstation user actions are grouped as tasks to provide the data. For more information about defining tasks, see Define user actions for task logging
6. Select **Add**.

What to do next

Analyze the data for the project. For more information, see Generate a project data analysis.

Generate a project data analysis

Run a mining job on a Task Mining project to generate an analysis of your project data according to your categorization rules so you can make data-driven decisions.

Before you begin

Note:
All data requests in a project must be approved in order to run a mining job. If any data request is pending approval and you need to run the job, you can remove that data request from the project first. For information about adding and removing workstation users from a project, see Add workstation users to a Task Mining project.

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the name of the project you want to analyze.
3. Select **Mine project**.

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If this option isn't available, be sure the project timeline has started and all data requests have been approved.

4. **Optional:** Select the **Mining Jobs** tab to monitor the progress of your mining jobs.

What to do next

Review your analysis to see whether it needs further refinement. For more information, see Refine the presentation of your data.

Refine the presentation of your data

Improve your Task Mining project's analysis before sharing the project to identify gaps in categorization.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the name of the project you want to analyze.
3. Select the **Analysis** tab.
4. Identify uncategorized activities.

   a. Select the name of the analysis that you want to preview.
   The analysis opens in a new tab. For more information about reading the analysis, see Task Mining analysis.

   b. Use the time, categories, activities, and users drop-down selectors to evaluate different views of your charts.

   c. Make note of any large portion of activities that don't use user-friendly categorization that might benefit from being categorized.

5. If you find any areas to modify, contact your Task Mining power user to refine categorization based on the data gaps in the charts you identified.

What to do next

Share the analysis with interested process owners by adding shared users to the project. For more information, see Share a Task Mining analysis.

Share a Task Mining analysis

Determine which process owners have access to the project's analysis.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the project.
3. Select **Shared**.
4. If the project has already been shared with some users, determine whether you still want to grant those users permissions for the project's analysis.

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- To retain a user and the user's current permissions, leave the user name in the list.
- To change a user's current permissions, select the user name, modify the permissions in the Permissions dialog box, and select **Save**.
- To remove all sharing permissions for a user, select the check box for the user and select **Remove**.

5. Determine new users with whom you want to share the project's analysis.
   a. Select **Share**.
   b. In the **User** field, select the user with whom you want to share the analysis.
   c. Select whether to grant Edit permissions to the user.
   d. Select **Save**.
6. Repeat Step 5 for all users you want to grant permission to access the project's analysis.

Related topics

Task Mining analysis

Requesting workstation user data

Requesting workstation user data enables you to collect and store data for future analysis.

The process to request workstation user data is as follows:

1. A Task Mining analyst submits a data request in the Employee Center. For more information, see Submit a data collection request.

   Note:

   If you need to extend the dates you want to collect data past the dates in an approved request, you must create a new request for manager's approval with the new dates.

2. A workstation user's manager approves requests from Task Mining analysts to enable workstation user data collection.

   For more information, see Approve workspace user data collection.

3. A Task Mining power user monitors data requests to confirm approvals are completed before Task Mining projects begin.

   For more information, see Follow data request progress.

Submit a data collection request

Enable data collection for workstation users for a specific time range by completing a data request from the Employee Center.

Before you begin

Role required: sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin

Procedure

1. Navigate to **All** > **Self-service** > **Employee Center**.
2. Search for and select **Data Request**.
3. On the form, fill in the fields.

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Data request form

Field	Description
Name	Name for the request.
Description	Description for the request.
Date from	Date to start collecting workstation user data.
Date to	Optional date to stop collecting workstation user data.
Workstation users	Name of the workstation users you want to collect workstation data from.

4. Select **Request**.
5. **Optional:** On the confirmation form, select a user from the **Request for** menu to submit the request on behalf of another user.
6. Select **Request**.

Result
A data request goes to every manager of each workstation user for approval.

What to do next
If you are an approver, Approve workspace user data collection.

If you want to track the progress of data log requests, see Follow data request progress.

Approve workspace user data collection

Approve requests from Task Mining analysts to enable workstation user data collection.

Before you begin
Role required: approver_user or one of the Task Mining roles (sn_tm_core.analyst, sn_tm_core.power_user, sn_tm_core.admin)

About this task
A request for approval is sent to every manager of each workstation user that data collection was requested for.

Procedure
1. Navigate to **All** > **Self-service** > **My Approvals**.
2. Select the request to see its details.
3. Accept or reject the request.
   - Enable data logging for the specified workstation users for the defined dates by selecting **Approve**.
   - Reject the data logging request by entering a reason in the **Comments** field and selecting **Reject**.

     Note:
     A reason is required when rejecting a data request.

Follow data request progress

Monitor data requests to confirm approvals are completed before Task Mining projects begin.

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Before you begin
Role required: sn_tm_core.power_user, sn_tm_core.admin

Procedure
1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Data icon ().
3. Under **Data Request**, select **All**.
4. Select the data log request that you want more information about.
5. Check the approval progress of the request in the **Stage** column.
   The data request statuses are:
   - Waiting for Approval: Data request for at least one workstation user has not been approved.
   - Request Approved: Data requests for all workstation users have been approved.
   - Request Cancelled: The data request was rejected.
6. Follow-up on a data request that is waiting for approval or find out why a request was rejected.

   a. Select the request link in the **Number** column.

   b. Select the **Approvers** tab.

   c. Check the data request details.
      - **Approver**: Manager who is required to act on the data request.
      - **State**: Status of the data request.
      - **Comments**: Names of the workstation users in the data request or the reason the request was rejected.

7. If you want to accelerate the progress of a pending request, contact the approver and urge action before the project is set to begin.

Categorize workstation activities to simplify analysis

Organize and add context to your data by grouping similar workstation activities with user-friendly category names.

Before you begin
Begin categorizing activities after you mine a sample project to collect workstation activity data. This sample activity data makes categorization easier because you have the exact application and window values used in your organization available.

Role required: sn_tm_core.power_user, sn_tm_core.admin

About this task
Four predefined categorization rules are provided and can't be changed. The first three rules classify inactive time. The MAX rule applies last and represents uncategorized activity that doesn't match any rule, and is the source for categorizing activities. This uncategorized data is anonymized by default.

For more information, see Categorization concepts in Task Mining.

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Procedure

1. Navigate to **Workspaces** > *Task Mining* **Workspace**.
2. Select the Application categorization icon ( ).
3. **Optional:** Add categories to the list available on the categorization rule form to describe the type of work that applications are related to.
   For example, if your organization uses many social media applications, you might want to create a category named Social media.
   a. Select **Categories**.
   b. Select **Create category**.
   c. Enter a category name in the **Name** field.
   d. Select **Save**.
4. **Optional:** Verify whether all of the applications your organization wants to analyze are listed on the categorization rule form and add any that are missing.
   This list determines the application names available for creating categorization rules. You can provide user-friendly application names, such as "Teams" for "Microsoft Teams."
   a. Select **Applications**.
   b. Select **Add application**.
   c. Enter an application name in the **Name** field.
   For example, you could add the user-friendly name "Teams" for activities in both the native Microsoft Teams application and accessing the application in a browser.
   d. Select **Save**.
5. Identify which applications to categorize.
   a. Select the Preview icon ( ) in the **MAX** category.
   b. Find the largest value in the **Duration (sec)** column and select the Create rule icon ( ) next to the application's name.
   You could also choose to create an application-based rule, for example, by finding an activity with a Microsoft Teams file name.

   The condition values in the categorization rules form are populated based on the activity record you selected.
6. On the **Categorization Rule** form, fill in the fields.

   To match the activity record exactly, leave the default conditions as-is. To make a more generalized rule, leave the field empty to allow any value, or use (.*) to replace any value with any number of characters.

   For a description of the field values, see Categorization rule form in Task Mining.
7. Select **Save rule**.

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Note:
To ensure that more granular rules for an application are applied before more general rules, place more granular rules before more general rules.

8. Continue recalculating categorizing activities until uncategorized activities represent no more than about 10% of the total duration.

Related topics

Refine the presentation of your data

Task Mining Reference

Reference topics provide additional information about the terms, forms, and concepts that you use for Task Mining.

Components installed with Task Mining

Several types of components are installed with the Task Mining application, including tables, user roles, and scheduled jobs.

Roles installed

Roles installed with Task Mining

Role title [name]	Description	Contains roles
Task Mining admin [sn_tm_core.admin]	Access all Task Mining system configurations and settings. The admin role contains the power user role.	[sn_tm_core.power_user]
Task Mining power user [sn_tm_core.power_user]	Access all Task Mining system configurations and settings. The power user role contains the analyst role.	[sn_tm_core.analyst]
Task Mining analyst [sn_tm_core.analyst]	Create and share Task Mining projects, and access projects that another user has shared with them. Request data logging to be enabled for workstation users.	• [canvas_user] • [workspace_user]

Tables installed

Tables installed with Task Mining

Table	Description
Task Dashboard [sn_tm_core_dashboard]	Dashboard template configurations and displayed information.
Permission	Information about a project's permissions that are applied to users, user groups, roles, or domains.

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Tables installed with Task Mining (continued)

Table	Description
[sn_tm_core_permission]	
User Information [sn_tm_core_user_data]	Activities collected from workstations that are linked to the workstation user. Created from data logs aggregated by application name, screen name, and URL.
Task Definition [sn_tm_core_task_definition]	Definitions of tasks with start and end points.
Event Filter [sn_tm_core_event_filter]	List of combinations of event, application name, window name, and window class name filtered by the agent. These combinations can be either excluded so the events aren't stored or replaced so targeted events are replaced as a block-listed application.
Object Attribute [sn_tm_core_object_attribute]	Replaceable event filter object attributes that can't be modified.
Project user data [sn_tm_core_project_user_data]	Categorized workstation user activity connected with projects.
Task Instance [sn_tm_core_task_instance]	Task records with timestamps.
Task segment percentage [sn_tm_core_task_segment_percentage]	Task segment measurement used in data mining.
User task data [sn_tm_core_user_task_data]	Workstation data combined with task instance data used in the data mining process.
Application [sn_tm_core_application]	Categories for Task Mining applications.
Task Mining User Information [sn_tm_core_user]	Contains the following information for active or inactive workstation users listed on workstation data log requests and whether the agent is requested, installed, or uninstalled.
Event Translation	Translation of events to simple language shown in the UI that can't be modified.

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Tables installed with Task Mining (continued)

Table	Description
[sn_tm_core_event_translation]	
Task Mining Project [sn_tm_core_project]	Projects created by the Task Mining analyst.
Application Category [sn_tm_core_application_category]	Existing records for Task Mining application categories.
Task Mining Configuration [sn_tm_core_configuration]	Configurable parameters in the application.
Project User Anonymization [sn_tm_core_project_user_anonymization]	All user aliases with references to related project and workstation users.
Project Mining Job History [sn_tm_core_project_mining_job]	Information about project mining jobs, including mining and datamart deletion.
Activity Categorization Rule [sn_tm_core_activity_categorization_rule]	All activity categorization rules. The table is prepopulated with default fixed rules and user-created rules are then added.

Task Mining key terms

Key terms used in Task Mining.

Task Mining key terms

Term	Description
Task Mining application	The interface for managing data collection settings and system behavior, which handles the processing of collected data and provides dashboards.
Task Mining agent	A service installed on a user's workstation that logs certain events from desktop applications.
Data processing server	A multi-tenant cloud component that receives data from the Task Mining agents deployed across user workstations.
Data request	A request made to a workstation user's supervisor to approve the collection of

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Task Mining key terms (continued)

Term	Description
	workstation user logs, user data, and user activity.
Workstation user log	The record of events and activities that occur when a task is performed, including workstation user data, workstation user activity, screen information, and screen content.
Workstation user data	Data includes workstation user login name, domain name, IP address, and workstation name.
Workstation user activity	Data includes timestamp and description of activity.
Screen information	Data includes the name of the screen and possible personal info depending on the app.
Screen content	Data includes GUI objects but not password fields.
Application categories	A breakdown of the workstation data collected, including activity type, application categories, application, and activity.
Masking	A data processing technique that replaces the original value of fields with altered values.
Anonymization	A data processing technique that removes or modifies personally identifiable information.
Categorization	Categorization rules determine how information from apps and windows is shown in analyses.
DataMart	A datamart is the mined data with categorization rules applied.

Data collected by Task Mining

Task Mining collects workstation and user categories of data.

Categories of collected workstation user data

Data category	Details collected
Workstation user data	• User login names • Domain names • IP addresses • Workstation names

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Categories of collected workstation user data (continued)

Data category	Details collected
Workstation user activity	• Timestamps • Description of activities
Screen information	• Name of screens • Possible personal information depending on the app
Screen content	• Information displayed on a web screen • GUI objects • Possible sensitive data like contract numbers and client names • **Important:** Task Mining doesn't collect password field data.

Agent configuration records in Task Mining

Agent configuration records manage the behavior of the workstation agent.

For information about agent configuration, see Adjust Task Mining agent parameters.

Agent configuration records

Record	Description	Default value
Agent config update frequency	Determines how often a workstation agent checks for configuration updates.	30
Agent default status	Determines the default agent status after the user signs in to their workstation.	standard
Agent event properties timeout	Determines the timeout for GUI object properties search in milliseconds.	none
Agent restart check frequency	Determines how often a workstation agent checks for restart in seconds.	30
Disabled collectors	Determines if any collectors are not enabled on the Windows agent, using a comma-separated list. Options include SAP, Java, and Excel.	none

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Agent configuration records (continued)

Record	Description	Default value
Maximum value length	Determines the maximum length of the string that the system accepts while processing raw data.	1024
Private mode allowed	Determines whether the agent can be switched to the private mode.	true
Show systray icon	Determines whether the menu bar icon is shown.	true

System configuration records

Record	Description	Default value
Aggregation date range interval	Determines the length of the date range interval for user data aggregation. Value in days. If you're having trouble loading your categorization data, try lowering the value.	7
Categories excluded from dashboard	Determines the application categories that are not displayed in analyses.	Off, Break
Length of license period	Length of license period is used for reporting purposes on the number of active users.	180
License period start date	Date from which the number of active users is counted. The date affects the reporting of the number of licenses.	none

Categorization rule form in Task Mining

Organize and add context to your data by grouping similar workstation activities with user-friendly category names. Categorization rules have a fixed order value that determines how information from apps and windows is shown on an analysis.

For information about categorization, see Categorize workstation activities to simplify analysis.

Categorization rule form fields

Field	Description
Application	File name condition of the application.
Window name	Window name condition of the window.
URL	URL condition of the application or window.
Rank	Order that defines the order in which categorization rules applies.

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Categorization rule form fields (continued)

Field	Description
Activity	Determines how usage of apps and windows is shown on dashboards. Defines whether the activity is work related or other. The available options are: • **Productive**: Used for work applications. • **Non-productive**: Used when the agent is in private mode or used when activities are defined as private. • **Break**: Used when the workstation is locked. • **Off**: Used when the workstation is turned off.
Category	The type of work being done that the application is related to. Don't use the **Other** category as other is used by the Max rule and represents uncategorized apps that don't match any rule and are anonymized by default.
Application	An intuitive name for the application. An application name should only be associated with one category to keep the data clear.
Window name	A name to describe the activity. A value can be used to mask PII. For example, you can use [] to mask and replace with the term used in brackets. If this field is empty, the window name from the workstation is used.

System configuration form in Task Mining

Modify configuration records to set up Task Mining. Configuration records can be modified but cannot be added.

For information about configuring Task Mining, see Configuring Task Mining.

Task Mining configuration form fields

Field	Description
Configuration Group	Determines the type of configuration record. The available options are Agent, Anonymization, Retention, System, or Notifications.
Name	Name for the configuration rule.
Description	Description for the configuration rule.
Value	Configuration record value.

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Reporting, dashboards, and Performance Analytics in the Core UI

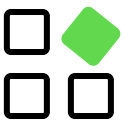
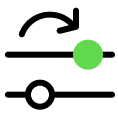
Present analytics on Core UI dashboards through reports and Performance Analytics widgets. Explore Performance Analytics indicators on the Analytics Hub.

Get started

Visualizations in the Core UI tools include dashboards, reports, and analytics hubs. These visualizations empower administrators and other stakeholders to address statuses and correctly evaluate trends with real-time data.

Note:
For net new instances, reporting, dashboards, and Performance Analytics in the Core UI are replaced in the Yokohama release with Platform Analytics experience functionality:

- Data visualizations in Platform Analytics
- Dashboards in Platform Analytics
- Filters in Platform Analytics

Reporting  Visualise the current state of your data to share with other users.	**Responsive Dashboards**  Use dashboards to create a story with data you can share across your organization.	Interactive filters  Filter all the reports on a dashboard together, dynamically.
Performance Analytics Widgets  Define visualizations for Key Performance Indicator scores to show the evolution of your data to share on dashboards.	Analytics Hub  Dig into the details of your KPIs with Analytics Hubs.	Interactive Analysis  Analyze the data in filtered columns on list views of table records.

Reporting

Visualize table data to show the current state of information in your ServiceNow instance. Export the visualization or add it to a dashboard to share it with others.

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Performance Analytics widgets

Create visual representations of key performance indicator (KPI) data. Performance Analytics widgets tie an indicator to a visualization, such as a trend line, a set of columns, or a pie chart. Filter indicator scores with breakdowns and apply time series functions to fine-tune your widgets.

Responsive dashboards

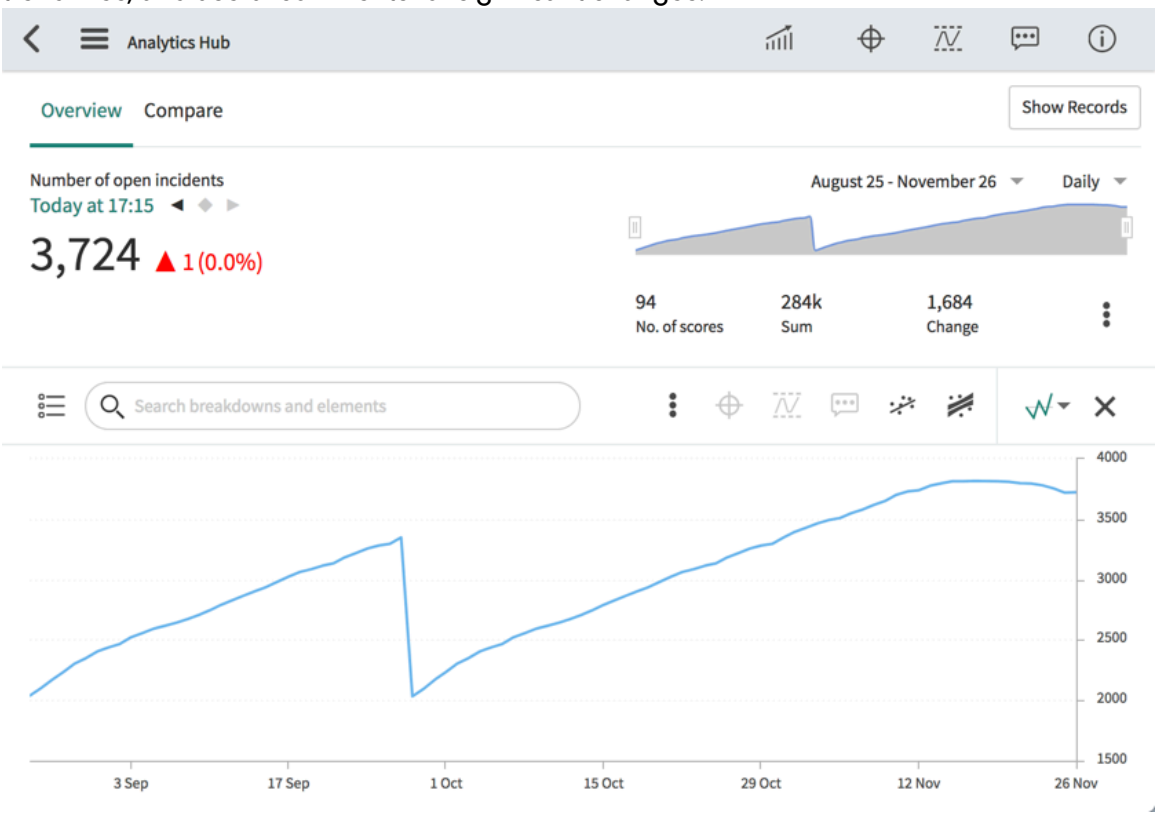
Display multiple reports and Performance Analytics widgets on a single screen to tell a story with your data that you can share with stakeholders.

Interactive filters

Interactive Filters allow you to filter all reports on a dashboard dynamically, without modifying the original reports.

Analytics Hub

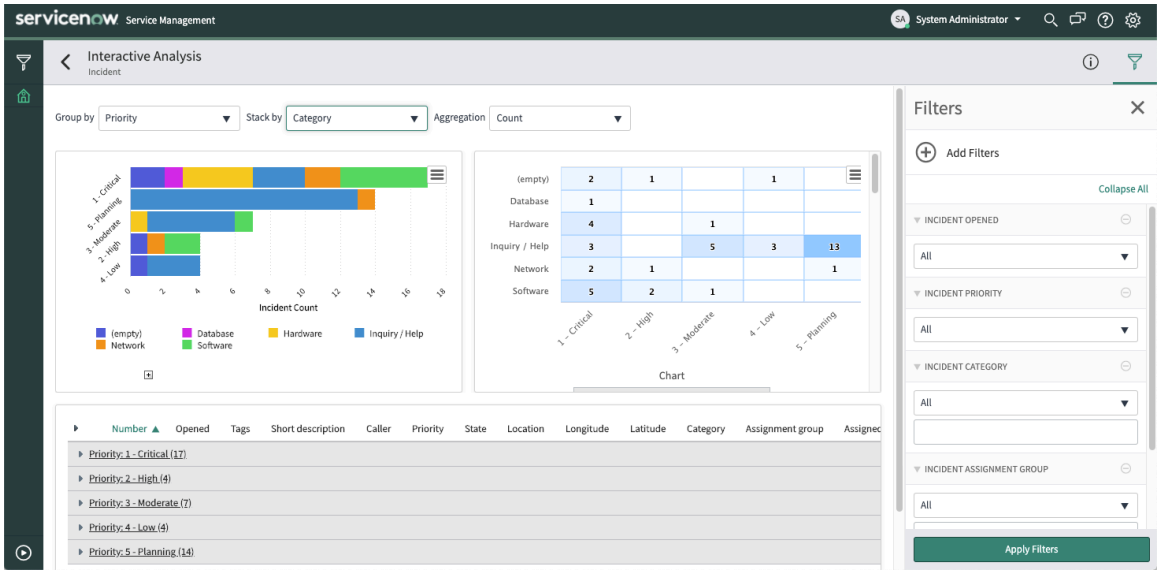
Analyze indicator scores by aggregating data, comparing scores, or viewing changes over time, and filter scores by breakdown. Enhance the Analytics Hub by adding targets, thresholds, trendlines, and useful comments for significant changes.



Interactive Analysis

Dynamically analyze the data in a field across multiple records on a table. From the context menu of a table column, open an interface where you see bar and heatmap representations of the data in the field. Interactively select what values to group the data by and how to filter which data you analyze.

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Reporting

ServiceNow® Reporting enables you to create and distribute reports that show the current state of instance data, such as the number of open incidents of each priority. Reporting functionality is available by default for all tables, except for system tables.

Note:
On net new Yokohama instances and instances migrated to Platform Analytics experience, Reporting functionality is replaced with Data Visualizations. For more information, see Data visualizations in Platform Analytics.

Core UI Reporting functionality is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

https://player.vimeo.com/video/995179717?h=babfb51a74

Get started

Explore	Use	Report types
ServiceNow reports are visualizations of your data that you can share with users on dashboards and service portals, export to PDF, and email.	Learn the basics of how to create, run, edit, view, and share reports.	Learn about the report types and the details of how to create each specific one.

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Configuration and advanced use	Administer	Reference
 Report on variables, configure drilling down, and learn about other advanced topics that do not require an admin role.	 Configure permissions, set statistics, and configure other options that require an admin or report_admin role.	 View data aggregation types, roles, properties, and keyboard shortcuts.

Troubleshoot and get help

- Ask or answer questions in the Performance Analytics and Reporting community
- Search the Known Error Portal for known error articles
- Contact Customer Service and Support

Exploring reporting

Reporting functionality is available by default for all tables, except for system tables.

Reporting overview

Note:
On net new Yokohama instances and instances migrated to Platform Analytics experience, Reporting functionality is replaced with Data Visualizations. For more information, see Data visualizations in Platform Analytics.

ServiceNow® enables you to create and distribute reports that show the current state of instance data, such as the number of open incidents of each priority.

Reporting workflow

ServiceNow reports are visualizations of your data that you can share with users on dashboards and service portals, export to PDF, and email. Learn how to create, run, edit, view, and share reports.

Reporting benefits

Benefit	Feature	Users
Run a report to view current data in an existing report.	Run a report	itil, report_user, report_group, report_global, report_admin, or admin

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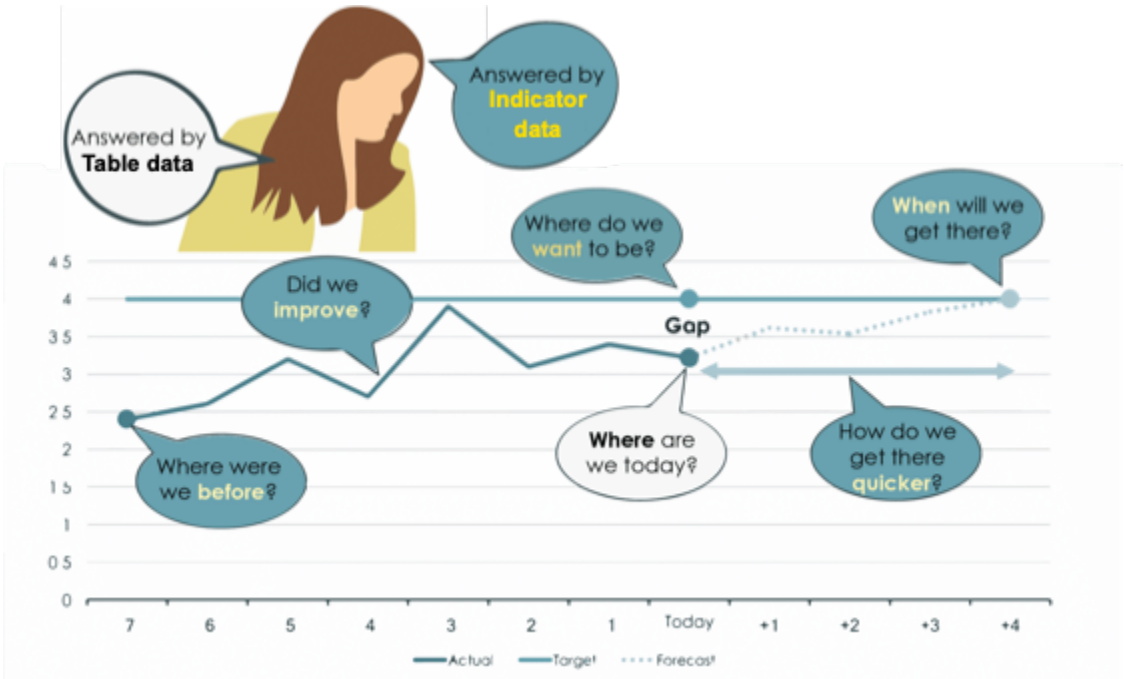
Benefit	Feature	Users
Create a report to visualize and analyze current instance data or temporary data that you have imported.	Create a report	
View a list of reports and create reports from the Reports list.	View the Reports list	admin
Users who cannot create their own global reports can modify a global report, and then save a personal version of the report.	Copy a report	itil, report_user, report_group, report_global, report_admin, or admin
Delete reports that are no longer used.	Delete a report	creator, an administrator, or have a managing role of a report to delete
Keyboard shortcuts enable you to perform certain functions in the Report Designer without using your mouse.	Report Designer keyboard shortcuts	

Reporting compared to Performance Analytics

Reporting and Performance Analytics are two distinct applications. They address different use cases and are complementary to each other.

Performance Analytics is able to generate accurate historical trends by capturing continuous snapshots on a regular schedule. As illustrated by the following diagram, table data answers the question of "Where are we today," while indicators answer questions of what is happening over time.

Common process insight questions for table data and for Performance Analytics indicators



In addition to calculating trends from snapshots, Performance Analytics is able to:

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- Track performance against Targets.
- Alert when Thresholds are met.
- Forecast future performance.
- Compare performance at different points in time.
- Accelerate time to value with best practice metrics.

For more information on using Performance Analytics, see Exploring Performance Analytics.

Using reporting

ServiceNow reports are visualizations of your data that you can share with users on dashboards and service portals, export to PDF, and email. Learn how to create, run, edit, view, and share reports.

Note:
When Next Experience is enabled, you can create reports in Report Designer and create data visualizations in the Analytics Center. For more information on Report Designer, see Create a report.

On net new Yokohama instances and instances migrated to Platform Analytics experience, Reporting functionality is replaced with Data Visualizations. For more information, see Data visualizations in Platform Analytics.

Core UI Reporting functionality is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

The report_admin role is required to create or edit reports, which may still be necessary in Service Portal, for example.

To administer reports, reporting roles, and report sources, navigate to **Reports** > **Administration** and select the area to administer.

The ServiceNow system includes a range of predefined reports that provide data on applications and features like incident management and service catalog requests. You can also create your own reports. Add reports on dashboards and landing pages to share information across your organization.

Related topics

Administering reports

Run a report

Run a report to view current data in an existing report.

Before you begin
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

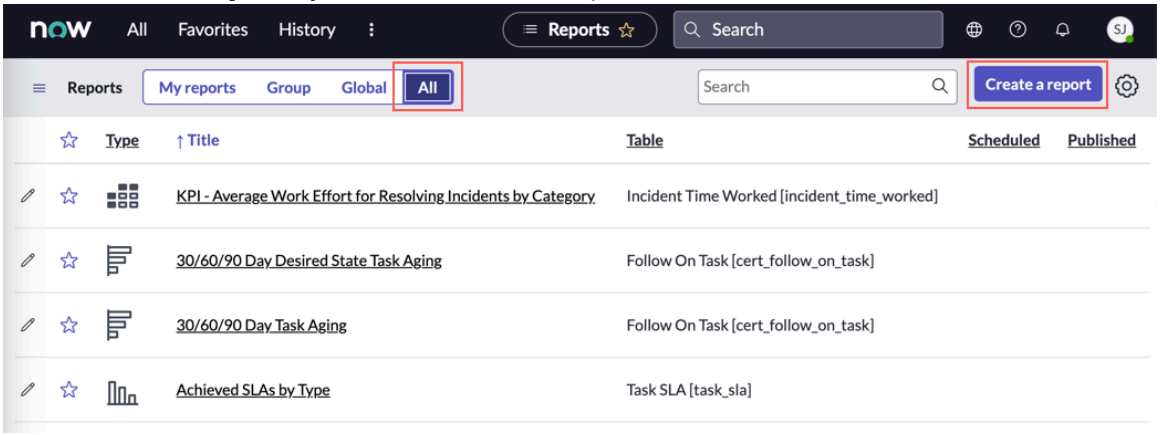
To administer reports, reporting roles, and report sources, navigate to **Reports** > **Administration** and select the area to administer.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see View data visualizations.

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Procedure

1. Navigate to **All** > **Reports** > **View/Run** to view the list of existing reports.
   If you don't see the report that you want to view, select **All** to see the complete list of reports.
2. Select the title of the report that you want to run.
3. Select **Create a report** if you want to create a report visualization.



Result
The report is shown in the Report Designer.

What to do next
Create a report

Related topics
Administering reports

Run a report from a list

You can create a pie or bar chart report directly from a list. If you have a reporting role you can also save, distribute, and export these reports.

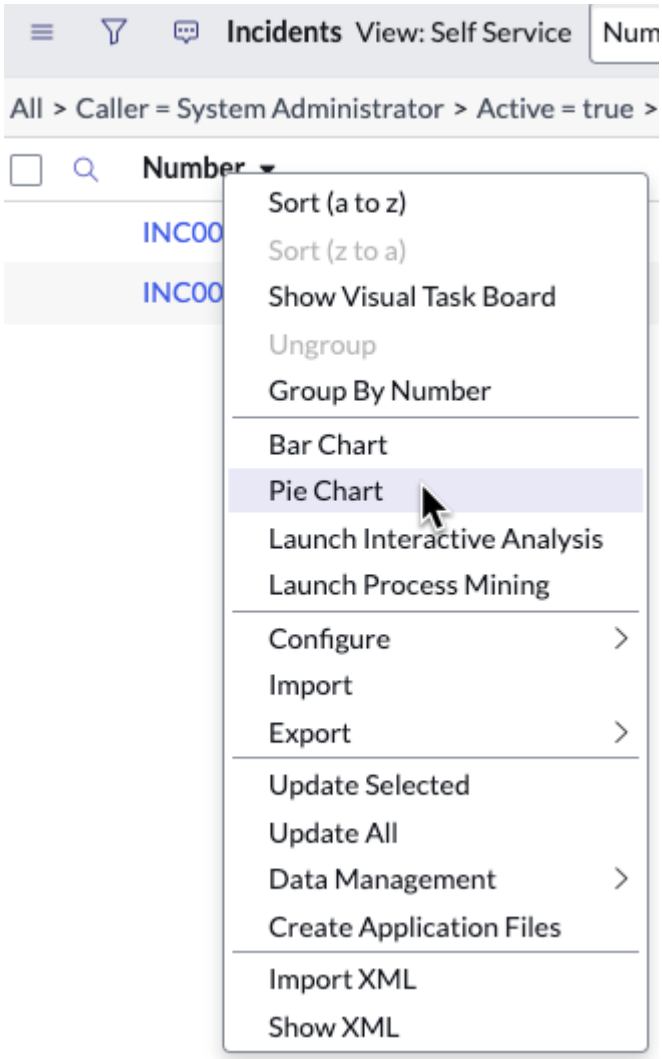
Before you begin
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

To create a different kind of report, see Create a report.

Procedure

1. Navigate to the list.
2. Right-click the header of the column that contains the values you want to be displayed as the bars or slices in the chart.
3. Select **Pie Chart** or **Bar Chart**.

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The report is generated and opened in the report creation tool.

What to do next

- Share the report using the Report Designer.
- Publish the report by generating a URL to share with other users.

Related topics

Pie charts

Vertical and horizontal bar reports

Create a report

Create a report to visualize and analyze current instance data or temporary data that you have imported.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Creating data visualizations.

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Procedure

1. Follow one of these paths.

Option	Description
Create a report	Navigate to **Reports** > **Create New**.
Edit an existing report	Navigate to **Reports** > **View / Run** and click the edit icon ( ) beside the report name.
Create a report on a dashboard	Navigate to the dashboard where you want to add the report, click the Add Widgets icon ( ), and select **Reports**.
Edit a report on a dashboard	Navigate to the dashboard where the report resides and click **Edit**. To edit a report, click its edit icon ( ).

2. On the **Configure** and **Style** tabs, fill in the fields, as appropriate.
3. Click **Save**.

   The report is generated.

> **Note:**
> For details on creating a specific report type, see Report types.

Create a report with Analytics Q&A

Enter a question on the Report Designer form, and Analytics Q&A generates a report. Analytics Q&A gives you a choice of data sources and picks an appropriate visualization.

Before you begin

Analytics Q&A requires Natural Language Query (NLQ).

NLQ also must be enabled for use with the Report Designer, in Reporting properties. Check with your administrator.

> **Note:**
> This topic refers to Reporting in the Core UI. This functionality is not available if your instance is migrated to Platform Analytics experience. For more information, see Data visualizations in Platform Analytics.
>
> Analytics Q&A is not available when using Microsoft Internet Explorer.

Role required: None

About this task

Analytics Q&A supports the following languages:

- English
- French
- Canadian French
- Spanish

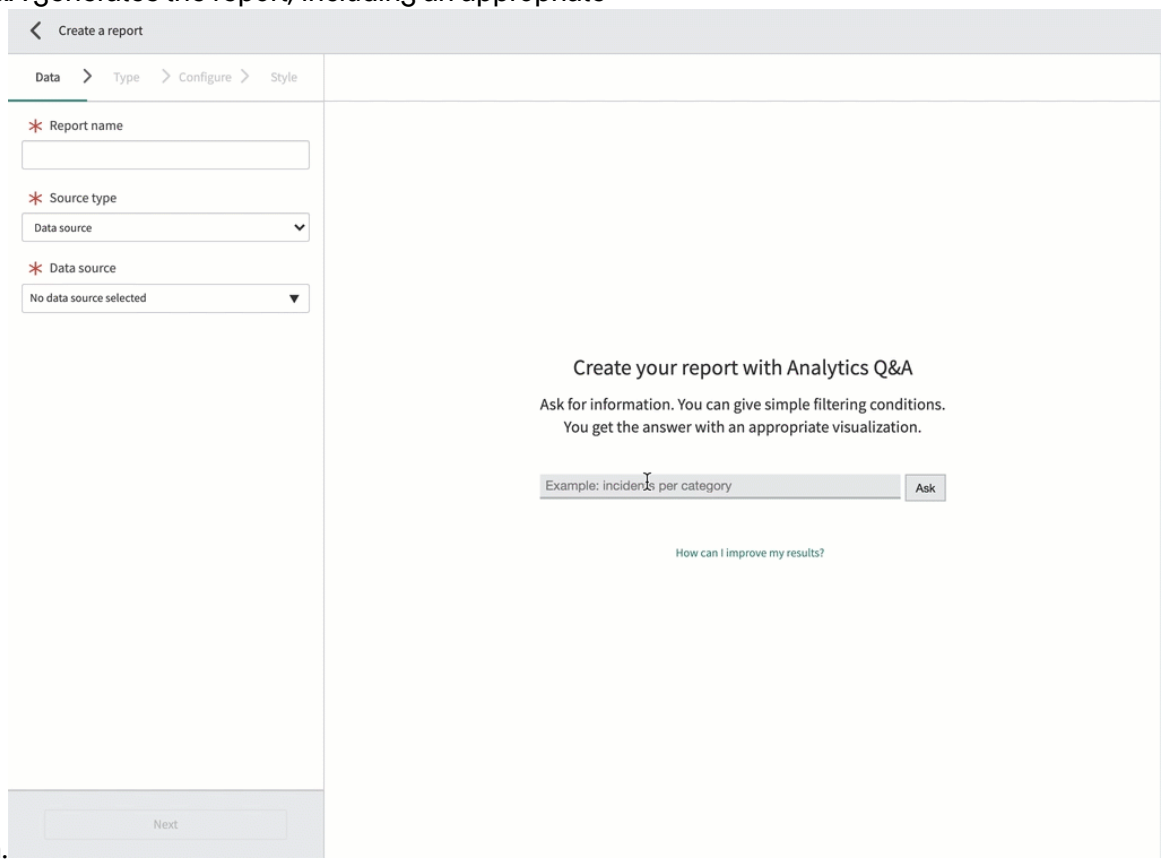
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- German
- Japanese

The feature is not available in sessions that use an unsupported language.

Procedure

1. Navigate to **All** > **Reports** > **Create New**.
2. Start typing what information you want in the report into the Analytics Q&A field.
   Analytics Q&A uses keywords in your query to determine what kind of information you are looking for. It displays suggestions while you type based on these keywords. To see a full list of keywords and their uses, click **How can I improve my results?**.
3. Click **Ask**.
   Analytics Q&A generates the report, including an appropriate visualization.



What to do next

You can modify the report, such as changing the visualization, in the left-margin menu. If you enter a new query and click **Ask**, you generate a new report. Any custom visualizations you added are cleared, but other settings persist in the new report.

Related topics

Analytics Q&A

Report options

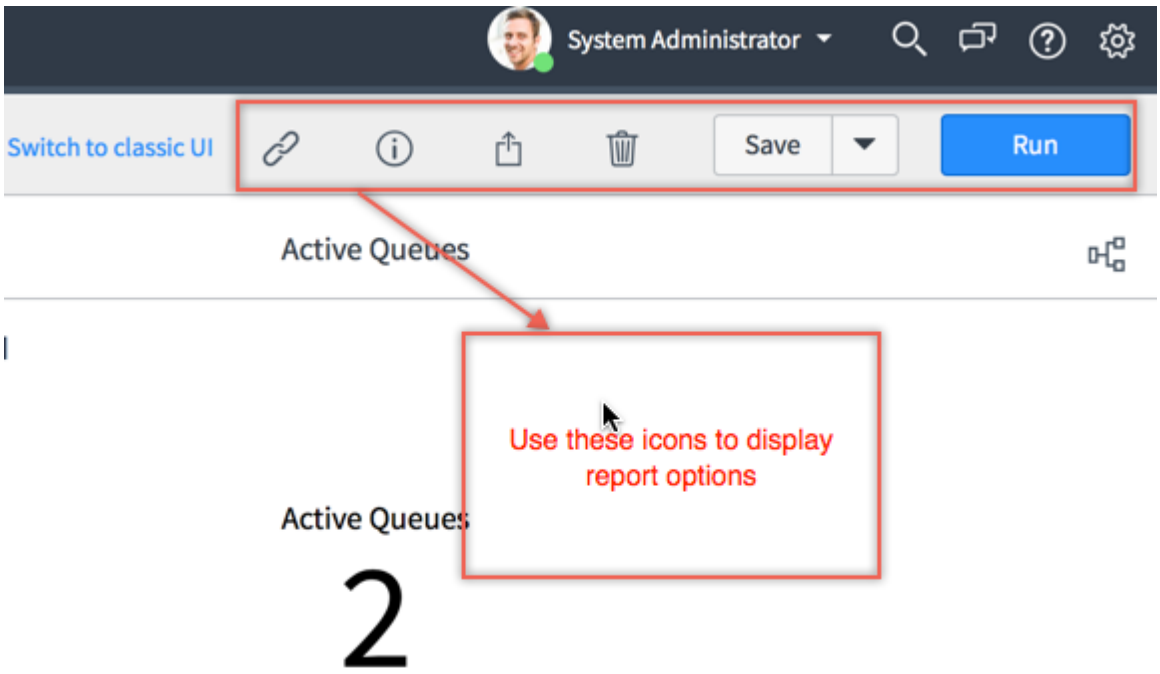
When you edit a form, you can also choose to save, share, run, delete, or view more information about the report.

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Note:

On net new Yokohama instances and instances migrated to Platform Analytics experience, Reporting functionality is replaced with Data Visualizations. For more information, see Data visualizations in Platform Analytics.

All actions are available from the upper right side of the form, from the **Save** and **Share** lists and the **Info**, **Delete**, and **Run** buttons. Available report options vary depending on the role of the user working with the report.



Report options

Name	Description
Link ( )	Displays the URL of a saved report that you can copy into other documents.
Info ( )	Displays general and statistical information for the report. General information includes the base table, type, creator, users, groups, and last modification date of the report. Statistical information includes when the report was last run, the number of runs, and run time.
Sharing ( )	Displays several options for sharing the output of the report.
Share	Enables you to set the visibility of the report. Options are **Me**, **Everyone**, and **Groups and Users**. See Share a report for more information on sharing. This option is available from the Sharing icon ( ).
Schedule	Creates a schedule for running the report. **Note:** You cannot schedule calendar reports.

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Report options (continued)

Name	Description
Add to Dashboard	Adds the current report to a dashboard. For details on how to edit reports and other dashboard content, see Edit a responsive dashboard.
Export to PDF	Generates a PDF that you can download or email. This option is not available for calendar reports. **Note:** Drilldown reports do not export to PDF. If you select **Export to PDF** on a drilldown report, a PDF of the top-level report is generated.
Publish	Creates a URL for the report and displays the URL above the report form. You can email this URL to share the report.
Delete	
Delete ( )	Deletes the report.
Save	
Save	Saves your changes to the report and leaves the form open.
Update	Saves your changes to the report and returns to the Reports list.
Insert	Duplicates the report record, inserts it into the Reports list, and opens the Reports list. Use this option to create a report quickly by changing values in an existing report. Be sure to give the new report a unique name.
Insert and Stay	Duplicates the report record, inserts it into the Reports list, and opens the new record. Use this option to create a report quickly by changing values in an existing report. Be sure to give the new report a unique name.
Save as data source	Opens the Create new report source window in which you can save the report conditions as a report source that can be reused for other reports.
Run	
Run	Creates the report based on the conditions and layout you select.

Related topics

Administering reports

View the Reports list

View a list of reports and create reports from the Reports list.

Standard platform Access Control Lists (ACLs) govern access to reports in the reports list. For information about the ACLs used to control access to reports, see Access control list rules.

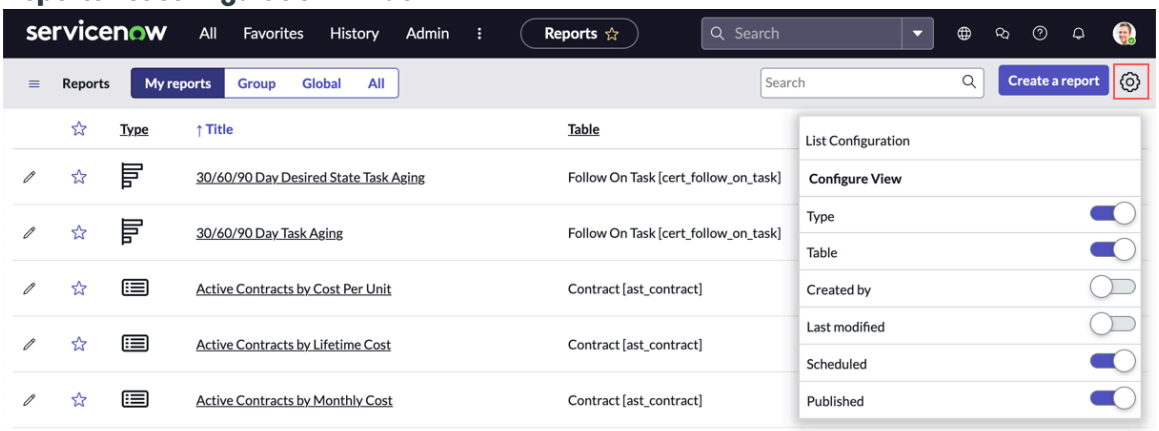
Note: On instances that are migrated to Platform Analytics experience, all visualizations are found in the library. Navigate to **All** > **Platform Analytics** > **Library** > **Data Visualizations**.

You can sort and filter the search results using the standard report list controls, by selecting tabs, column headings, or the favorites icon ( ).

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Navigate to **All** > **Reports** > **View / Run** to open the Reports list. Select the gear icon ( ) next to the **Create a report** button to configure the columns displayed in the Reports list.

Reports list configuration window



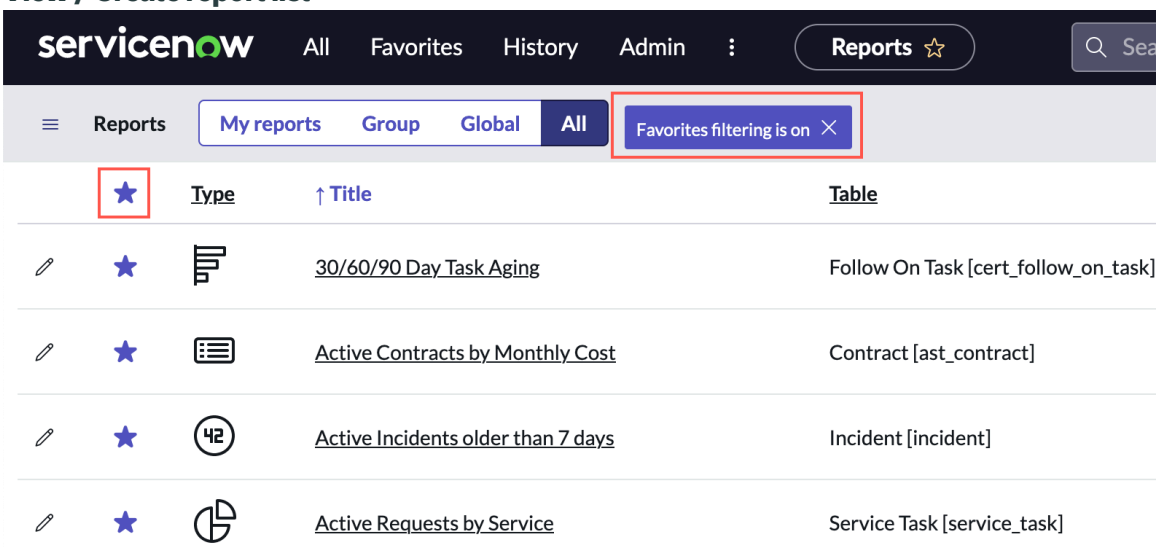
You can filter the Reports list with the following tabs:

Reports list

Tab	Description
My reports	Reports that you created.
Group	Reports that have been shared with you and with the groups that you are a member of.
Global	Reports that are available to everyone.
All	All reports that you have access to (Global, Group, and My reports).

Select the star icon ( ) to show only your Favorites in the Reports list. Select the X next to **Favorites filtering is on** to show all reports you are allowed to see.

View / Create report list



If you have the report_admin or admin roles, you also see these columns on the Reports list.

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Additional columns

Column	Description
Scheduled	Indicates that the report is scheduled to run in the future. You can schedule regular emailing of reports.
Published	If the report is published, this column shows a check mark ( ).

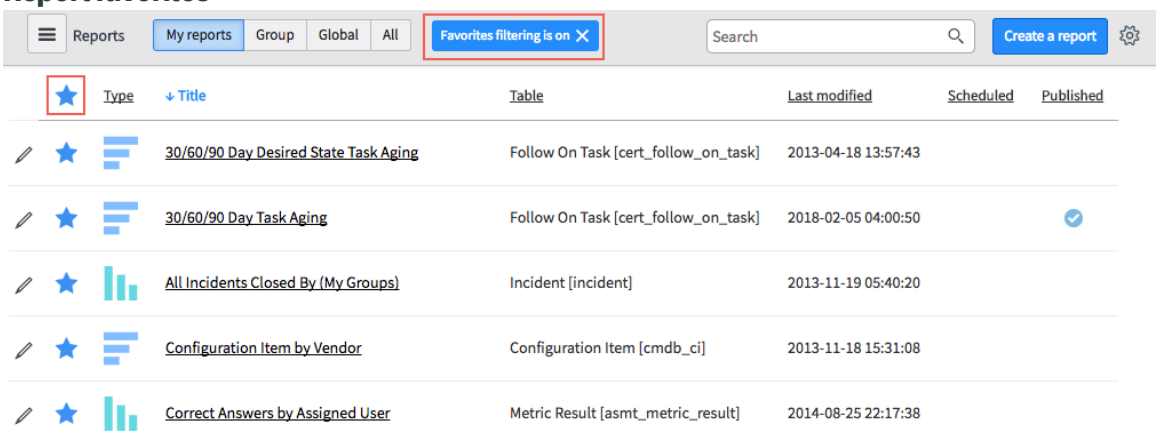
Viewing favorite reports

You can show either all reports or only those reports marked as favorites. Reports can be marked favorite both automatically and manually.

To toggle between showing only favorite reports and showing all reports, click the favorites icon ( ) in the list header.

Note:
Favorites filtering is persistent. If you chose to show only favorites the last time you viewed the Reports list, then only favorites are shown the next time. Click the favorites icon or the **Favorites filtering is on** button to show all reports you have the rights to view in the selected category. The **My reports** category is selected by default when you open the Reports list.

Report favorites



A report is automatically marked as a favorite when you open it. You can manually mark a report as a favorite by clicking the star icon beside the report title.

To turn off the automatic marking of reports as favorites, disable the user preference `glide.ui.nav.auto_favorite`. For more information, see User preferences .

View report owners

Report owners are not shown by default on the reports list, but you can add a column to show the user who created the report. Usually, the creator is the owner.

Before you begin

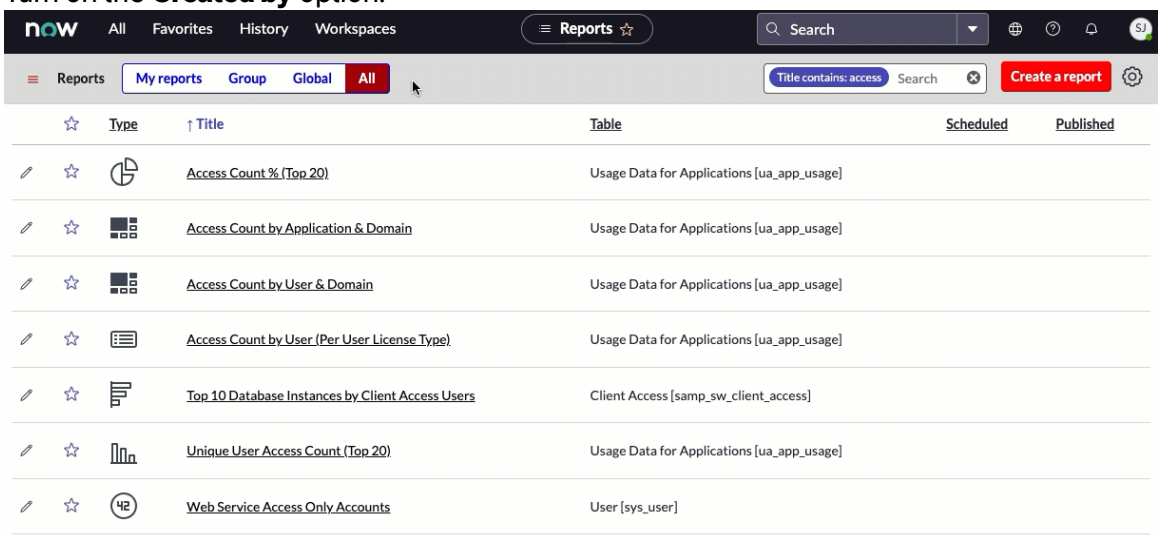
Role required: admin

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select **All** to view the full list of reports.

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3. Select the gear icon to show the List Configuration menu.
4. Turn on the **Created by** option.



Reports list URL parameters

You can add parameters to the Reports list URL to filter the list before it loads.

Reports list URL structure

The URL structure is `https://<instance-name>.service-now.com/report_home.do?<parameter_name>=<parameter-value>`.

For example, the URL `https://yourbusiness.service-now.com/report_home.do?jvar_selected_tab=MyReports` returns the Reports list with the **My Reports** tab selected.

Parameters

The following parameters are available for Reports list URLs:

Parameter	Possible values
jvar_selected_tab	Shows the Reports list with the specified tab selected. Use these values: • myReports • groupReports • globalReports • allReports
jvar_search_table	Filter reports created on a specified table. For example, the parameter `jvar_search_table=incident` shows only the reports created on the incident table.
jvar_list_order_by	Sorts the list on one of these columns:

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Parameter	Possible values
	• type • title • table • modificationDate • scheduled • published • createdBy For example `https://yourbusiness.service-now.com/report_home.do?jvar_list_order_by=table` returns the list sorted by the source table of the report. **Note:** Use jvar_list_sort_direction to specify ascending or descending order.
jvar_list_sort_direction	Specifies the direction of the sort. • asc — Sorts the list in ascending order • desc — Sorts the list in descending order
sysparm_reportquery	Filters the reports with names that contain the specified value, for example: `sysparm_reportquery=Active` returns reports with the string `Active` in the title.
jvar_search_created_by	the user who has created the report for example: `https://yourbusiness.service-now.com/report_home.do?jvar_selected_tab=allReports&jvar_search_cr` returns the reports created by the user with user name itil.
sysparm_query	Enables you to filter on any condition in platform condition builder format. For example, `https://yourbusiness.service-now.com/report_home.do?sysparm_query=titleSTARTSWITHPRB&table!=incident`. For more information, see Condition builder.

Copy a report

Users who cannot create their own global reports can modify a global report, and then save a personal version of the report.

Before you begin
Role required: itil, report_user, report_group, report_global, report_admin, or admin.

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About this task

If you save a global report as a group or personal report, the platform copies the report. The security state of the report is not changed.

Note:

- If you open a personal report and try to save it as a group or global report, only the security state is changed. The report itself is not copied.
- When you select **Insert and Stay** to copy a report, sharing settings are not copied to the new report.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Duplicate a visualization in the Visualization Designer.

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report you want to copy.
3. Select the arrow next to the **Save** button or next to the Share icon ( ).
   If you have permission to change the report, you see the **Save** button. You only see the arrow if you don't have permission to change the original report.
4. Select **Insert and Stay**.



The Insert and Stay action creates a copy of the report that you can modify.

5. Modify the report.
   See Report types.
6. **Optional:** Change the report visibility.
   In the upper right side of the report form, click the **Sharing** icon ( ) and select **Share**.

Related topics

Share a report

Delete a report

Delete reports that are no longer used.

Before you begin

Role required: You must be the creator, an administrator, or have a managing role of a report to delete it. If a report has been shared with you, and you do not have a report managing role, you do not have the ability to delete it.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Delete a visualization in the Visualization Designer.

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Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report to delete.
3. When the report opens, click the **Delete** icon ( ).
4. Confirm that you want to delete the report.

Result

The selected report is removed, and is no longer available to share, publish, or view.

Related topics

Administering reports

Delete multiple reports

Delete multiple reports that are no longer used.

Before you begin

Role required: You must be the creator, an administrator, or have a managing role of a report to delete it. If a report has been shared with you, and you don't have a report managing role, you aren't allowed to delete it.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **All**.
2. Select the boxes next to the reports that you want to delete.
3. From the Action on selected rows menu, select **Delete**.
   If you select reports that you aren't allowed to delete, the menu indicates that a smaller number will be deleted.
4. Confirm that you want to delete the report.

Result

The selected reports are removed, and are no longer available to share, publish, or view.

Related topics

Administering reports

Distribute reports

Distribute reports to provide business information to other users.

Report access control

You can control who sees reports by applying a security state. You can make reports that are:

- Globally visible to all users
- Visible only to you if you are the report creator.
- Visible to one or more specific roles
- Visible to one or more specific users or groups

Sharing by user, group, or role, is the primary method of sharing reports. You can use access control lists (ACLs) to control access to the underlying table or database view data. Users are able to view reports when the user does not have access rights to a data record in a data source or source table of a report. However, they are not able to see that record in a list view or in a drill-

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down view. Database-view-list reports require the reporting user to satisfy ACLs on the target data to view records in the list. Users without sufficient permissions see filtered list reports.

Note:
ACLs for a table do not propagate to database views based on that table. Database views require separate ACLs.

Reports that present aggregate data, such as pie or bar reports, do not require the user to satisfy target table ACLs to view the report. ACLs are required to view the list of records when you select a portion of a report visualization. When you have access to a report but not to some of its records, you do not see those records in a drill-down list or in a list view of the data in the report. However, they are included in visualizations of data.

If a user saves a global report as a group or personal report, the platform copies the report rather than changing its security state. Copying the report enables users who cannot create their own global reports to modify a global report, and then save a personal version of the report.

If a user opens a personal report and tries to save it as a group or global report, the security state is changed rather than copying the report.

Related topics

- ACL troubleshooting reference
- Managing roles
- Creating groups

Share a report

Control which users and groups can see a report in their Reports list.

Before you begin

Role required: report_admin, report_global, or report_group.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Share a data visualization in the Visualization Designer.

The following roles can share reports:

Role	Report sharing permissions
report_admin	Can share a report that is shared with the user, any group, or everyone. This role can share with: • any user • any group • everyone The report_admin can also edit reports.
report_global	• Can share a report that is shared with everyone. This role can share with everyone. • Cannot share a report that is shared with the user or a group

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Role	Report sharing permissions
	The report_global user can also edit reports that are shared with everyone.

report_group	• Can share a report that is shared with the user, or a report shared with a group the user belongs to. This role can share the report with:
	  ○ any user
	  ○ any group
	• Cannot share a report that is shared with everyone, or with a group the user doesn't belong to.
	
	The report_group user can edit reports that are shared with the groups they are members of.

report_publisher	No sharing permissions.
report_scheduler	No sharing permissions.
report_user	No sharing permissions.

About this task

You can control who sees reports by making them:

- Globally visible to all users
- Visible only to you if you are the report creator.
- Visible to one or more specific users
- Visible to one or more specific groups

Note:
The permissions of a report can constrain the number of users or groups you can share a report with. For more information, see Restrict report creation with an ACL rule.

It is not possible to grant edit rights on a report when you share it.

Procedure

1. Navigate to **All** > **Reports** > **View / Run** and select the report you want to control.
2. In the upper right side of the report form, click the **Sharing** icon ( ) and select **Share**.
3. In the Sharing settings dialog box, fill in the fields and click **OK**.

Sharing settings

Field	Description
Visible to	Users to whom the report is available. You can select the following options:

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Field	Description
	○ **Me** Only you can view the report. This option is only available to you on the reports that you create. ○ **Everyone** All users can view the report. However, you can select required roles, and only users with at least one of those roles can view the report. ○ **Groups and Users** Only specific groups and users can see the report. The **Groups and Users** option is visible to users with the report_group role.
Requires role	(Optional) Roles from the Roles [sys_user_role] table. If you select any roles, a user must have at least one of them to view the report. If you do not select a role, all users can view the report. You can specify required roles only for reports that are otherwise visible to Everyone. If you modify such a report to be shared with specific Groups and Users, the required roles no longer apply.
Groups	Groups whose members have permission to see the report. This field is available when the **Groups and Users** option is selected.
Users	Users who have permission to see the report. This field is available when the **Groups and Users** option is selected.

4. Click the **Sharing** icon ( ) and select **Add to Dashboard** or **Publish**.
5. Share the dashboard or share the URL of the published report.
   You can share the URL of the published report with any user, role, or group with whom you have shared the report.

   To publish a report, enable the property *glide.report.published_reports.enabled*. For more information, see (Legacy) Publish a report.

   The people with whom you share the report must have rights to view the report data.

Related topics

Share a responsive dashboard

Administering reports

Schedule emails of reports

Generate and distribute scheduled reports via email.

Before you begin

Role required: report_scheduler, report_admin, admin

About this task

Scheduled reports can be distributed in PDF, CSV, or XLS format. Graphical reports can be distributed in PNG or PDF format. Multilevel pivot reports can only be scheduled in PDF format.

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Note:

- It is not possible to schedule Calendar, Map, or Single Score reports. You can schedule Pivot Table reports only if the plug-in *com.snc.whtp* is enabled.
- Data may not appear on reports created by an individual whose user account is deactivated. To ensure that the desired data appears, an active user must recreate the scheduled report.
- On Oracle DB instances, scheduled emails are not generated when the combined filter conditions on the report exceed 4,000 characters.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Export a visualization from the Visualization Designer.

Procedure

1. Navigate to **All** > **Reports** > **Scheduled Reports**.
2. Select **New**.
3. Fill in the fields, as appropriate.

Field	Description
Name	Name of the scheduled report.
Report	Reference to the report you are scheduling. You can use the Search icon to locate the report. **Note:** Automatic email support is not available for Calendar, Map, and Single Score reports.
Users	Individual users who receive the report at the scheduled date and time. Users must have **Notification** set to **Enabled** on their user records to receive reports.
Groups	Groups that receive the report at the scheduled date and time.
Email addresses	Comma-separated list of email addresses of report recipients who are not in the system.
Application	Name of the scoped application that contains the report. **Global** appears if the report is in the global scope.
Active	When active, scheduled reports are delivered.
Run	Time interval to use for running the scheduled job: ○ **Daily**: Runs daily, at a designated time. ○ **Weekly**: Runs on a weekly basis, at a designated time and day of the week. ○ **Monthly**: Runs on a monthly basis, at a designated time and day of the month. ○ **Periodically**: Runs on a designated repeating interval. ○ **Once**: Runs for a single occurrence only. ○ **On Demand**: Runs immediately on demand. ○ **Business Calendar: Entry Start**: Runs on the starting entry dates for the business calendar that you select in the **Business Calendar** field. A

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Field	Description
	scheduled job runs for the starting date of each of the business entries that you defined for the business calendar. For example, if the business calendar represents a fiscal year, and the starting date of each entry is a fiscal month, the scheduled job runs on the first day of each month. ○ **Business Calendar: Entry End**: Runs for the ending date for the business calendar that you select in the **Business Calendar** field. This selection runs in the same manner as **Business Calendar: Entry Start**, but for the end dates of the associated business calendar entries. **Note:** When you select **Business Calendar: Entry Start** or **Business Calendar: Entry End**, you can apply an offset factor to schedule the job to run before or after the time span of the selected business calendar. If you select a business calendar and all its business calendar spans are in the past, the job would never run as this is an invalid configuration. To learn more, see the **Offset type** and **Offset** fields. To learn more about creating and using business calendars and defining business calendar entries, see Creating business calendars and Define business calendar entries.
Time zone	Time zone to use with the **Time** field entry when you specify the time at which the scheduled job should run. Select a time zone entry: ○ **-None-**: Use the default time zone for the logged-in user who is creating the scheduled job. For example, the scheduled job runs at 04:45 p.m. US/Pacific time if it is the user's assigned time zone, and you enter `16 : 45` into the **Time** field. ○ **Use System Time Zone**: Use the default system time zone that is specified for the instance in which it runs. For example, the scheduled job runs at 10:15 p.m. London time if Europe/London is the default system time zone for the instance, and you enter `22 : 15` in the **Time** field. ○ Actual time zone. For example, the scheduled job runs at 1:30 p.m. in the US Eastern time zone if you select **US/Eastern**, and enter `13 : 30` in the **Time** field.
Time	Time of day at which the scheduled job should run, expressed in hours, minutes, and seconds on a 24-hour clock. The selection that you make in the **Time zone** field determines the time zone for this entry.
Day	Day on which the scheduled job should run. ○ If **Run** is set to **Weekly**, select the day of the week. For example, select Wednesday. ○ If **Run** is set to **Monthly**, select the day of the month. For example, select 25 for the 25th day of the month. This field appears only if you select **Monthly** or **Weekly** in the **Run** field.

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Field	Description
Repeat Interval	Duration of the repeat interval for each scheduled job execution. Enter the duration in the number of days, hours, or minutes. For example: ○ To run the scheduled job every four days, enter `04` in the **Days** field. ○ To run it every 26 hours, enter `26` in the **Hours** field. ○ If it should repeat at an interval of 13:30:25, enter `13` in the **Hours** field, and then enter `30` and `25` in the two unlabeled fields after it.
Starting	Date and time of the first scheduled job generation. Select the calendar date and time. This field appears only if you select **Periodically** in the **Run** field.
Business Calendar	Business calendar entry that you are using to determine the business calendar start or end date for the scheduled job. This field appears only if you select **Business Entry: Start Date** or **Business Entry: End Date** in the **Time** field.
Offset type	Type of time offset, if any, to apply to the business calendar that you selected for scheduling this job: ○ **Past**: Apply an offset factor to schedule the job to run before the start of the time span of the selected business calendar. ○ **Future**: Apply an offset factor to schedule the job to run after the end of the time span of the selected business calendar. ○ **--None--**: Do not apply a time offset when scheduling this job. Adding an offset factor enables you to schedule the job to run before, or after, the formal time span that is defined in the business calendar for the following use cases:
Offset	Amount of time offset, expressed in days, hours, minutes, and seconds, to apply to the business calendar that you selected for scheduling this job. For example, if you want to schedule the job to start three days, 14 hours, 10 minutes, and 45 seconds before the business calendar start date, do the following actions: ○ Select **Past** in the **Offset type** field. ○ Enter **3** in the **Days** field. ○ Enter **14**, **10**, and **45** in the **Hours** field. The **Offset Days** and **Hours** fields appear only if you select **Business Calendar: Entry Start** or **Business Calendar: Entry End** in the **Run** field, and **Past** or **Future** in the **Offset type** field.
Priority	Numerical priority for the scheduled job: ○ Set essential jobs to a priority value below 100. ○ Set nonessential jobs to a priority above 100. ○ If 70 percent or more of all scheduled jobs are **Overdue**, any jobs that are marked with a value above 100 do not run.
Conditional	When turned on, specify a scripted condition for generating the report.
Omit if no records	When turned on, empty reports are not distributed.

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Field	Description
Condition	Conditional script that determines if a scheduled job should run. The last expression of the script should evaluate to a Boolean (true/false) value. This text box appears only if you select **Use conditions**. For more information about scripts on the ServiceNow platform, see Scripts. **Warning:** Conditional scripts for scheduled emails are executed in the sandbox. Therefore, function definitions are not allowed. Some API calls and keywords are also not allowed. For more information, see Script sandbox property.
Subject	Text that appears in the subject line of the distribution email.
Introductory message	(Optional) Add a message to the report. If the report output type is Embedded PNG, ○ Use the tag `${report:png}` in the message body to position the report in the message. Otherwise, the report appears at the bottom of the message. ○ Use the tag `${report:include_with}` to position other reports included with the email. Otherwise, these reports appear at the bottom of the message.
Type	Report output type. Graphical reports can be PNG or PDF files. List reports can be PDF, Excel, or CSV files. When scheduling a graphical report, select the output type **PDF** or **PDF-landscape** to include the chart grid data. When scheduling a List report, select output type **Excel** or **CSV**. Select **Embedded PNG** to embed the report visualization in the body of the email. Large images are scaled to fit the email. For more information, see the section Report output formats. **Note:** It is only possible to schedule multilevel pivot reports in PDF output.
Zip output	When turned on, the report is sent as a zip file attachment to the email.
Include with	One or more additional reports to include with the email. It is not possible to order the reports within the email. You can use the Search icon to locate the additional reports.
Page size (Multilevel pivot report only)	Select from A3, A4, Letter, or Legal size. To specify the dimensions for a different paper size, select **Custom** and enter the **Page height** and **Page width** in pixels.
Page height (in pixels) (Multilevel pivot report only)	Shows when **Page size** is set to **Custom**. For non-standard paper sizes, multiply the page height in inches by 72 and enter the value in this field.
Page width (in pixels)	Shows when **Page size** is set to **Custom**. For non-standard paper sizes, multiply the page width in inches by 72 and enter the value in this field.

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Field	Description
(Multilevel pivot report only)	

4. Click **Submit**.

What to do next

To edit a scheduled email report, open it from the Scheduled Reports list. To delete a report, delete its row from the Scheduled Reports list.

Report output formats

You can export reports in certain output formats. You can schedule these reports for regular export.

Report output formats

Report format	Description
PDF	Generate a PDF in portrait or landscape orientation. PDF reports include the chart grid data. Map reports cannot be exported to PDF format. **Note:** To export Multilevel pivot tables to PDF, you must enable the Webkit HTML to PDF (com.snc.whtp) plugin.
Excel	Report visualization shows as a Microsoft Excel (XLS) spreadsheet.
PNG	Report visualization shows as a Portable Network Graphic (PNG) file. Also see how to embed reports as images in a scheduled report email.
CSV	Report visualization shows as a comma-separated value (CSV) plain-text file.

The "Run as" user and scheduled report emails

If you are on a domain-separated instance, scheduled reports are generated using the "Run as" user's permissions.

By default, the user who sets up the scheduled email report is the "Run as" user. This user's domain access and report_view ACL permissions apply when generating the scheduled reports.

If the data in the scheduled report is different than expected, the user who set up the scheduled report is not an appropriate "Run as" user. An admin or report_admin can specify a different "Run as" user.

Warning:
The "Run as" user requires the appropriate report_view ACL permission to schedule the report. There may also be a security risk in setting this user. Consider consulting Customer Service and Support if setting the "Run as" user.

Related topics

Report_view access control

Export a report to PDF

Export a report to PDF to use it outside of your ServiceNow instance.

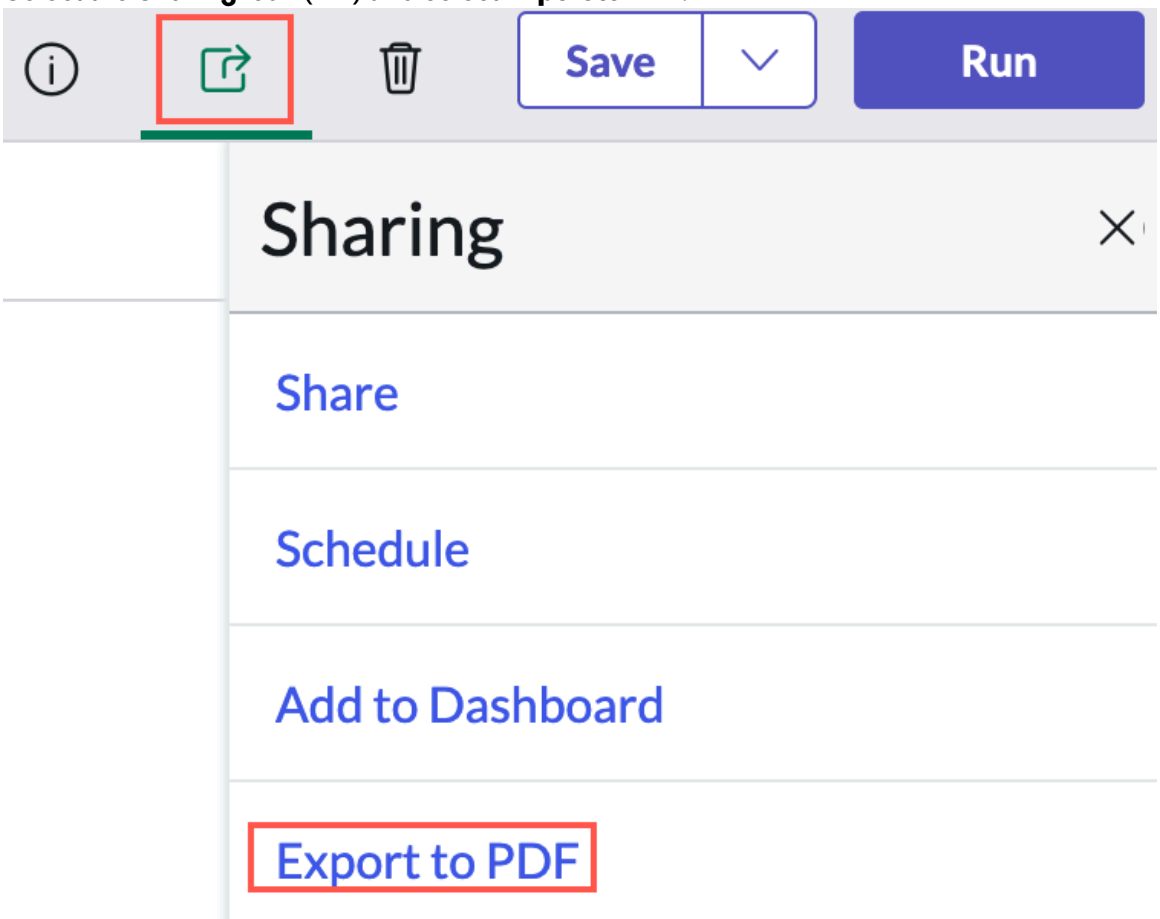
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Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. The information in the exported report is only the information that you have the right to access.

Procedure

1. Navigate to **All** > **Reports** > **View / Run** and select the report you want to export.
2. Select the **Sharing** icon ( ) and select **Export to PDF**.



   a. Choose the orientation of the PDF, **Portrait** or **Landscape**.
   b. Choose to generate the PDF or to send it in an email to one recipient.
3. Choose the delivery method.

   Select **Generate now** to create the PDF and receive a download.

   Select Send as an email, to send the PDF to one recipient. To schedule delivery of an exported report to multiple addresses, see Schedule emails of reports.
4. Select **Export**.

Result

When the export is complete, you see either a download link or a message that the export will be delivered to the recipient.

Add a report to a responsive dashboard

Make actionable decisions faster by combining relevant reports and widgets onto a dashboard. Navigating to single reports and widgets is time-consuming and less efficient.

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Before you begin

Role required: Any user who can create a report can add it to a responsive dashboard.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Creating dashboards and other common dashboard tasks.

Watch this eight-minute video to learn about generating reports, creating reports in the Report Designer, and sharing and scheduling reports.

https://player.vimeo.com/video/1177846079

Procedure

1. Navigate to **All** > **Reports** > **View/Run**.
2. Select the report you want to add.
3. Click the Sharing icon ( ) and select **Add to Dashboard**.
4. Select if you want to add the report to a **Homepage** or **Dashboard** (default).
5. Select the **Dashboard** and **Tab** to add the report to.
6. Select **Add**.
   The widget is added to the dashboard in the top position and the dashboard opens.
7. **Optional:** Select **Edit** to move or resize the widget.

(Legacy) Publish a report

Publish a report to create a URL that anyone can use to access the report, including people who are not users. When anyone navigates to the URL, the report is generated with current data from the instance. Reports are available until they are unpublished.

Before you begin

Danger:
This functionality is deactivated by default because of the risk of exposing data to unauthorized persons.

For this functionality to be available, the system property *glide.report.published_reports.enabled* must be set to `true`.

Role required: report_publisher, report_admin, or admin.

About this task

There are limitations to what users see when they follow the publish URL for a report.

- Data that is visualized as a graphic report and not limited by business rules is always visible in published reports. Graphic reports are all reports except for list reports.
- Read ACLs govern the content of list reports. Users cannot see records for which they do not have access.
- Public roles with access to a published report may see a smaller subset of the original data displayed in the report when they're not logged in. For help with resolving published reports not showing all the expected data, see KB article KB0736982.

Users with the admin or report_admin role can see if a report has been published. Navigate to **Reports** > **View / Run**, open the report, and click the **Sharing** icon ( ). If the Sharing menu has the **Publish** option, the report is not yet published. If the Sharing menu has the **Unpublish** option, the report has been published.

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Note:
To make a report available only to users who are logged in, set its **Sharing** setting to **Everyone**, but do not publish it.

Procedure

1. Navigate to **Reports** > **View / Run**.
2. Click the report you want to publish.
3. In the upper right side of the report form, click the **Sharing** icon ( ) and select **Publish**.

   A link icon ( ) shows with the Report option icons message. Click this icon to show a link to the published report. This link is available as long as the report is published.

Note:
Business rules may affect how records are collected for public reports.

Unpublish a report

Published reports are available at the published URL until you unpublish them.

Before you begin
Role required: both the report_publisher and report_user, report_admin, or admin.

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report you want to unpublish.
3. From the upper right side of the report form, click the **Sharing** icon ( ) and select **Unpublish**.

Result

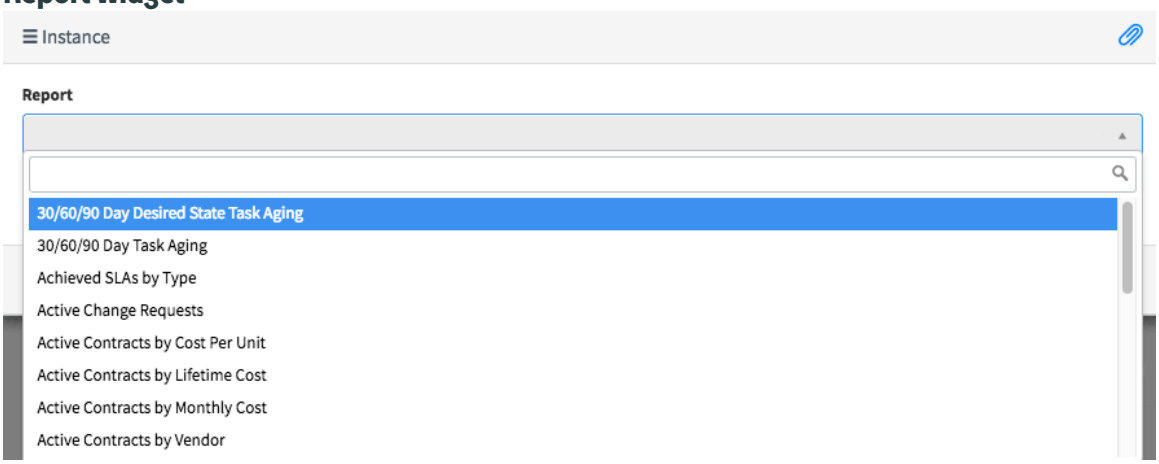
The report is no longer published and the link icon ( ) is removed from the report designer for the unpublished report.

Reports on Service Portal

Show existing reports in a Service Portal.

When you edit a portal, add the **Report** widget. Use the widget options to specify a report to show on the service portal and whether to show the title of the report. The widget lists created in the Report Designer. For more information, see Create a report.

Report widget



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With the report widget, you can show all report types on your portal except for list reports. Use the Simple List Widget instead.

Activate the Performance Analytics and Reporting - Service Portal Widgets plugin

You can activate the Performance Analytics and Reporting - Service Portal Widgets plugin (com.snc.pa.sp.widget) if you have the admin role. This plugin includes demo data and activates related plugins if they are not already active.

Before you begin
Role required: admin

About this task
The Service Portal Widget plugin activates these related plugins if they are not already active.

Plugins for Performance Analytics and Reporting - Service Portal Widgets

Plugin	Description
Service Portal [com.glide.service-portal]	Core Service Portal functionality.

Procedure
1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the plugin using the filter criteria and search bar.

   You can search for the plugin by its name or ID. If you cannot find a plugin, you might have to request it from ServiceNow personnel.
3. Select **Install** to start the installation process.

   Note:
   When domain separation and delegated admin are enabled in an instance, the administrative user must be in the **global** domain. Otherwise, the following error appears: `Application installation is unavailable because another operation is running: Plugin Activation for <plugin name>.`

   You will see a message after installation is completed. For information about the components installed with a plugin, see Find components installed with an application.

Related topics
List of plugins

Report types

Learn about the different types of reports that you can create, and when and how to create them.

Watch this four-minute video to learn how to create and configure a report visualization.

https://player.vimeo.com/video/1107907024?h=7e0f8fc448&badge=0&autopause=0&player_id=0&app_id=58479

You can generate the following types of reports, organized by category:

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- Bar reports enable you to compare scores across data dimensions.
- Pie and Donut reports visualize the relationship between the parts and the whole of a data set using a single round shape.
- Time Series reports visualize data over time. In addition to data from within your instances and imported data sources, you can also use MetricBase data in time series reports. For more information, see MetricBase application.
- Multidimensional reports visualize data across dimensions in a single table or graph.
- Scores visualize single data points either across ranges or as a single value.
- Statistical reports visualize data with statistical values such as medians and means.
- Other reports include calendars, maps, and lists.

You can also use Natural Language Query (NLQ) inside Report Designer to generate a report. Simply write a question into the NLQ field, and the Report Designer generates a report of an appropriate type.

Bar reports

	Report	Description
 	Vertical and horizontal bar reports	Shows vertical or horizontal bars with lengths proportional to the values that they represent.
	Pareto reports	Combines bar and line reports to identify the most important factors in a large set of factors.
	Histogram reports	Provides visual interpretation of numerical data by indicating the number of data points that lie within a range of values.

Pie and Donut reports

	Report	Description
	Pie charts	Shows how individual pieces of data relate to the whole using a circle to represent the whole.
	Donut reports	Shows how individual pieces of data relate to the whole using a donut shape to represent the whole.
	Semi-donut reports	Shows how individual pieces of data relate to the whole using a semi-donut shape to represent the whole. A semi-donut report uses a donut sliced in half to represent the whole.

Time series reports

	Report	Description
	Column reports	Shows how one or more values change over time by displaying them as proportional vertical columns.
	Line reports	Shows how one or more values change over time by connecting a series of data points with straight lines.

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Time series reports (continued)

	Report	Description
	Step line reports	Shows how one or more values change over time by connecting a series of data points with horizontal and vertical lines.
	Area reports	Resembles a line chart, but the area between the axis and line is commonly emphasized with colors.
	Spline reports	Shows how one or more values change over time by connecting a series of data points with a fitted curve through the data points. Spline reports let you take a limited set of known data points and approximate intervening values.

Multidimensional reports

	Report	Description
	Multilevel pivot tables	Displays aggregate data broken down by multiple metrics in a single chart.
	Heatmap reports	Displays aggregate data in a matrix using colors to represent different values.
	Bubble reports	Displays multiple metrics on a single chart.

Scores

	Report	Description
	Speedometer reports	Shows an overview of the count of an indicator at the current moment in the form of a round meter.
	Dial reports	Shows an overview of the count of an indicator that you want to measure in a half circle. The part in which scores are shown is filled with a color.
	Single score report	Displays a single aggregate value that is important to your business.

Statistical analysis visualizations

	Report	Description
	Control reports	Displays data as a series of connected points to determine whether a business process is in a state of statistical control and to identify outliers. (Found in the Other reports section.)
	Trend reports	Shows how the value of one or more items changes over time. Values along the horizontal axis of the trend report represent the time measurement. Values on the vertical axis represent the changes to the items being monitored. The trend line or curve

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Statistical analysis visualizations (continued)

	Report	Description
		reveals a general pattern of change. (Found in the Other reports section.)
	Box reports	Shows the distribution of values in a data set highlighting statistical averages. (Found in the Other reports section.)
	Trendbox reports	Shows the distribution of values in a data set highlighting statistical averages for a specified periodof. (Found in the Other reports section.)

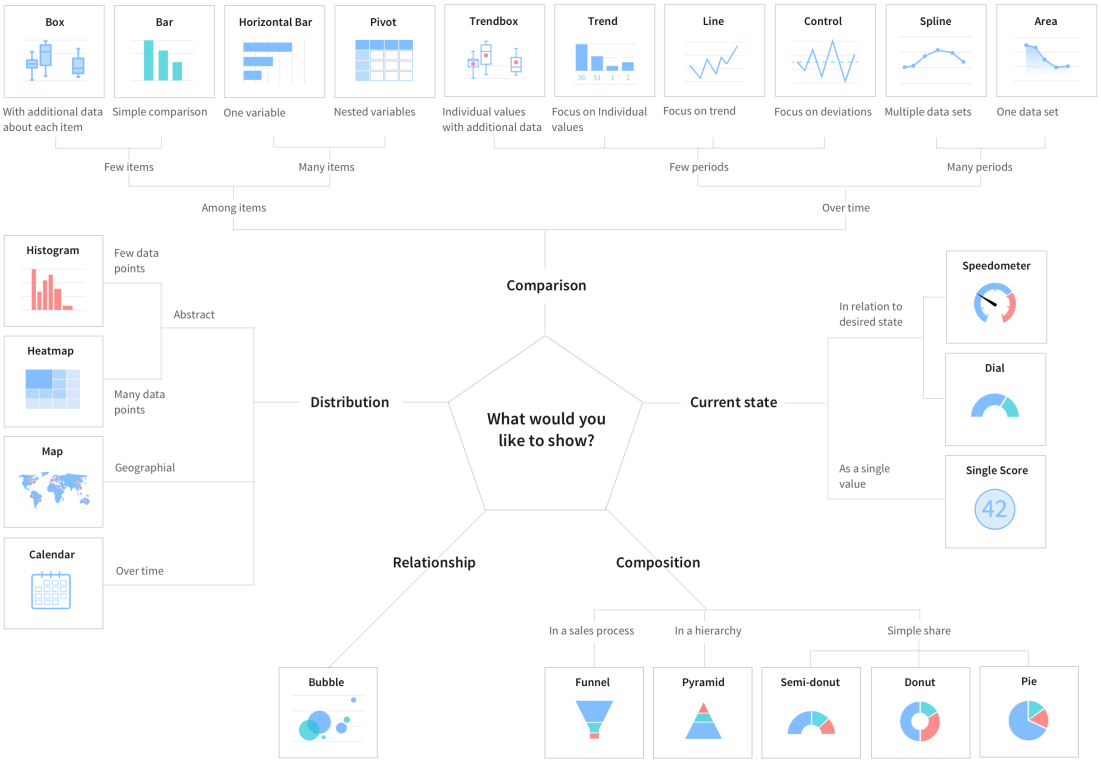
Other reports

	Report	Description
	Funnel reports	Displays values as progressively decreasing proportions. The size each section reflects a percentage of the total of all values.
	List reports	Displays data in the form of an expandable list, similar to a standard ServiceNow list component.
	Calendar reports	Displays data-driven events in a calendar format.
	Map reports	Displays data on a geographical map image.
	Pivot tables	Aggregates data from a table to display the source of summarized data. This functionality is expanded in multilevel pivot reports.
	Pyramid reports	Visualizes a variation on a bar report using pyramid sections instead of rectangles. (Found in the Other reports section.)

Choosing a report type

Choose a report type based on the story that you want data to tell.

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Area and spline reports

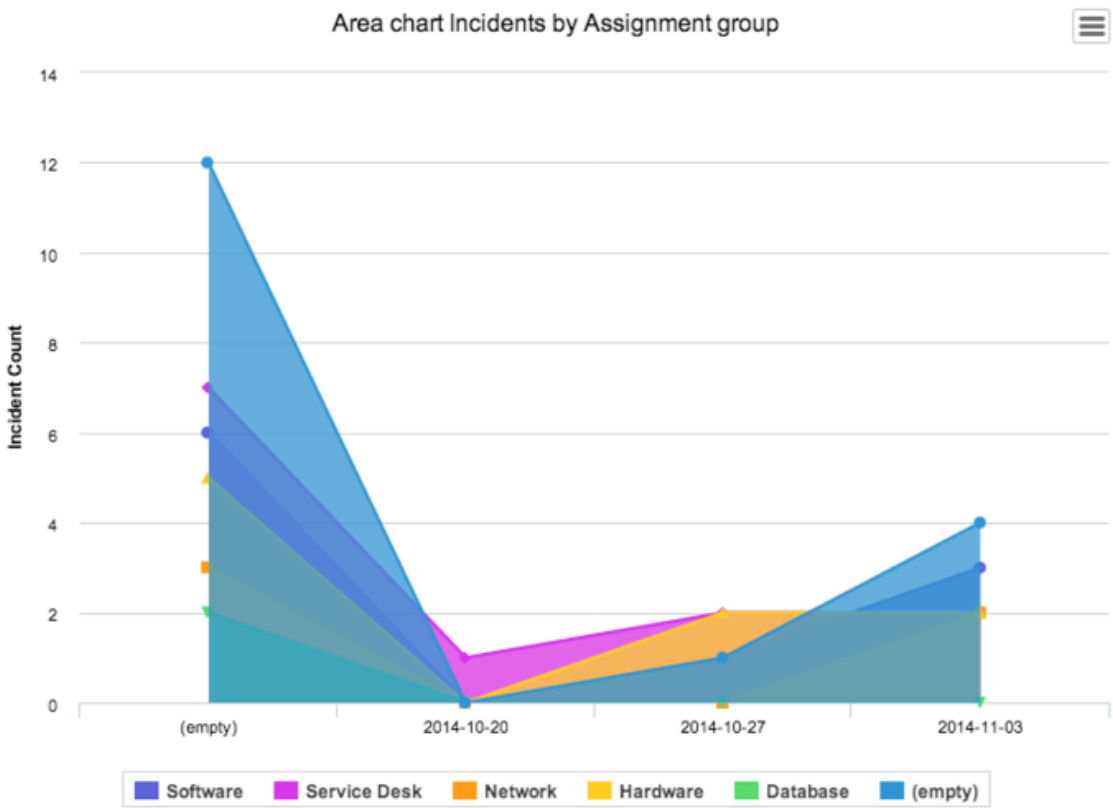
Area reports show trends over time for related attributes. Spline reports show how one or more values change over time by connecting a series of known data points with a curve that emphasizes the trend over individual data points.

For example, you can create an area or spline reports for incident counts, to show how the number of incidents changes over time. The incident count often increases during the first few months after a product upgrade is deployed. Over time, the number of reported incidents decreases as users become more accustomed to the changes in the product.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Time series visualization type use cases.

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Area reports

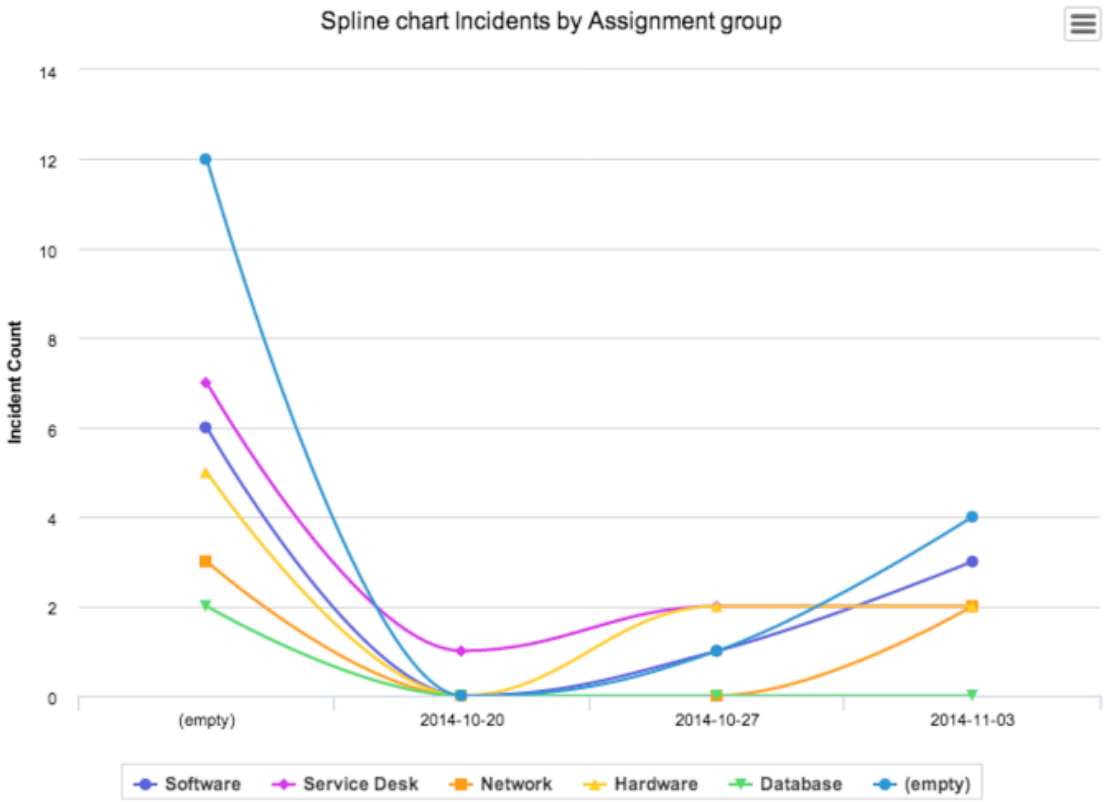


Note:

When the sections of an area report with multiple datasets overlap, it is not possible to drill down into the various sections. To drill down, click items in the legend to clear them from the report.

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Spline report



Note:
This data visualization is supported on the mobile platform. For more information, see Time series reports for mobile and Mobile dashboard preview.

Create an area or spline report

Create an area or spline report to show trends over time for related attributes.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

For an area report use case, Time series visualization example.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single

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Option	Description
	source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Area** or **Spline** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts

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Field	Description
Calendar	Calendar that is the basis for the time series in the report. Select either the standard calendar or a customized business calendar.
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**. ○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%.

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Field	Description
	○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

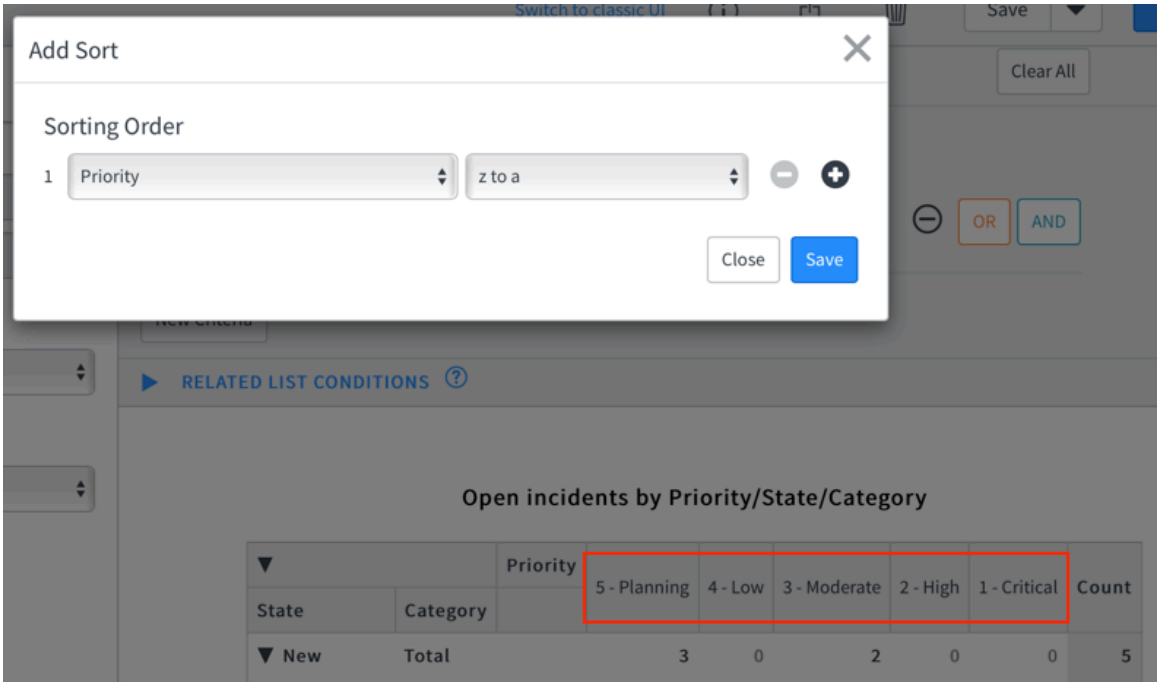
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Area and spline report style options

Change the look of your area or spline report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Area and spline report style options

Field	Description
General	

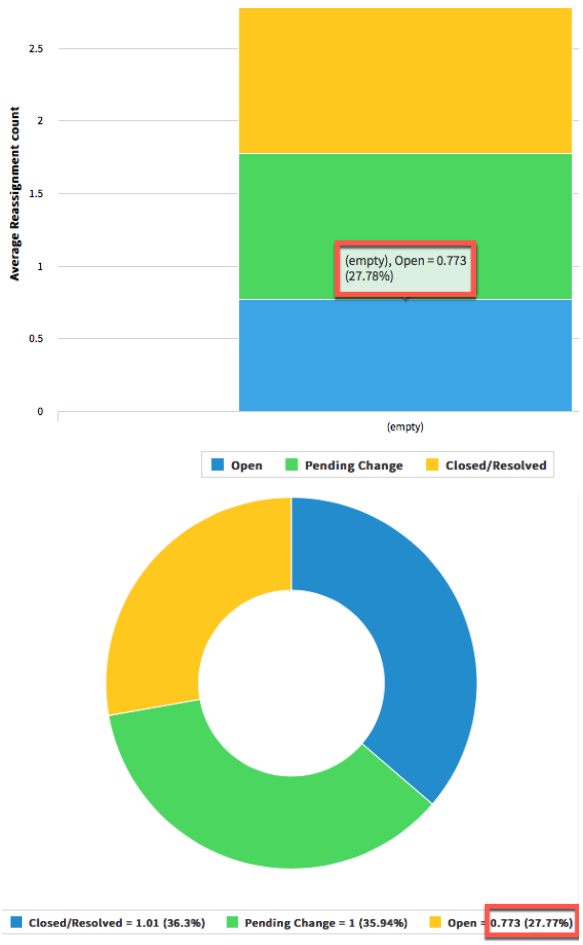
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Area and spline report style options (continued)

Field	Description
Chart color	Source of colors used in the report. If you do not group or stack the report, **Use one color** is automatically selected. In this case, select a single, predefined system color. If you group or stack the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Click the search icon () to choose from the **Chart color schemes** or **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list.
Display data labels	Check box to show the value for each data point.
Do not plot nil as zero	Check box to specify whether to replace missing data points with values of zero. This field is available when creating or editing time series reports (area, spline, line, and step line reports only) that include multiple datasets, and when creating or editing datasets within the applicable time series reports. This field is not available when data in the report is grouped, or is aggregated by Count or Count Distinct. If selected, the report may show gaps where no data exists. **Note:** This property cannot be selected when the source is MetricBase.
Show marker	Check box to show a symbol at each data point.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**.

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Area and spline report style options (continued)

Field	Description
	Note: The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	
Show chart title	When the chart title is shown for the report.

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Area and spline report style options (continued)

Field	Description
	• **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *`glide.chart.label.legend.truncate_to`* and *`glide.chart.label.legend.truncate_to.large`*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.

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Area and spline report style options (continued)

Field	Description
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.

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Area and spline report style options (continued)

Field	Description
	Note: • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Vertical and horizontal bar reports

Vertical and horizontal bar reports compare individual or aggregate scores across data dimensions. Vertical bar report columns originate on the x-axis, and horizontal bar report columns originate on the y-axis.

Bar reports display data in either a horizontal or vertical bar format with each bar representing a specific category of data. A bar report can use a single color to represent all categories of data, or a different color for each category.

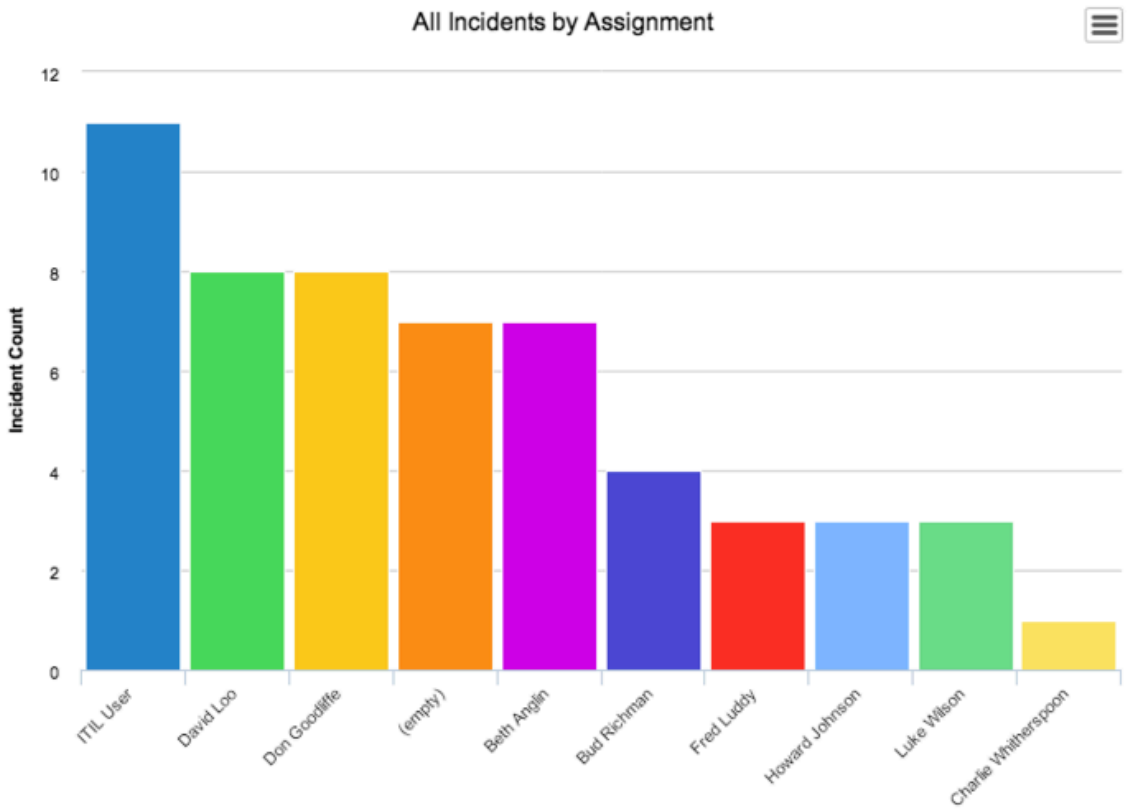
Note:
Vertical bar reports are supported on the mobile platform. For more information, see Bar reports for mobile and Mobile dashboard preview.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a horizontal or vertical bar data visualization.

The following figure shows an example of a bar report that displays discrete categories of data. The report includes data from the Incident [incident] table for all incidents recorded up until the time that the report is generated.

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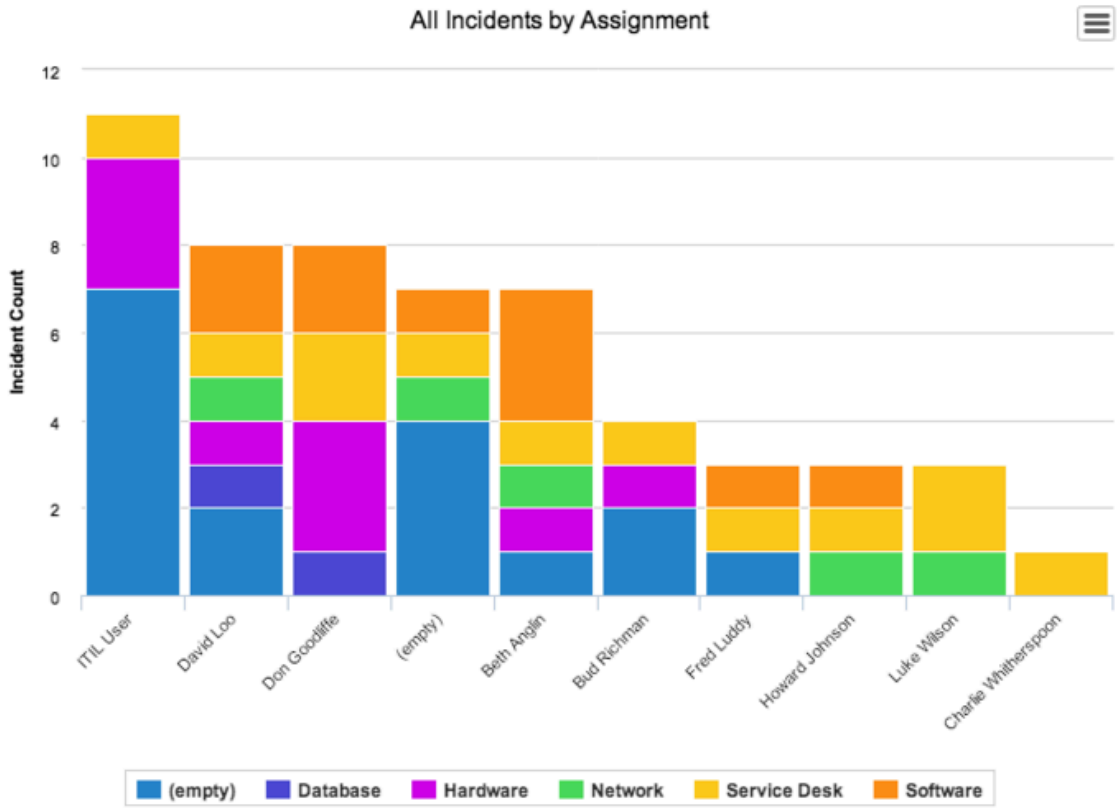
Bar report



You can configure the bar report to stack data or change the measurement units of the bars. Stacked bar reports show the parts that contribute to the total. The following figure shows a bar report with the number of incidents that are assigned to each user. It is also stacked to display how many of the incidents are from each incident category.

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Stacked bar report



Create a bar report

Bar reports enable you to show information in segments that are proportional to the values they represent.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Bar** or **Horizontal bar** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Stack by	Divide each bar using the values in this field. To stack by fields on extended tables, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views. On a bar chart of incidents sorted by Category and stacked by Priority, a user sees the proportion of high, medium, and low-priority issues for each category. Select stacked fields carefully to avoid cluttering the report. Sometimes it is a better practice to create another report that shows these relationships rather than stack too much data. Bar charts display a legend only when a stacked field is selected. Boolean, reference, and choice lists can be used as stacked fields. Date, date/time, integer, long, string, and text fields cannot be used as stacked fields. **Note:** Date types are not allowed starting with the introduction of the Report Charting v2 plugin.

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Field	Description
	You can choose to display the stacked field either in a single bar or as a group of bars. If you select a **Group by** field on the report form, you can choose to visualize the bars as Grouped bars. In this case, bars are displayed next to one another according to the **Group by** field (for example, the state of the incident), instead of stacked. If you choose fields with **Additional group by**, these fields are also available in a **Stacked by** control at the bottom of the report. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**.

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Field	Description
	○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%. ○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

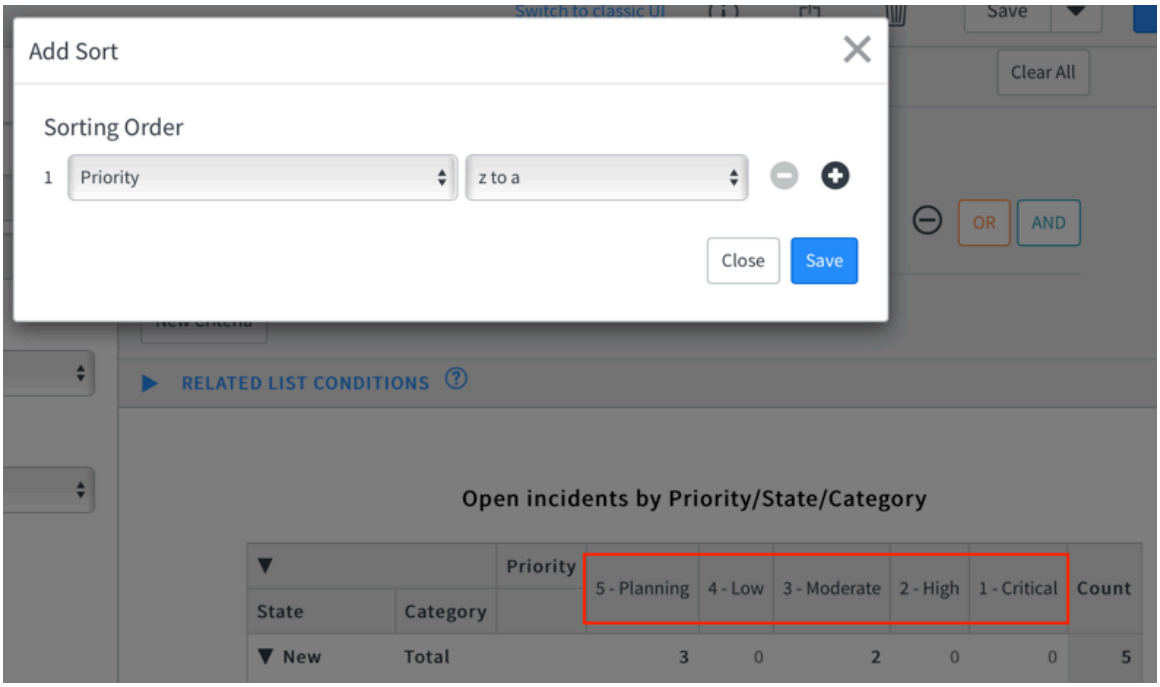
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

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For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Bar report style options

Change the look of your bar report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

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Bar report style options

Field	Description
General	
Chart color	Source of colors used in the report. If you are not stacking the report by a field, you can select one of the following options: • **Use one color**: Select a single predefined color in the **Chart color field**. • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. If you are stacking the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Select to display the current value for each bar. This field is available when you select None from the **Stacked by** list or if there is no **Stacked by** list. • Select **Data labels in the middle** to show the labels in the middle of each bar. • Select **Allow data labels to overlap** to override default separation of labels in the visualization.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600.

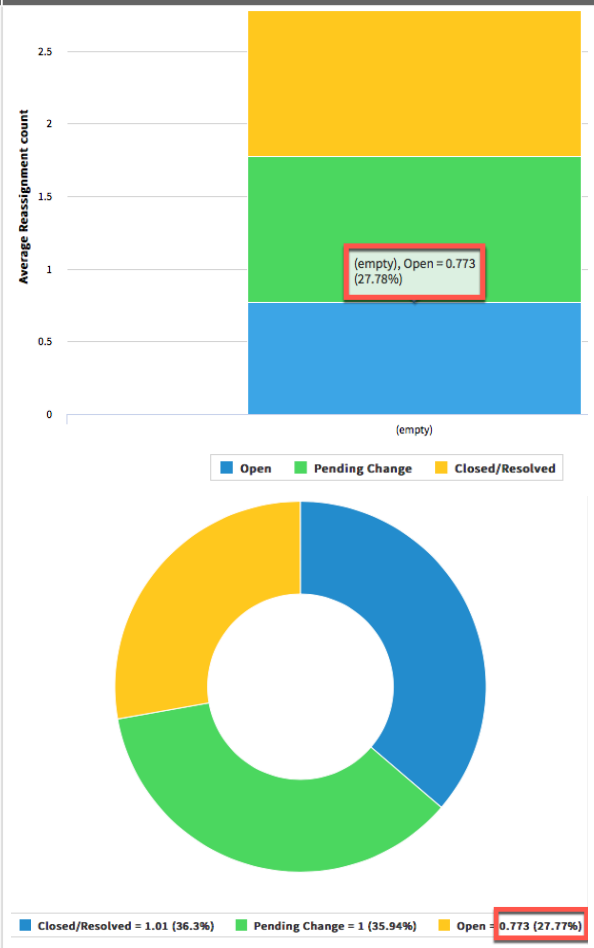
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Bar report style options (continued)

Field	Description
	This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Bar report style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Bar report style options (continued)

Field	Description
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.

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Bar report style options (continued)

Field	Description
	Note: • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Box reports

Box reports, also called box plots, visualize the distribution of data including the maximum, minimum, quartiles, median, and mean.

Use box charts to report multiple data sets from different sources that are related to each other.

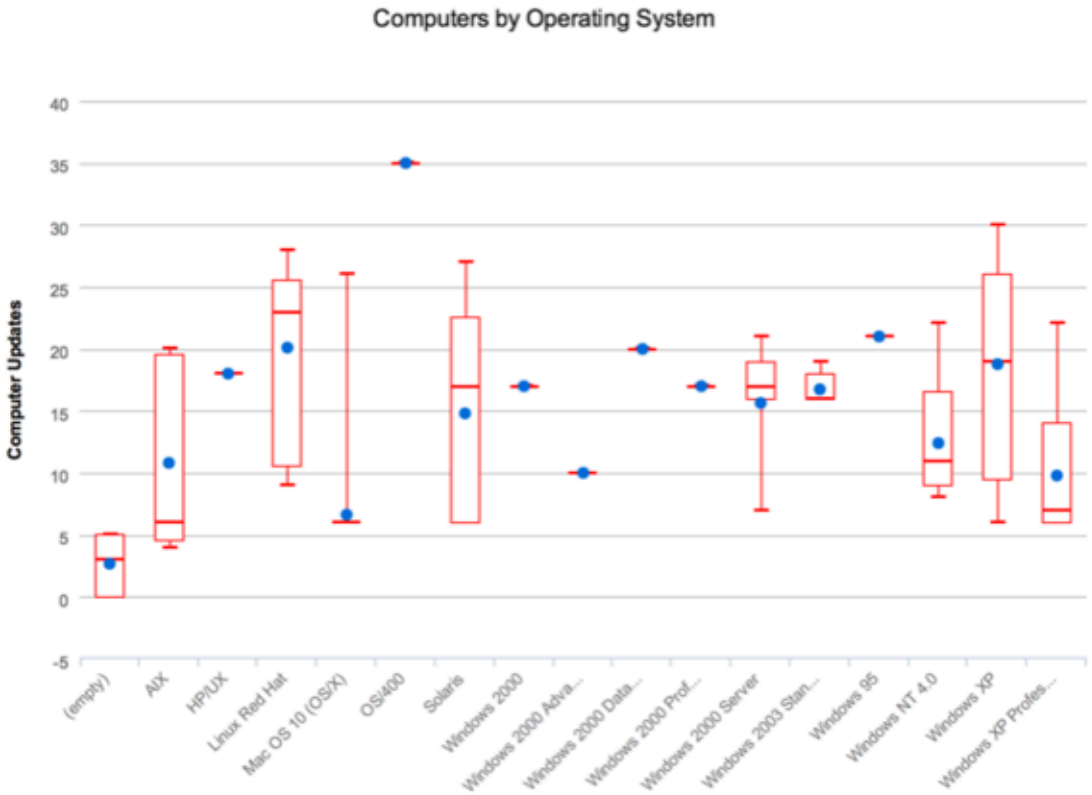
For example, use a box chart to view the age range of all customers who attended a convention. The box chart helps you determine where most ages are grouped. With this information, you can

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attempt to increase attendance levels at future events by targeting advertisements at the age groups that had lower attendance levels.

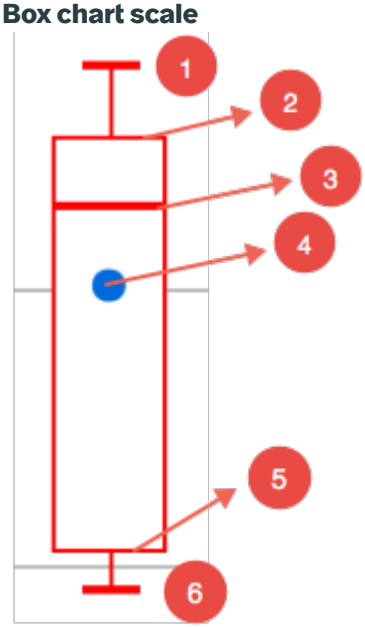
Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a box plot data visualization.

Box chart



A box chart displays the following information for each group of data:

Box chart scale



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1. Sample maximum
2. Upper quartile
3. Median
4. Mean
5. Lower quartile
6. Sample minimum

Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

Create a box report

Create a box report to show the distribution of values in a data set.

Before you begin
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task
Box reports enable you to show data organised by statistical averages.

Procedure
1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re

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Option	Description
	trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Box** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views. ○ Label names longer than 20 characters may show or print a truncated view.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon ( ) for descriptions of the selected fields Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Measured by	Field to use as a measurement for the data. Date and time fields are not supported for box charts. Select the info icon (ⓘ) for a description of the selected field.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

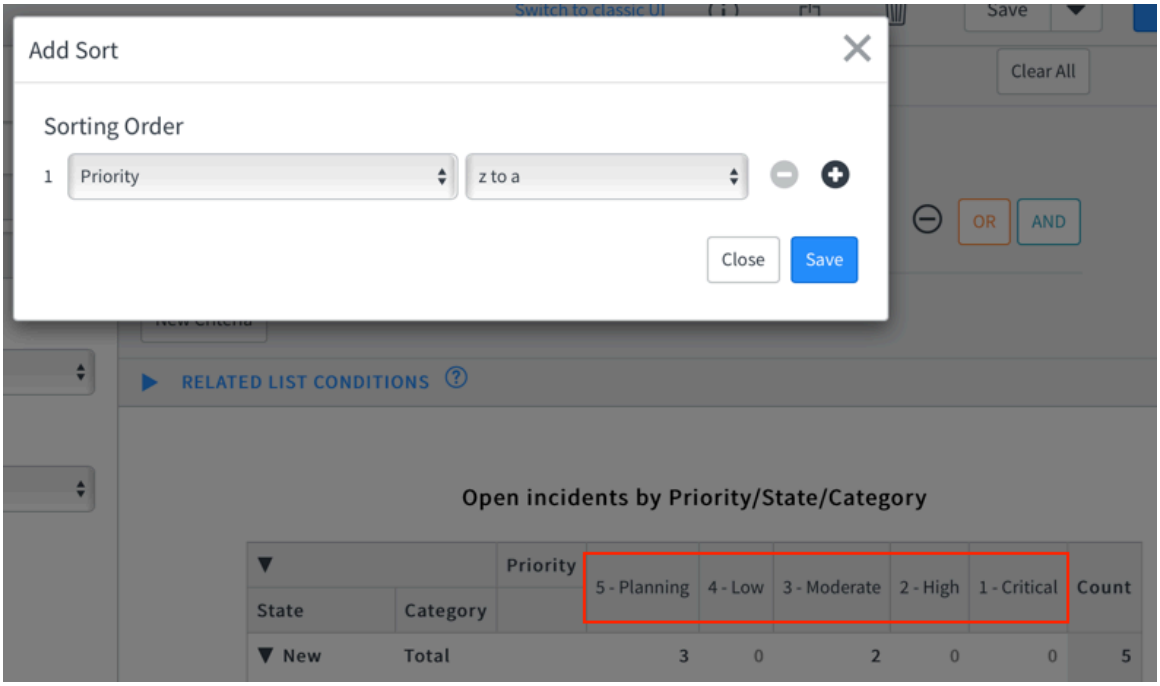
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Box report style options

Configure the look of your box report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Report style options

Field	Description
General	

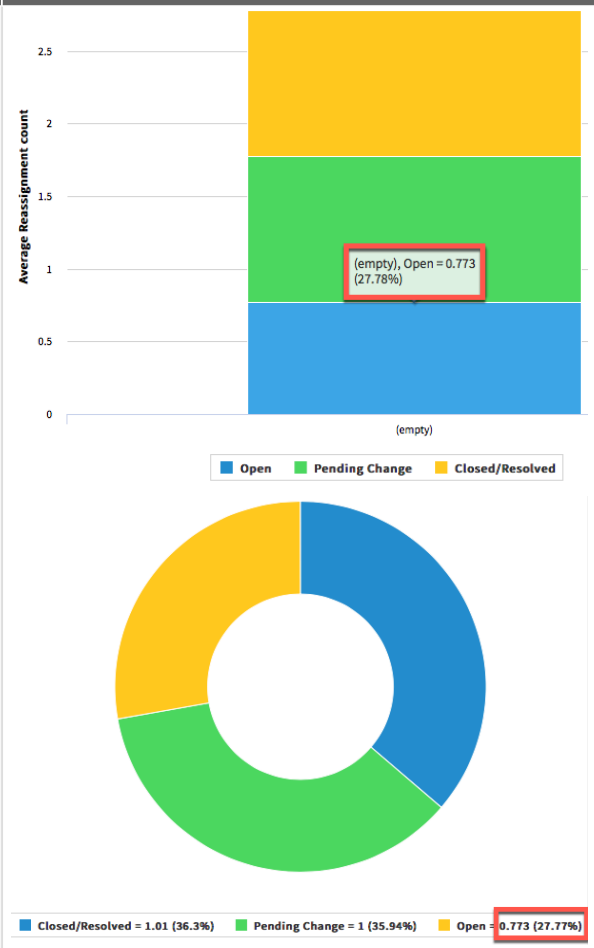
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Report style options (continued)

Field	Description
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Report style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Report style options (continued)

Field	Description
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.

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Report style options (continued)

Field	Description
	Note: Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Bubble reports

Bubble reports plot data points on X and Y axes and use a third aggregate dimension to define bubble size.

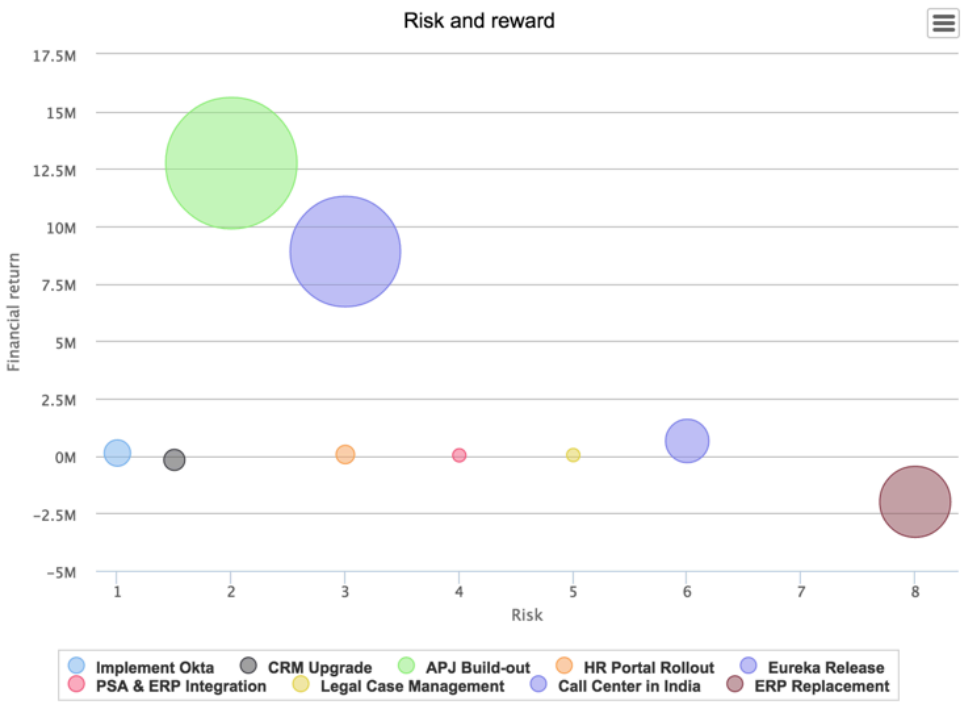
Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a bubble visualization in the Visualization Designer.

Bubble reports can use numeric values to define the X and Y axes, and an aggregate value to determine the size of each bubble.

For example, when using Demand Management you can create a bubble report on the Demand table to compare risk and reward for various demands. Each bubble represents one demand. The risk and financial return determine the position of each bubble, while the total financial benefit for the demand determines the bubble size. You can quickly identify demands with low risk and high reward using the large bubbles in the top left of the report.

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Create a bubble report

Create a bubble report to display multiple separate metrics on a single chart.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

Bubble reports aggregate information over three different metrics, using the X axis, Y axis, and bubble size.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Bubble** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Field to group data by. Each value is represented by a unique bubble color on the chart. Select the info icon ( ) for a description of the selected field. **Note:** It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon ( ) for descriptions of the selected fields Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Row	Numeric field to use as the Y axis. Select the info icon (ⓘ) for a description of the selected field.
Column	Numeric field to use as the X axis. Select the info icon (ⓘ) for a description of the selected field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

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Select the filter icon ( ) and choose **Add Sort**.

a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

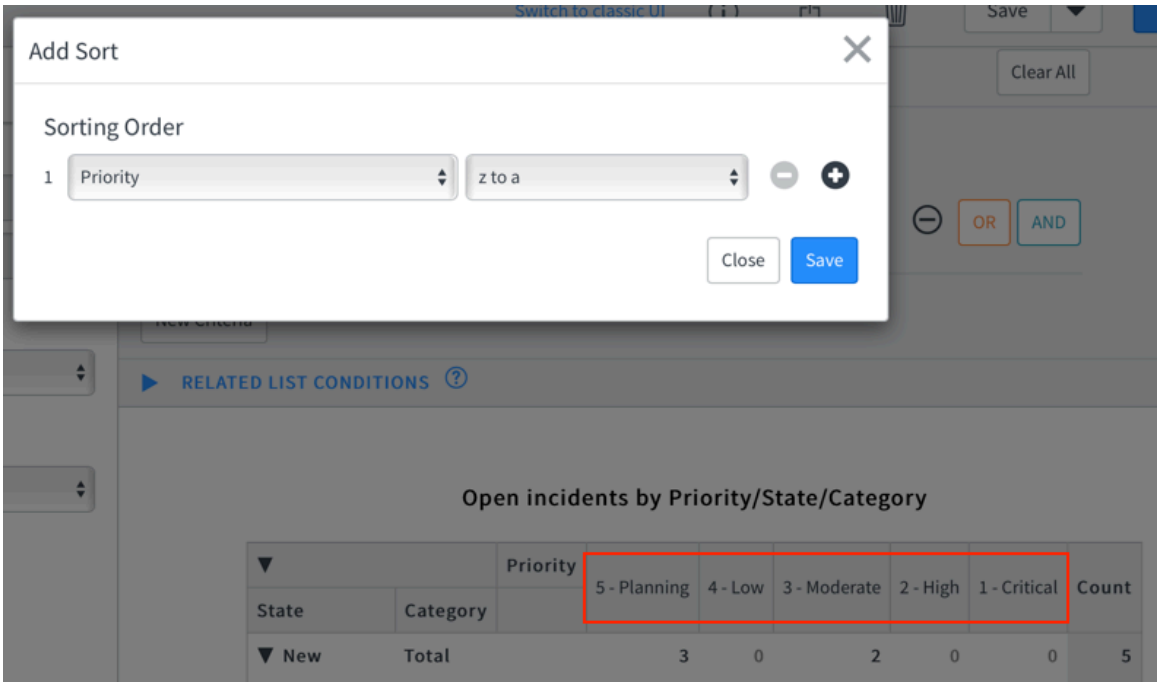
The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

Note:
On fields from dot-walked (extended) tables, you can only sort on date fields.

b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
To learn how to construct conditions, see Condition builder .

Note:
In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Select the Report info icon () and add a description of the report.
- Select the sharing icon () to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Bubble report style options

Change the look of your bubble report.

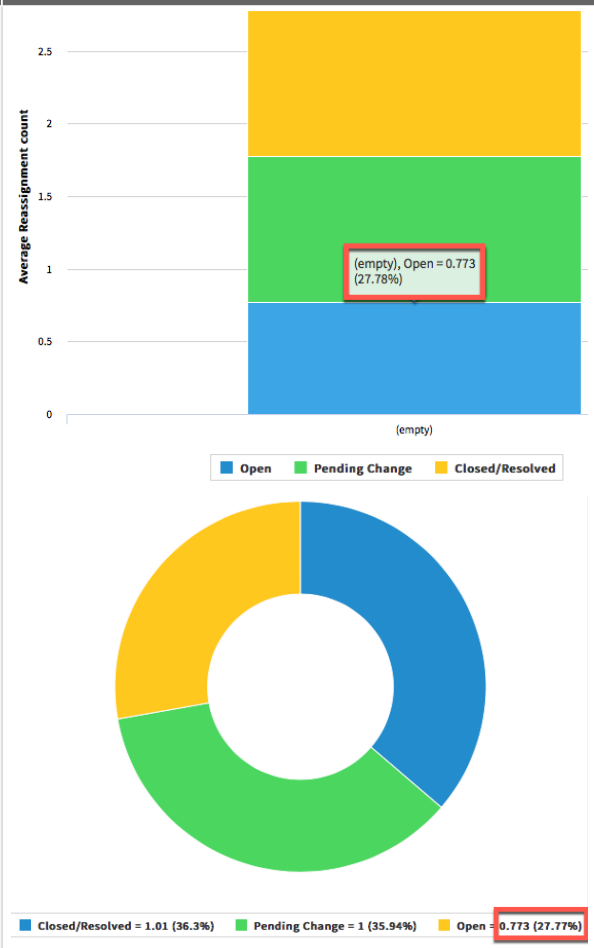
When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Bubble report style options

Field	Description
General	
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Bubble report style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Bubble report style options (continued)

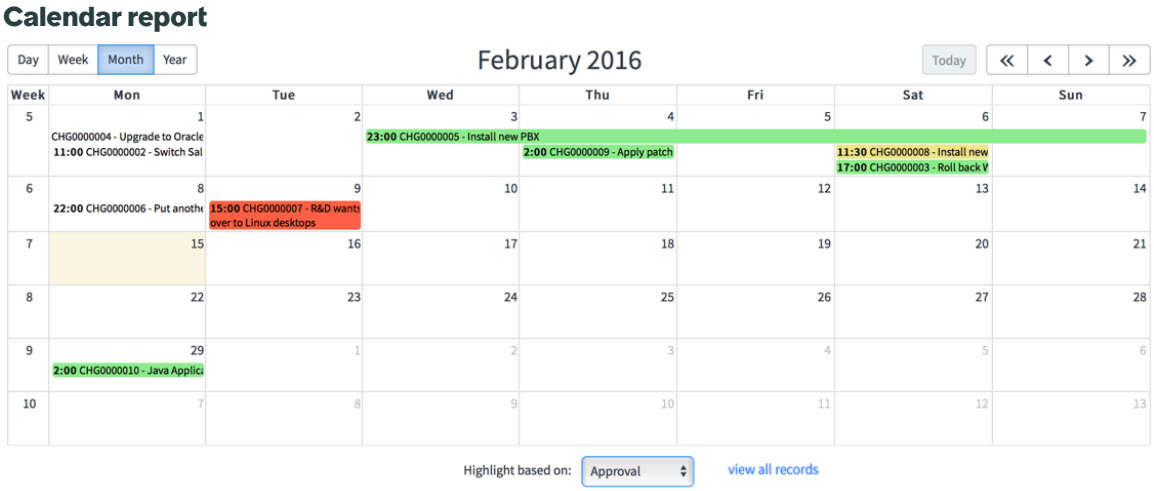
Field	Description
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

Calendar reports

Calendar reports display date-driven events on a calendar.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a calendar report visualization in the Visualization Designer.

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You can highlight calendar events by relevant criteria such as priority, status, or escalation. Events that have no end date have a duration of one hour.

Limitations

- You can limit the number of events that may be returned when you browse backwards in a calendar visualization. There is a limit of 30 days into the past, starting from the first day in the current Calendar view. Events that start more than 30 days before the first day visible on a calendar are not displayed. If you select **Year**, then the calendar includes events that start between December 1 of the previous year and December 31 of the current year.

  The KB article Weekly calendar view does not display all entries covers scenarios in which some expected entries do not display.

  To show more or fewer days, edit the *glide.report.calendar.max_days_back* property. See Reporting properties.

  Note:
  Performance may degrade if this value is too large.

- This report type cannot be run as a scheduled report.
- Calendar reports on a start date field show the range of the field from the start date to the end date. Calendar reports on an end date field show only the end date.

Create a calendar report

Create a calendar report to show and highlight date-driven events.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.

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2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Calendar** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields.

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Field	Description
	Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Event to display	The date-driven event to display on the calendar. This list contains fields that are in the date/time format in the data source or source table. Click the info icon (ⓘ) for a description of the selected event.

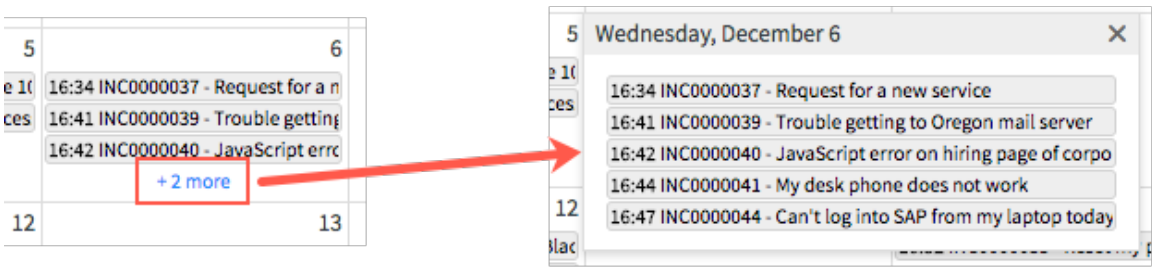
7. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

8. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

Note:
When there are more events on a date than fit in the calendar cell, a link is shown to view the additional events.



If there are more than thirty events, the cell shows + many. Click this link to show all the events in a list view for that date.

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can share the report with users and groups, add the report to a dashboard, and publish the report to the web.

Column reports

Column reports show how the value of one or more items changes over time with columns.

Values along the horizontal axis of the column chart represent the time measurement (years, hours, minutes, milliseconds, and so on). Values on the vertical axis represent the changes to the items being monitored. Users with the report_admin role can define the ranges that are used in a column chart report. See Report ranges for information on creating report ranges.

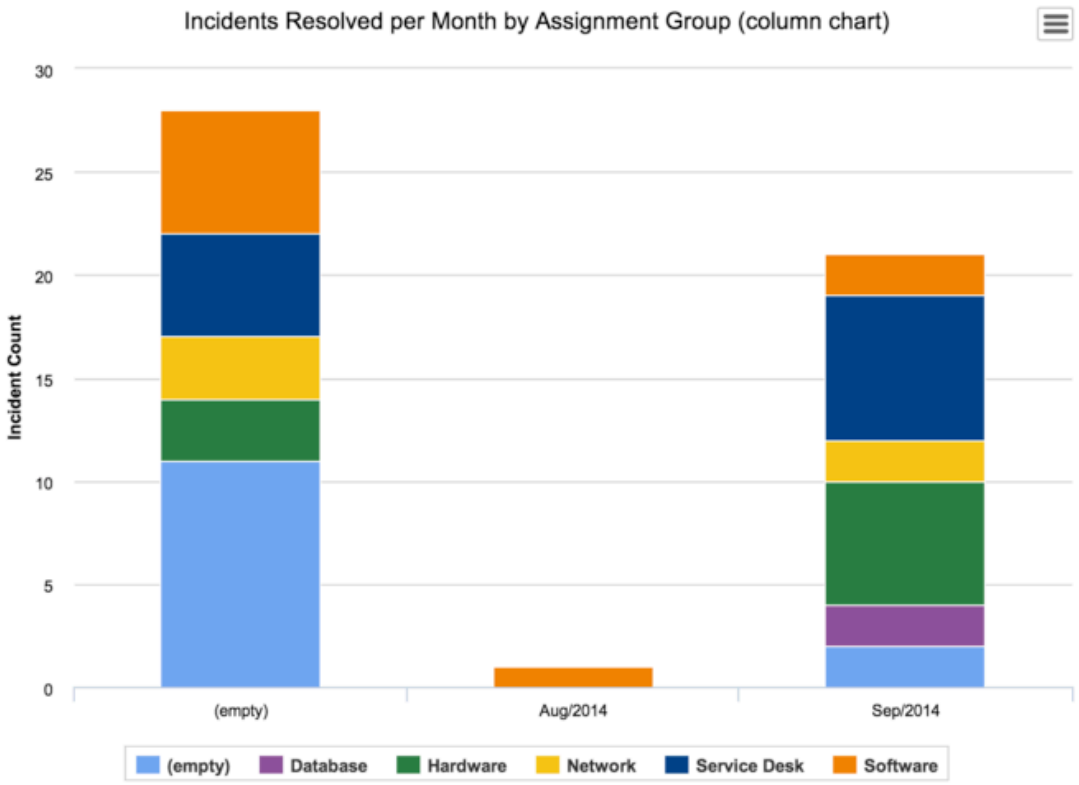
For example, you can create a column chart for incident counts, to show how the number of incidents changes over time. The incident count often increases during the first few months after

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a product upgrade is deployed. Over time, the number of reported incidents decreases as users become more accustomed to the changes in the product.

The figure shows resolved incidents stacked by category with a legend that indicates which category the colors represent.

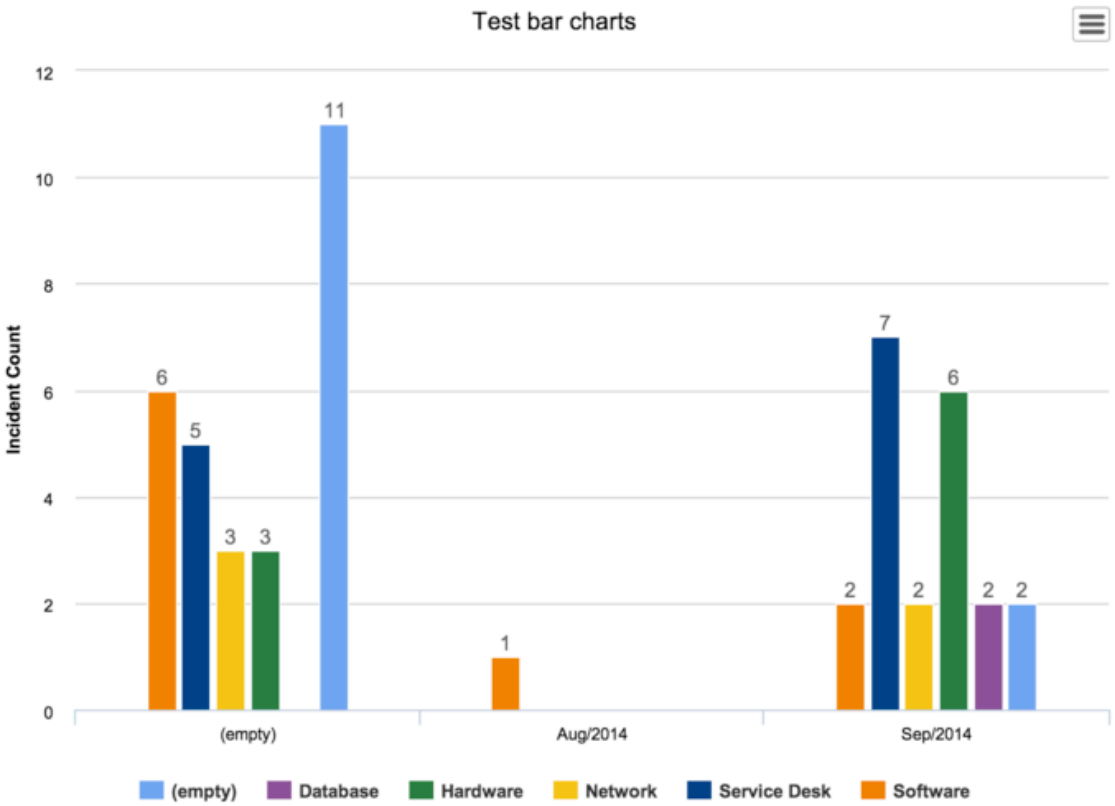
Stacked column chart



A grouped column chart shows the categories as individual bars, rather than stacked colors in a single bar.

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Grouped column chart



Create a column report

Create a column report to show how the value of one or more data elements changes over time using vertical columns.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

For a column report use case, Time series visualization example.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Column** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Stacked bars / Grouped bars	How to show the relationship of individual items from the selected field to the whole. You can choose to display the stacked field either in a single bar or as a group of bars. Select **Stacked bars** to display the parts that contribute to the whole for each column in the chart. Select **Grouped bars** to display the parts that contribute to the whole as individual columns. Bars are displayed next to one another according to the **Group by** field (for example, the state of the incident), instead of stacked.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields.

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Field	Description
	Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts
Calendar	Calendar that is the basis for the time series in the report. Select either the standard calendar or a customized business calendar.
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**.

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Field	Description
	○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%. ○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

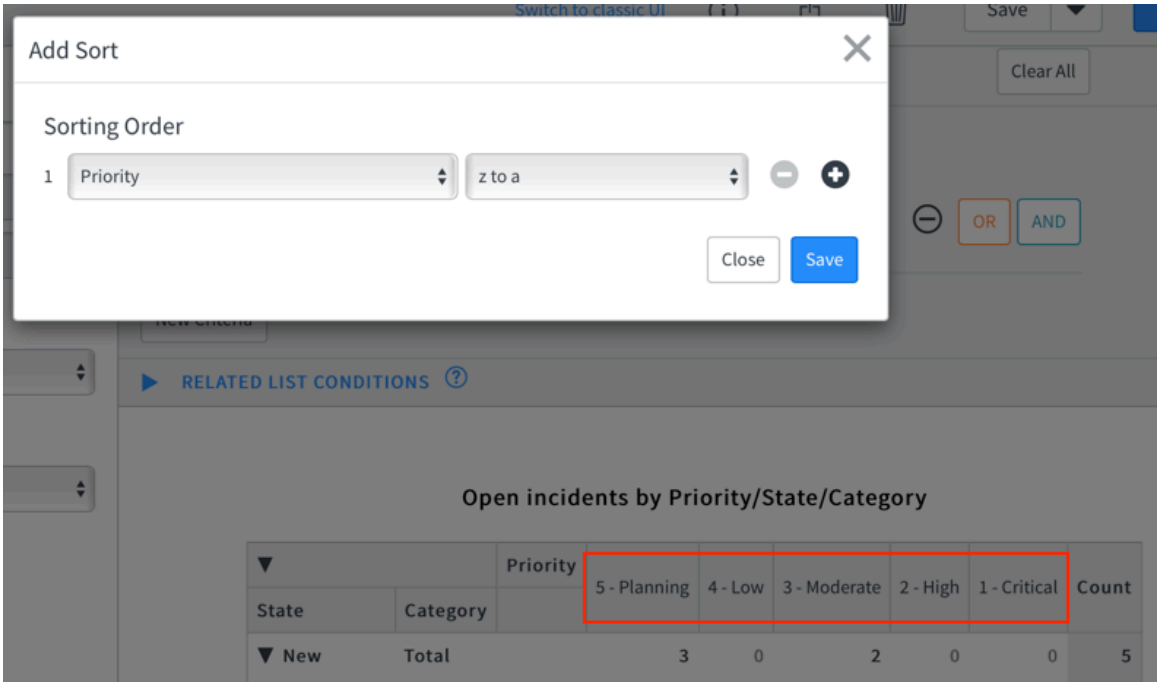
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Column report style options

Change the look of your column report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Column report style options

Field	Description
General	

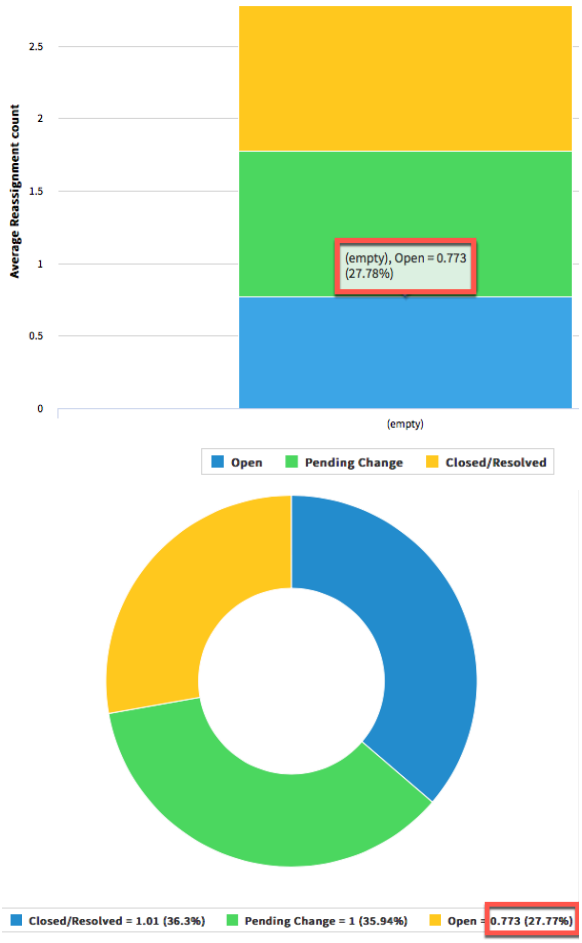
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Column report style options (continued)

Field	Description
Chart color	Source of colors used in the report. If you do not group or stack the report, **Use one color** is automatically selected. In this case, select a single, predefined system color. If you group or stack the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Check box to show the value for each data point.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.

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Column report style options (continued)

Field	Description
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.

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Column report style options (continued)

Field	Description
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.

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Column report style options (continued)

Field	Description
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.

From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.
	
	Note:
	• Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator.
	• If you format duration fields additionally using **Set Value Formatting** from the Configure tab:
	  ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values.
	  ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.

To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.

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Column report style options (continued)

Field	Description
	Note: • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Control reports

Control reports visualize data over time using standard deviations to show statistical likelihood and identify outliers.

Control reports display data as a series of connected points. The blue line at the center of the report is drawn at the mean. Upper and lower control limits, represented by red lines, indicate the thresholds at which activity is considered statistically unlikely. If the process is in control, all points are plotted within the control limits. You may want to investigate any activity outside these limits.

These reports use Z-scores to indicate statistical likelihood.

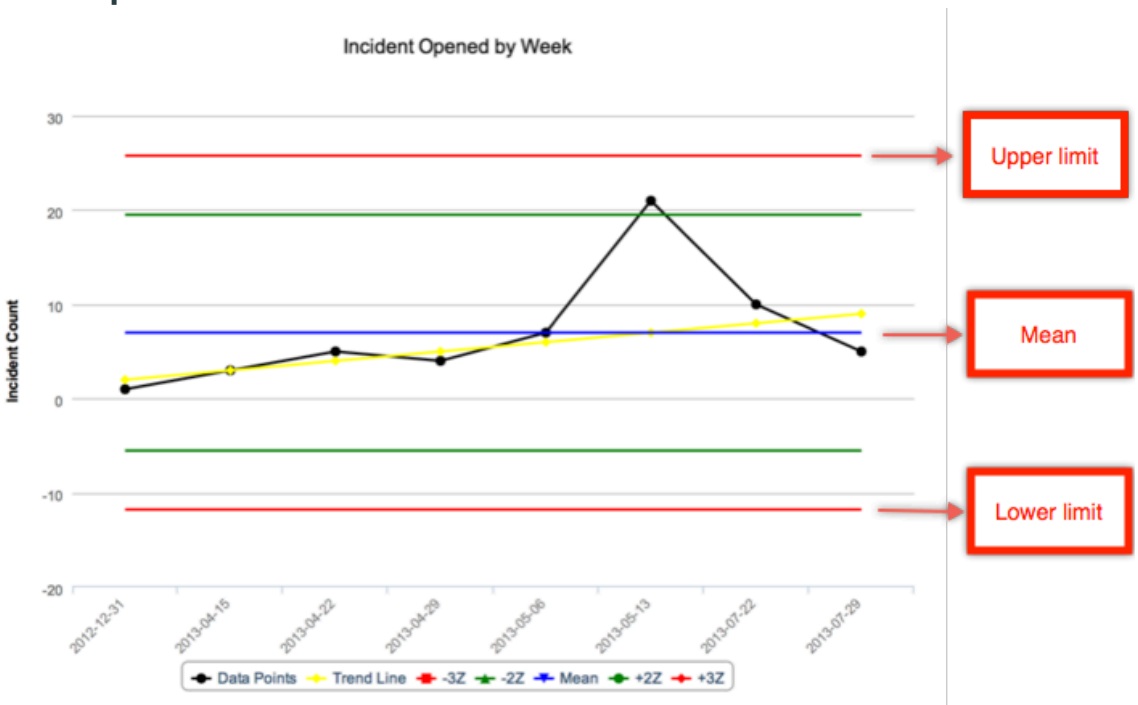
```
Z-score = (Observation - Mean) / Standard Deviation
```

The upper and lower green lines indicate plus and minus two times the Z-score. The upper and lower red lines indicate plus and minus three times the Z-score.

Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

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Control report



Note:
The mean is the sum of the data points on the **Data Points** line divided by the number of points. These values depend on the aggregation (Count, Average, Sum, or Count Distinct). This mean can differ from averages in other reports based on the same data if the other reports use different aggregations. For example, the mean number of incidents (**Count**) per month over a period is different from the mean **Average** duration of those same incidents.

Create a control report

Create a control chart to determine whether a business process is in a state of statistical control.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Control** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon ( ) for a description of the selected field.

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Field	Description
	Note: If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

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a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

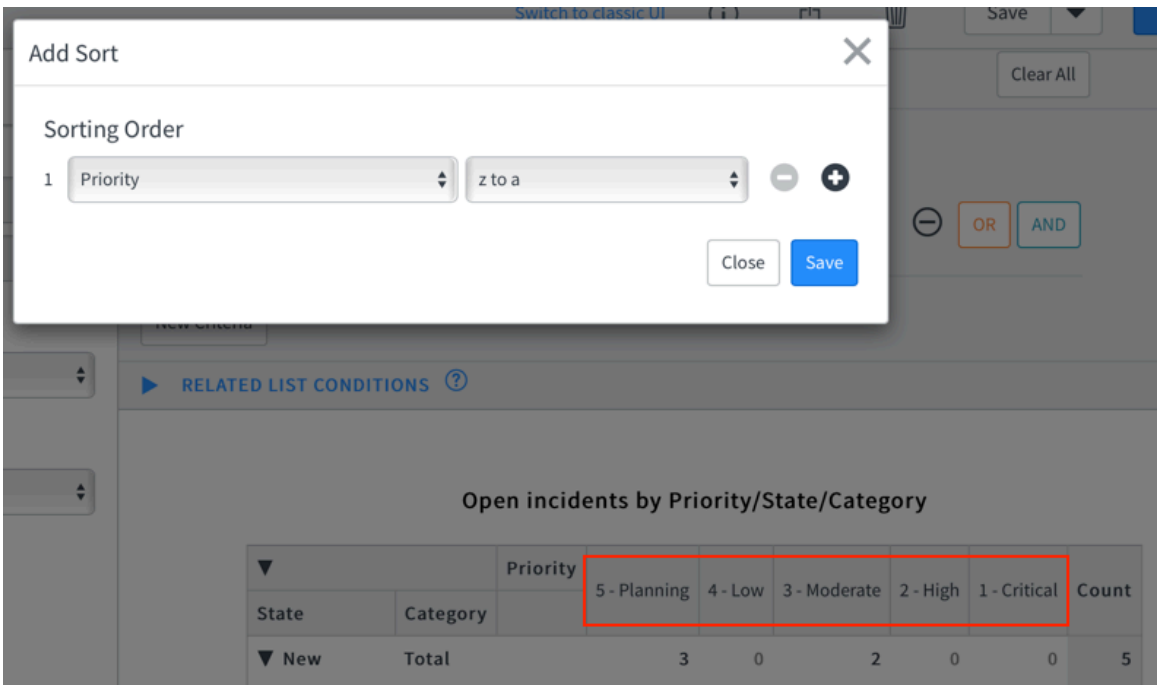
The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

Note:
On fields from dot-walked (extended) tables, you can only sort on date fields.

b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
To learn how to construct conditions, see Condition builder .

Note:
In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Click **Save** to generate the report.

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What to do next

- Select the Report info icon () and add a description of the report.
- Select the sharing icon () to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Control report style options

Change the look of your control report.

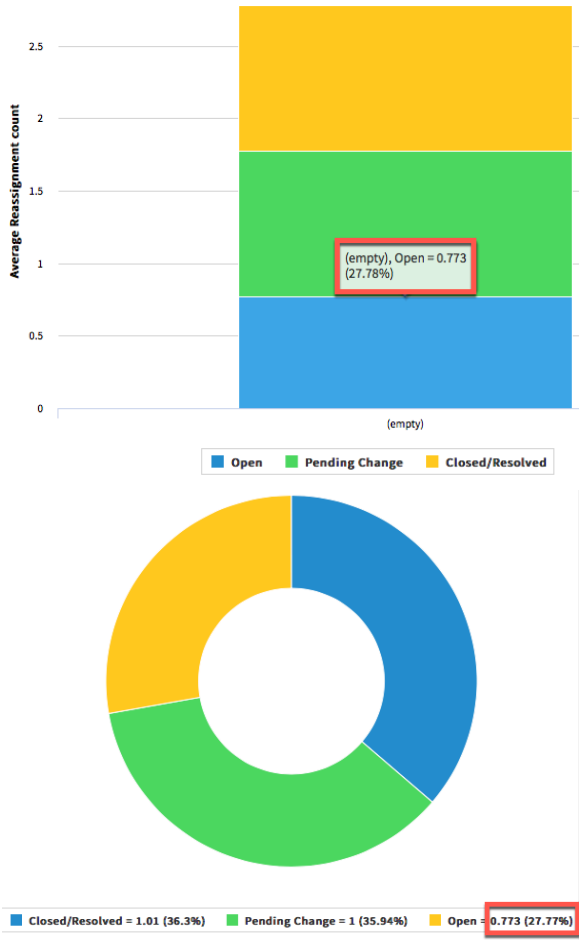
When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Control chart style options

Field	Description
General	
Display data labels	Check box to show the value for each data point.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value.

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Control chart style options (continued)

Field	Description
	Note: Percentage labels do not change accordingly with the decimal precision specified. 
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Control chart style options (continued)

Field	Description
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.

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Control chart style options (continued)

Field	Description
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Dial and speedometer reports

Dials and speedometers provide a real-time count for an indicator. These charts cannot contain comparison or historical data. You can configure colors to display at a glance that values are within specified ranges.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see

- Create a dial visualization in the Visualization Designer
- Create a gauge visualization in the Visualization Designer

.

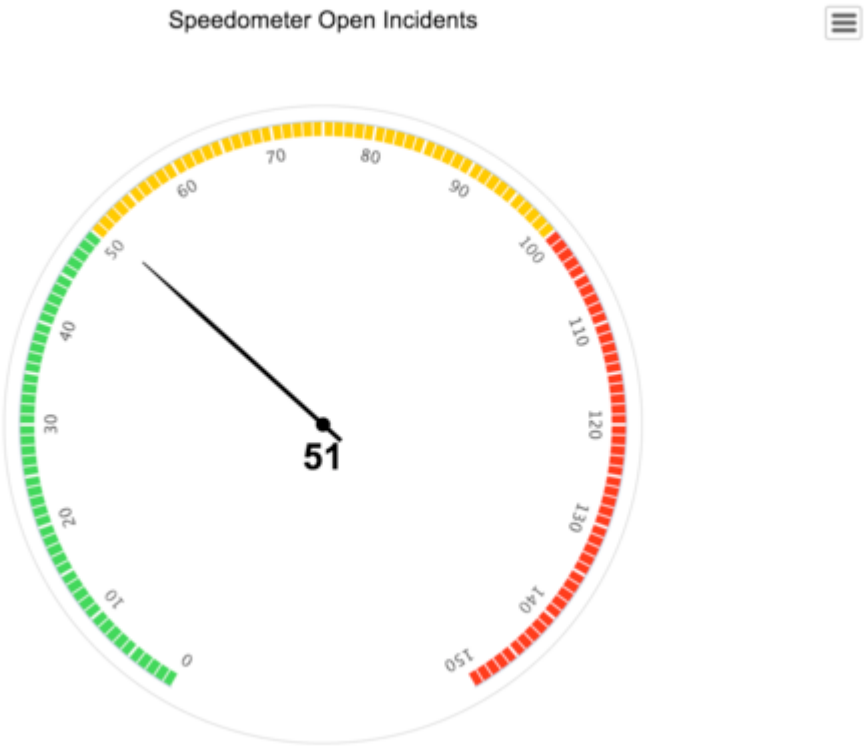
Report creators often use red to indicate unacceptable value ranges. A low value for monthly sales is worse than a high value, but a low value for incident resolution times is better than a high value. You can configure red for low monthly sales values and red for high incident resolution values.

Dials and speedometers also have different appearances:

- A speedometer shows numbers in the form of a round meter with a defined range.
- A dial shows where a score falls across ranges on a half-circle dial.

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Angular speedometer report



Solid dial report



Create a dial or speedometer report

Create a dial or speedometer to provide a real-time count for an indicator, with colors to indicate value ranges.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Speedometer** or **Dial** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

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Configure tab

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. For example, if you want a report on the distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. For example, if you select an integer field, such as **Priority**, the data is expressed as a decimal value number. If you choose **Average**,**Sum**, or **Count Distinct**, you may further be able to aggregate on fields from extended tables. See How to report on extended tables. **Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.

7. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

8. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

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Dial and speedometer report style options

Change the look of your dial or speedometer report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Dial chart style options

Field	Description
General	
Chart color (dial chart only)	A predefined system color for the dial.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Direction	Choose whether lower or larger numbers are better. Select **Minimize** if lower numbers are better. Select **Maximize** if larger numbers are better. This setting works with **Lower Limit** and **Upper Limit**, which determine the colors for the areas in the dial or speedometer. • Green indicates that the figures are acceptable. • Orange indicates that the figures have changed, but are still within the acceptable range. • Red indicates that the figures are not acceptable.
Lower limit	The lower threshold for color change on the dial or speedometer. If it uses only two colors, specify the same number for both lower and upper limits.
Upper limit	The upper threshold for color change on the dial or speedometer. If it uses only two colors, specify the same number for both lower and upper limits.

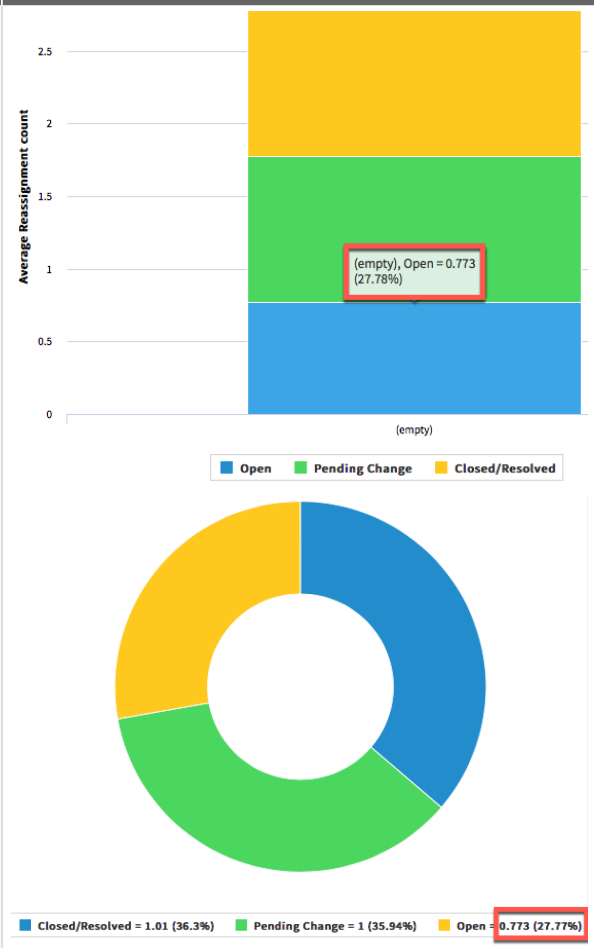
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Dial chart style options (continued)

Field	Description
	For example, a dial contains a current score of 50 and **Dial Autoscale** is selected. The **Lower Limit** is set to 50 and **Upper Limit** is set to 100 and the direction is **Minimize**. The dial displays the area 0–50 in green, the area 50–100 in orange, and the area above 100 in red. If **Lower Limit** is set to 50, **Upper Limit** is set to 100 and the direction is **Maximize**, the colors are reversed. If no upper and lower limits have been set, no colors are used in the visualization. If you want to have only two section or colors, you can set the upper and lower limits to the same number.
Dial autoscale	Check box to automatically generate start and end values for the dial or speedometer based on the selected data.
From	Custom minimum value to display on the left side of the dial or speedometer. This field is available when **Dial Autoscale** is cleared.
To	Custom maximum value to display on the right side of the dial or speedometer. This field is available when **Dial Autoscale** is cleared.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Dial chart style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Dial chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.

Donut reports

Donut and semi-donut reports show the proportions that make up a whole.

Donut reports are similar to pie reports, but the donut report has empty space in the middle. The difference between a donut and a semi-donut is that a semi-donut is a donut sliced in half. The information presented is the same. Donut and semi-donut reports can be placed on dashboards where users can quickly interpret the information displayed.

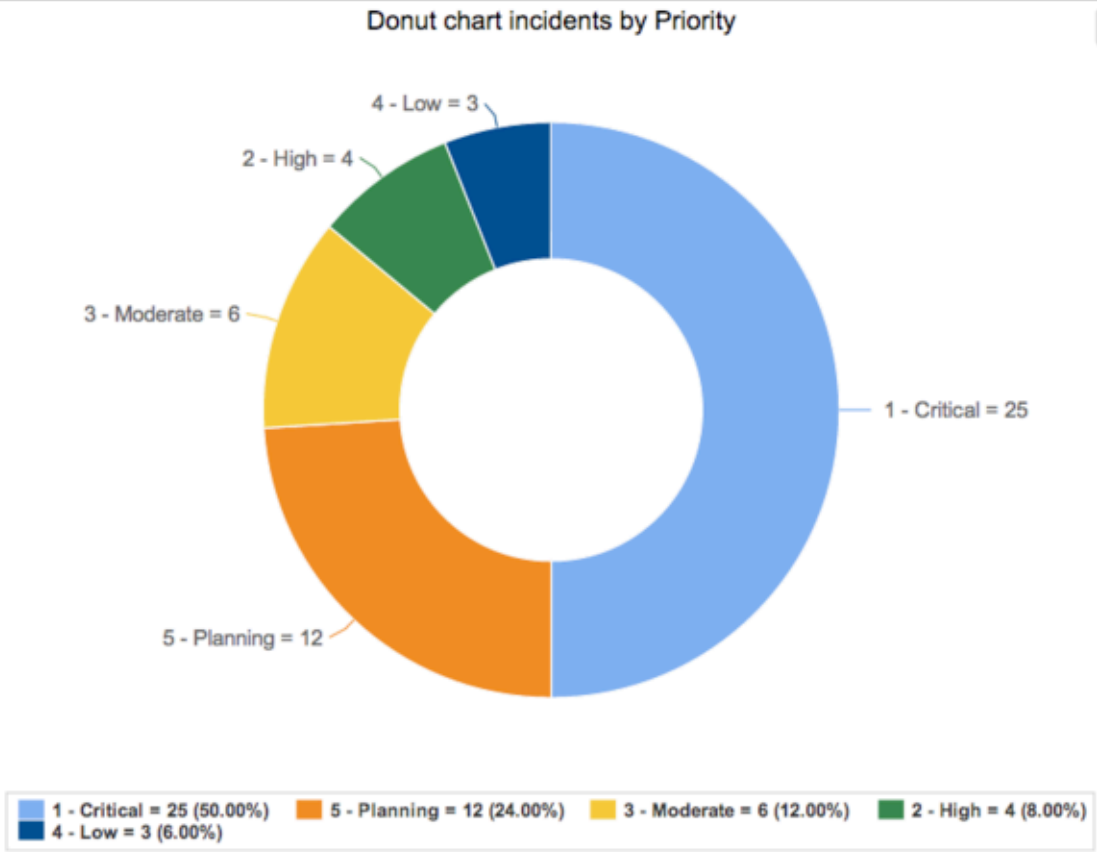
Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a pie or donut visualization in the Visualization Designer.

This data visualization is supported on the mobile platform. For more information, see Donut reports for mobile and Mobile dashboard preview.

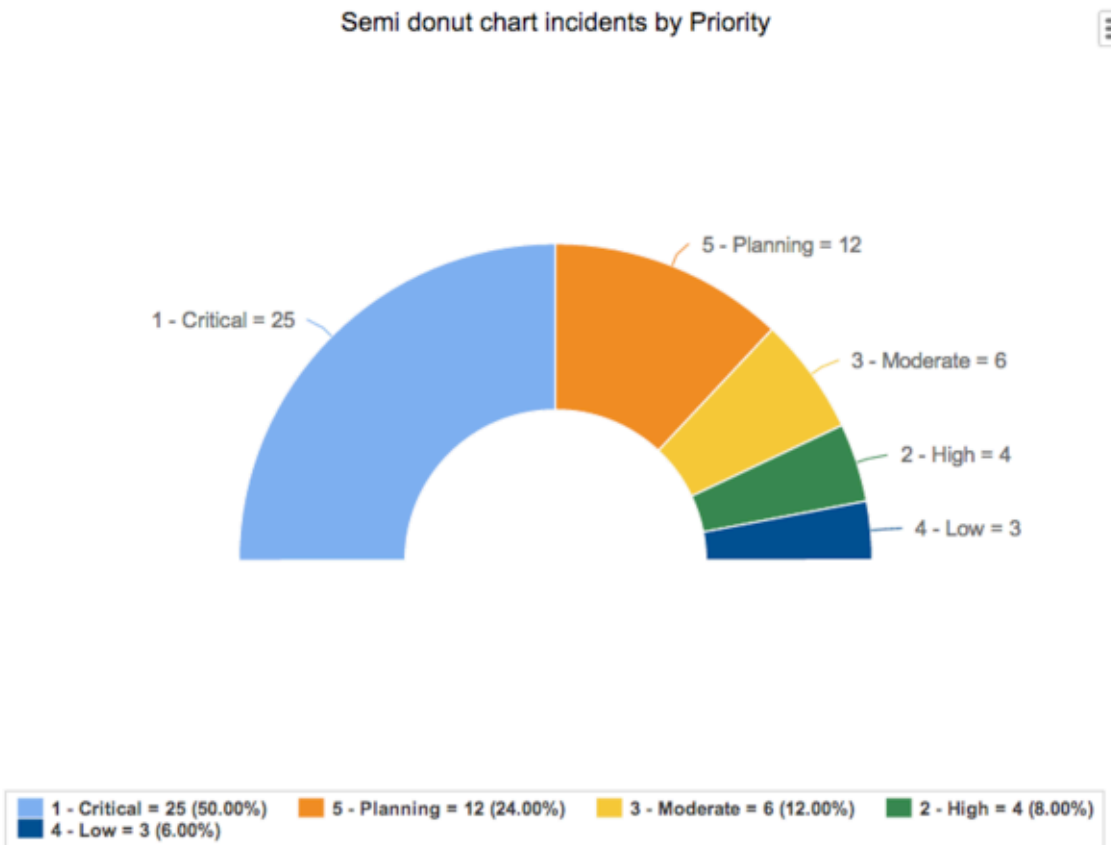
For example, use a donut or semi-donut reports to show open incidents by priority. At any time, there are open incidents of different priority levels. A donut or semi-donut report enables you to see quickly whether incident counts of different priorities are within acceptable ranges.

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Donut report of incidents by priority



Semi-donut report of incidents by priority



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Create a donut report

Create a donut chart report to compare the size of parts to the whole.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Donut** in the filter, select **Donut** or **Semi-donut**, and click **Next**.

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The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results

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Field	Description
	for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

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a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

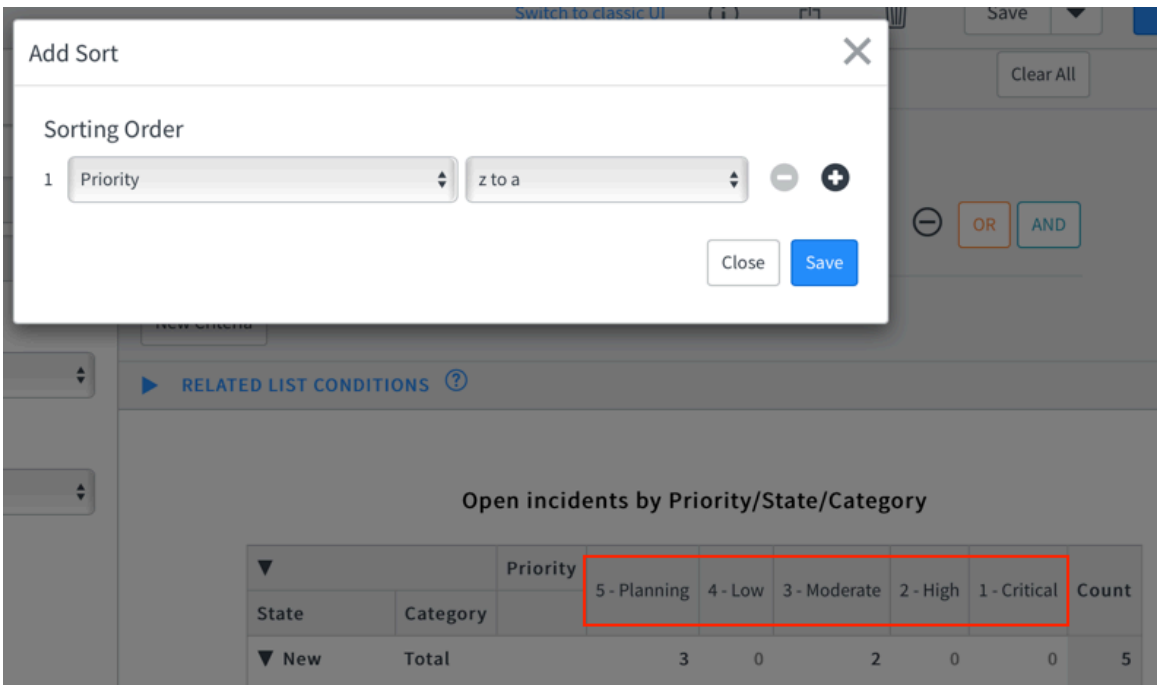
   The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

   Note:
   On fields from dot-walked (extended) tables, you can only sort on date fields.

b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Select the Report info icon () and add a description of the report.
- Select the sharing icon () to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Donut chart style options

Change the look of your donut or semi-donut chart.

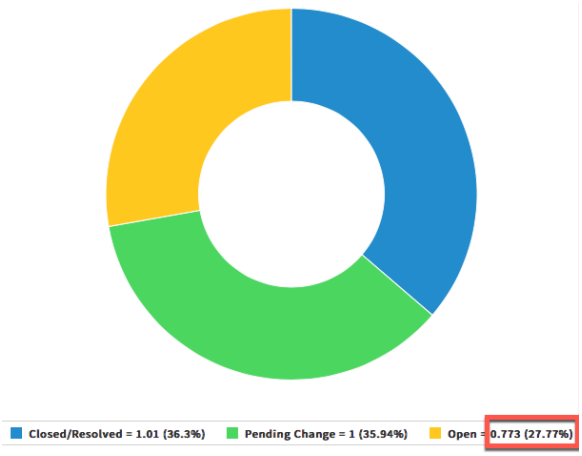
When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Donut chart style options

Field	Description
General	
Donut width	Percentage for the width of the donut or semi-donut band, ranging from 1 through 100 percent. 100 percent equals a pie chart. The default value is 50.
Show total and hide legend	Check box to display the total aggregation value in the center of the donut. Also automatically hides the chart legend. If the aggregation type is Average and you have selected a field to group by, the total is the average of the averages of each group.
Chart color	Source of colors used in the report. Select from the following: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Check box to show the value for each data point.
Custom chart size	Check box to specify the width and height of the report in pixels.

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Donut chart style options (continued)

Field	Description
	Note: The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. This option is available for Average aggregations. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	

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Donut chart style options (continued)

Field	Description
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.

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Donut chart style options (continued)

Field	Description
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

Funnel and pyramid reports

Funnel and pyramid reports visualize the distribution of data. The size of the slices or sections represents a percentage of the total of all values.

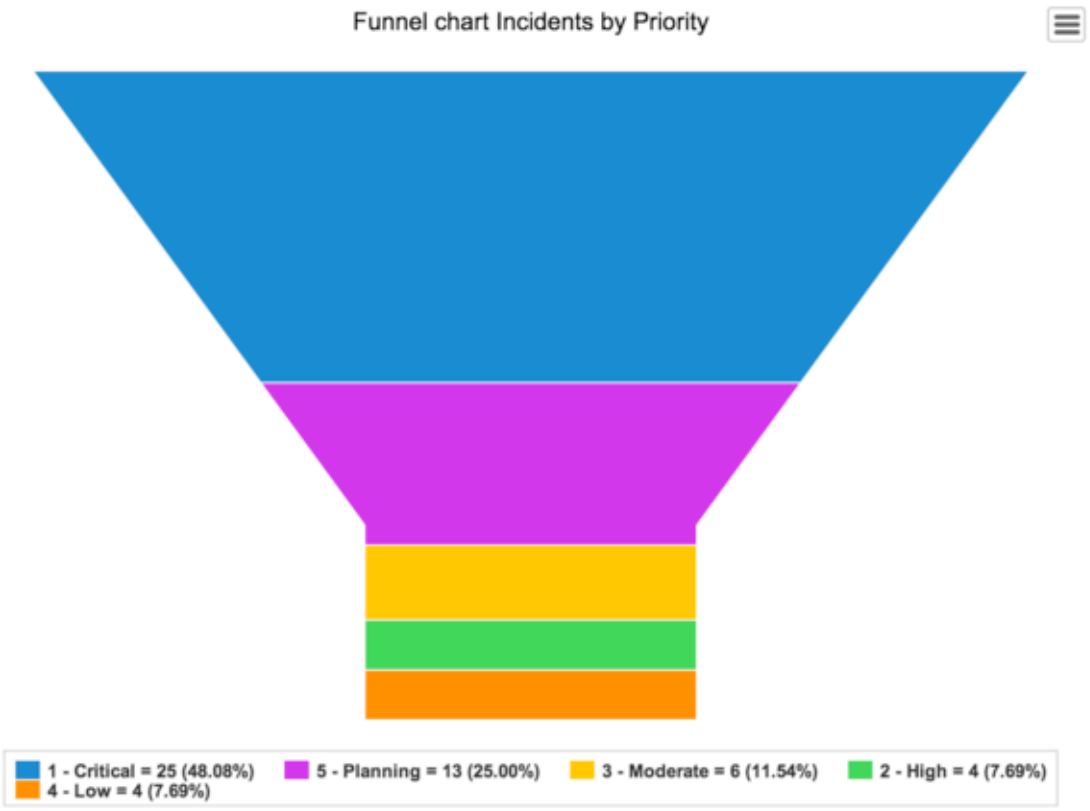
Funnel reports are often used to represent stages in a sales process (from lead to closed deal), or to identify potential problem areas in a process. If you apply a neck in a funnel chart, all values below a certain percentage of the total value are represented as a bar. The bar indicates that their differences are of equal importance.

Funnel reports stack slices from top to bottom by decreasing percentage and pyramid charts stack slices by increasing percentage. Pyramid reports are often used to represent hierarchical levels in an organization. Funnel and pyramid reports can be placed on dashboards where users can quickly interpret the information displayed.

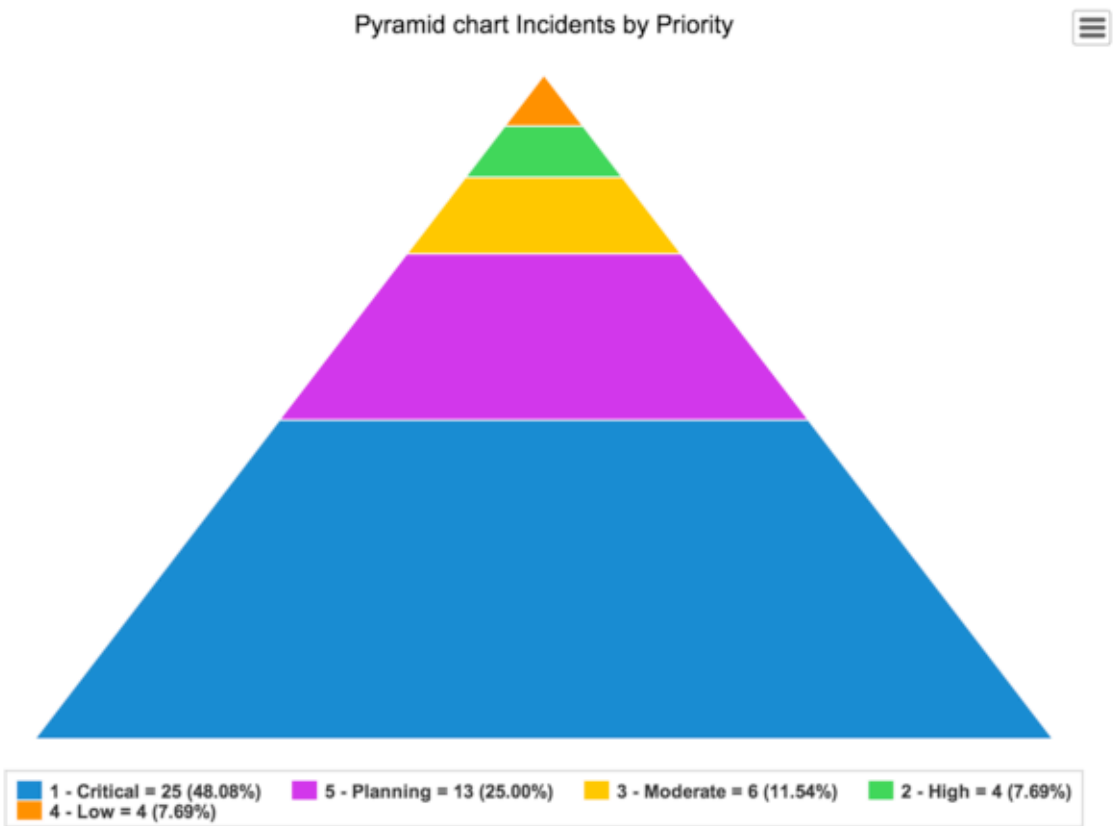
For example, use a funnel or pyramid report to show open incidents by priority. At any time, there are open incidents of different priority levels. For example, an organization has a policy that P1 incidents can never exceed 40% of all open incidents. Funnel and pyramid charts show whether incident counts are within acceptable ranges.

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Funnel report of incidents by priority



Pyramid report of incidents by priority



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Create a funnel or pyramid report

Create a funnel report where the size of each slice represents a percentage of the total, showing distribution of data in a process.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Pyramid** or **Funnel** in the filter, select the report type, and click **Next**.

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The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Funnel chart

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views. ○ Label names longer than 20 characters may show or print a truncated view.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results

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Field	Description
	for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

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a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

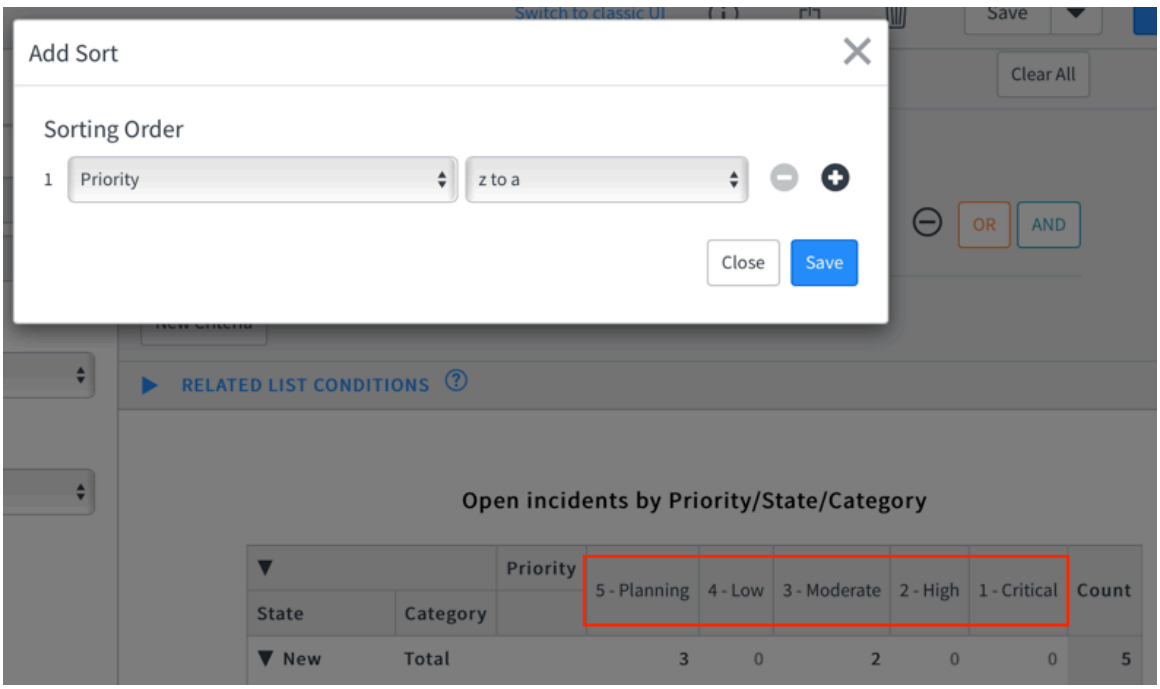
   The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

   Note:
   On fields from dot-walked (extended) tables, you can only sort on date fields.

b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Select the Report info icon () and add a description of the report.
- Select the sharing icon () to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Funnel and pyramid report style options

Change the look of your funnel or pyramid report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Funnel and pyramid chart style options

Field	Description
General	
Funnel neck size	Enter a percentage for the width of the funnel, from 1–100 percent. 1 percent is the lowest value that can be represented above the funnel neck. Values lower than 1 percent are stacked below the neck in a bar of a set width. 100 percent equals a bar chart. The default value is 30.
Chart color	Select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.

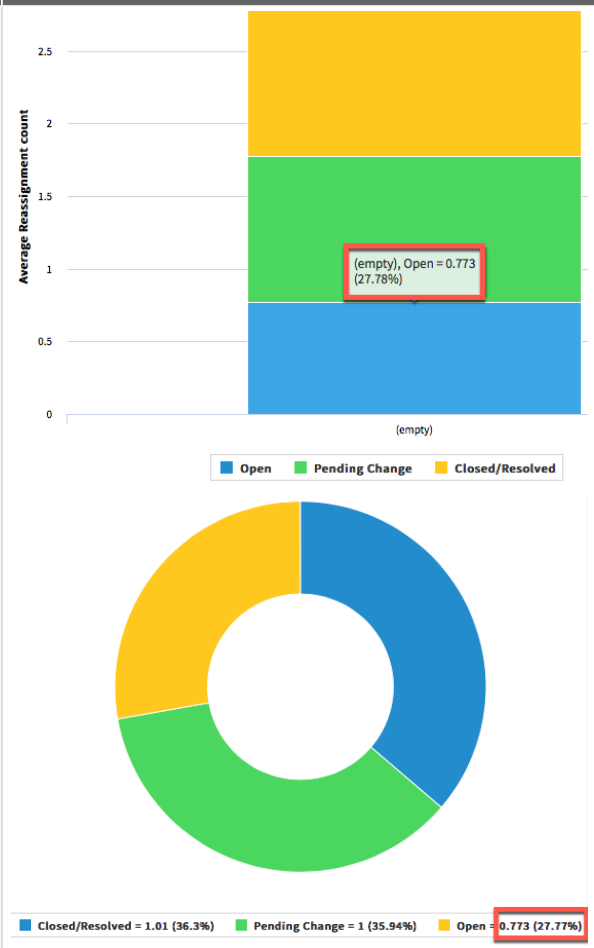
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Funnel and pyramid chart style options (continued)

Field	Description
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Funnel and pyramid chart style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Funnel and pyramid chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

Heatmap reports

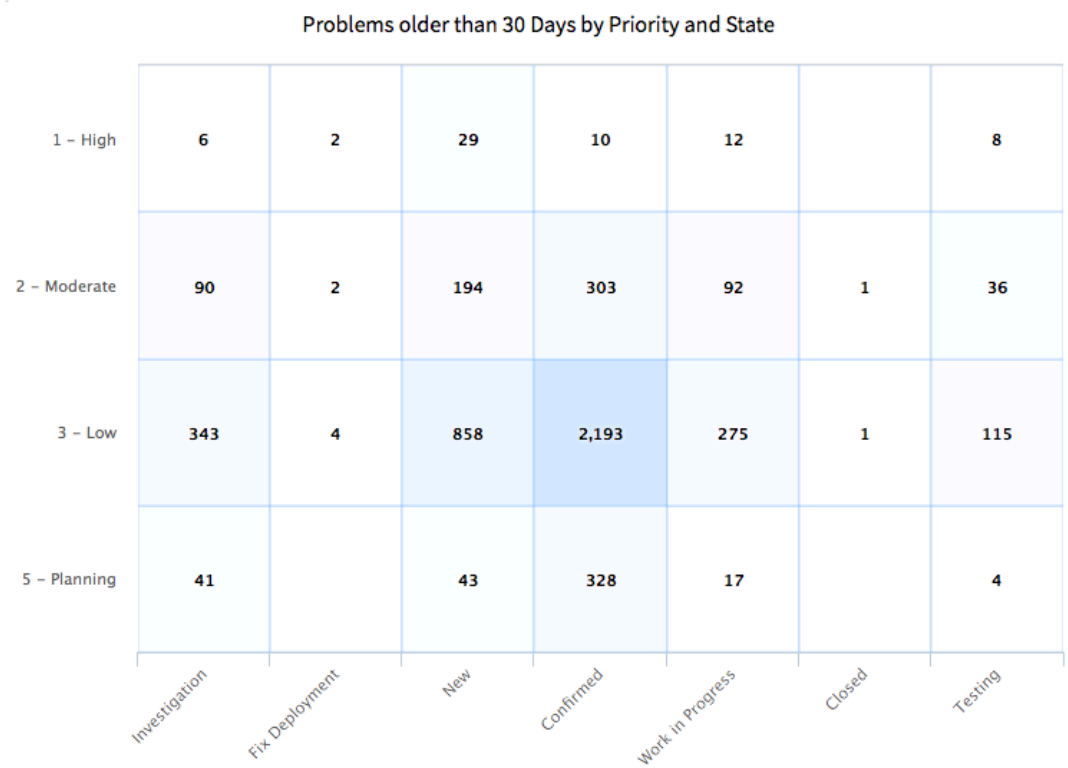
Heatmap reports display aggregate data visually using colors to represent different values on a matrix. Heatmap reports can have no more than 1000 cells.

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Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a heatmap visualization in the Visualization Designer.

In the figure, the cell for confirmed low priority problems is filled to highlight the large



value.

Create a heatmap report

Create a heatmap report to show aggregate data visually using colors to represent different values on a matrix.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

Note:
A smaller-sized heatmap chart doesn't display non-zero values which would otherwise overlap an adjacent value. Row labels for these values also do not show. You can hover over a blank value cell to see its value, or enlarge the chart size to accommodate values. Understanding how this particular chart type behaves can help you interpret results and determine the appropriate sizing for your data.

Procedure

1. Perform one of the following actions:

- On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
- On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.

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2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Heatmap** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. Fill in the fields, as appropriate (see table).

Fields

Field	Description
Row	Field used as the source of the data for the rows in the heatmap. To select a source field on an extended table, see How to report on extended tables. Select the info icon ( ) for a description of the selected field.

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Field	Description
	Note: Label names longer than 20 characters may show or print a truncated view.
Column	Field used as the source of the data for the columns in the heatmap. To select a source field on an extended table, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. **Note:** Label names longer than 20 characters may show or print a truncated view.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

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7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

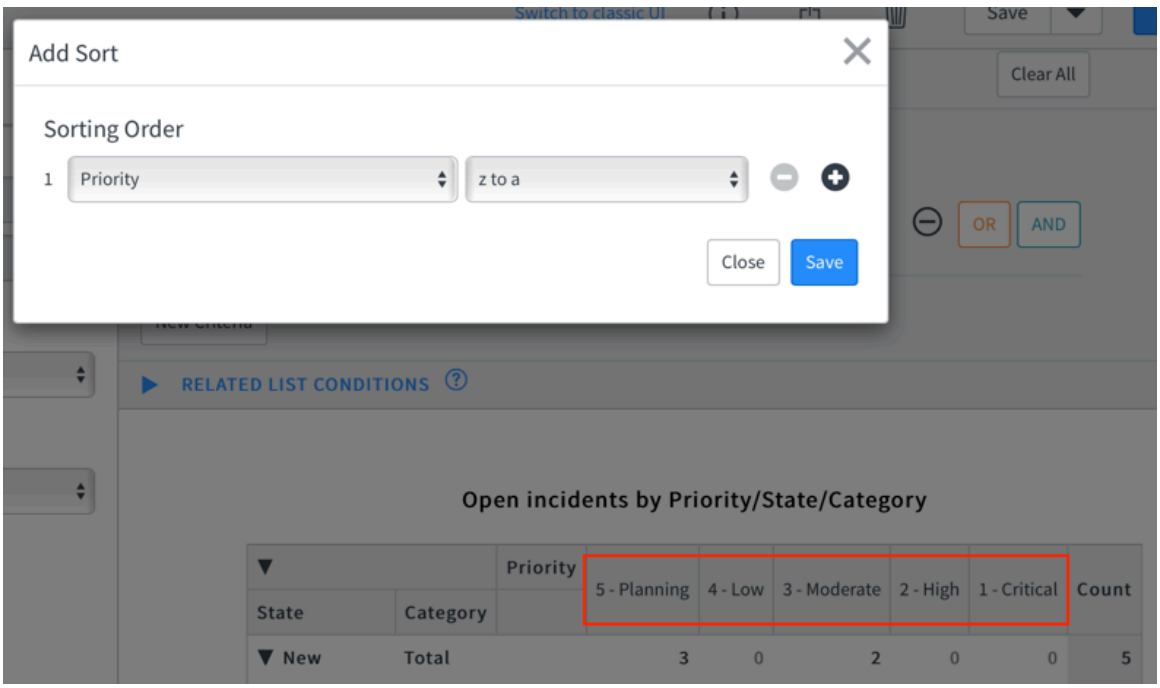
      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

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9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Heatmap report style options

Change the look of your heatmap chart.

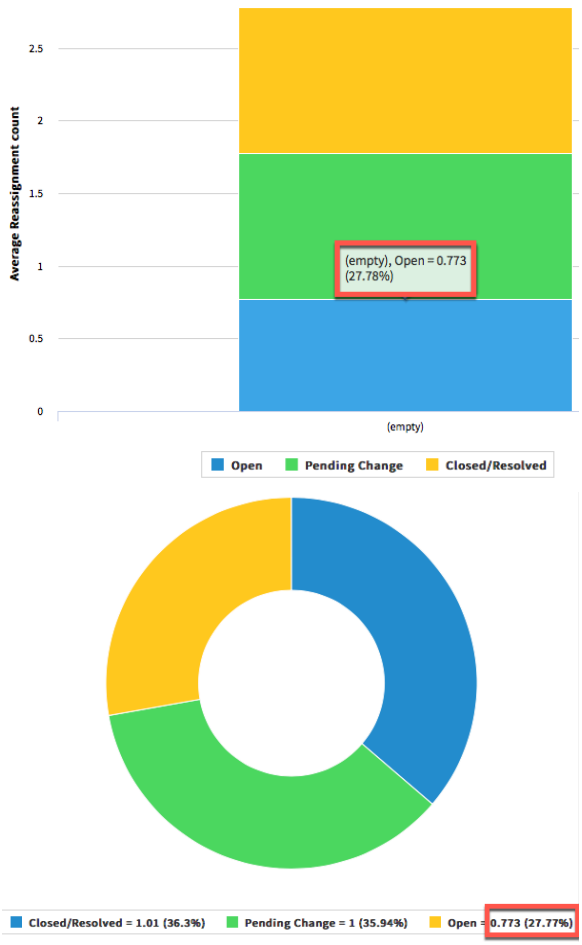
When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Heatmap chart style options

General	
Use heatmap colors	Check box to use different colors to indicate different values.
Color for high scores	Color used to indicate a high value on the chart.
Color for low scores	Color used to indicate a low value on the chart.
Display data labels	Check box to show the value for each data point.
Display Zero	Select this check box to display the number **0** when the value of a cell is 0. Clear this check box to display an empty cell when the value of the cell is 0.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**.

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Heatmap chart style options (continued)

General	
	Note: The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	
Show chart title	When the chart title is shown for the report.

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Heatmap chart style options (continued)

General	
	• **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.

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Heatmap chart style options (continued)

General	
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

Histogram reports

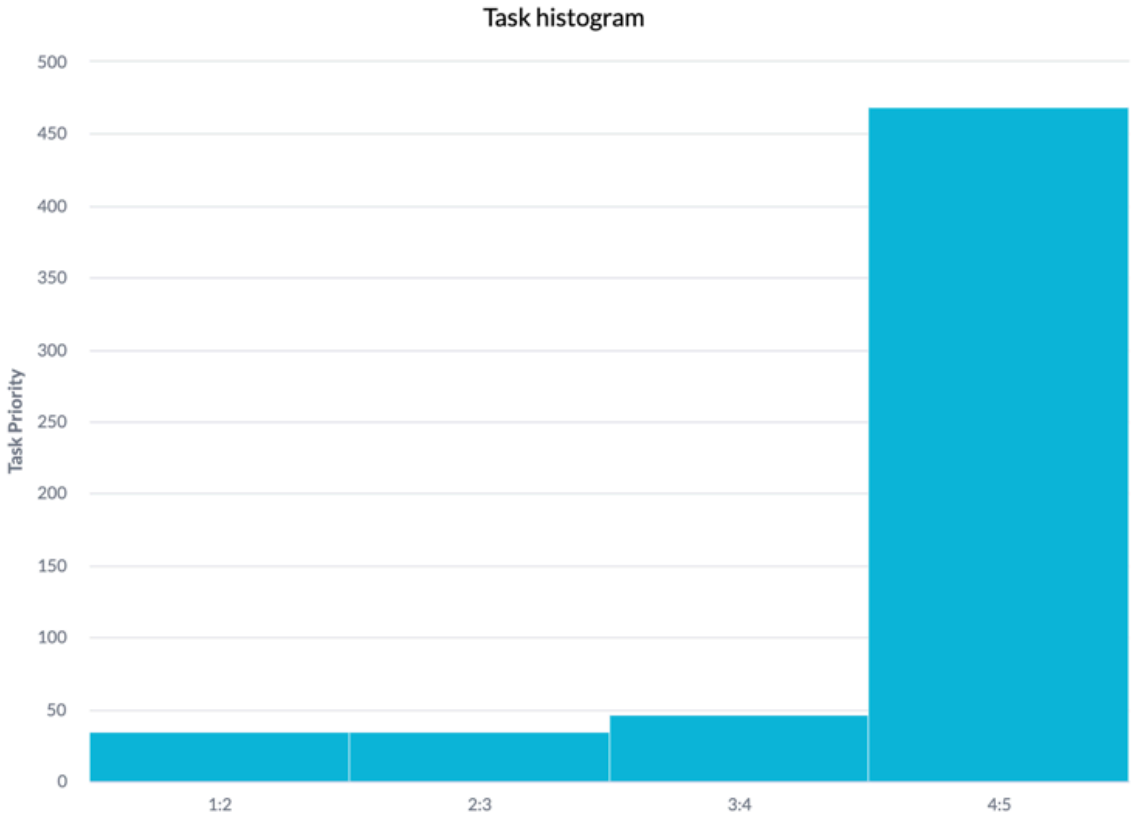
Histograms group numbers in a data set into ranges. The data used in a histogram is continuous data. Continuous data is measured whereas discrete data, which is used in bar charts, is counted.

For example, a histogram can show the pattern of P1 incidents logged over a four-week period after a product release. For the first week after the product was released, P1 incidents are low because users do not really understand the product enough to use it. In the second week, more users start working with the product and P1 issues increased. In the third week, P1 issues increase even more as more users began working with the product. In the fourth week, P1 issues stay the same as the third week. The information suggests that it is not necessary to increase support staff until the third week after a product is released.

Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

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Histogram report



Create a histogram report

Histograms group numbers in a continuous data set into ranges.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Histogram** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Measured by	Select a field to report against. The values from this field appear on the X axis of the histogram and determine the width of the bars. Select the info icon ( ) for a description of the selected field.

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7. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

8. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Line reports

Line reports plot individual data points to show how the value of one or more items changes over time.

The value of an item at specific dates or times is displayed as data points connected by horizontal lines. Values along the horizontal axis of the line chart represent the time measurement (years, hours, minutes, milliseconds, and so on). Values on the vertical axis represent the changes to the items being monitored. Users with the report_admin role can define the ranges that are used in a line chart report.

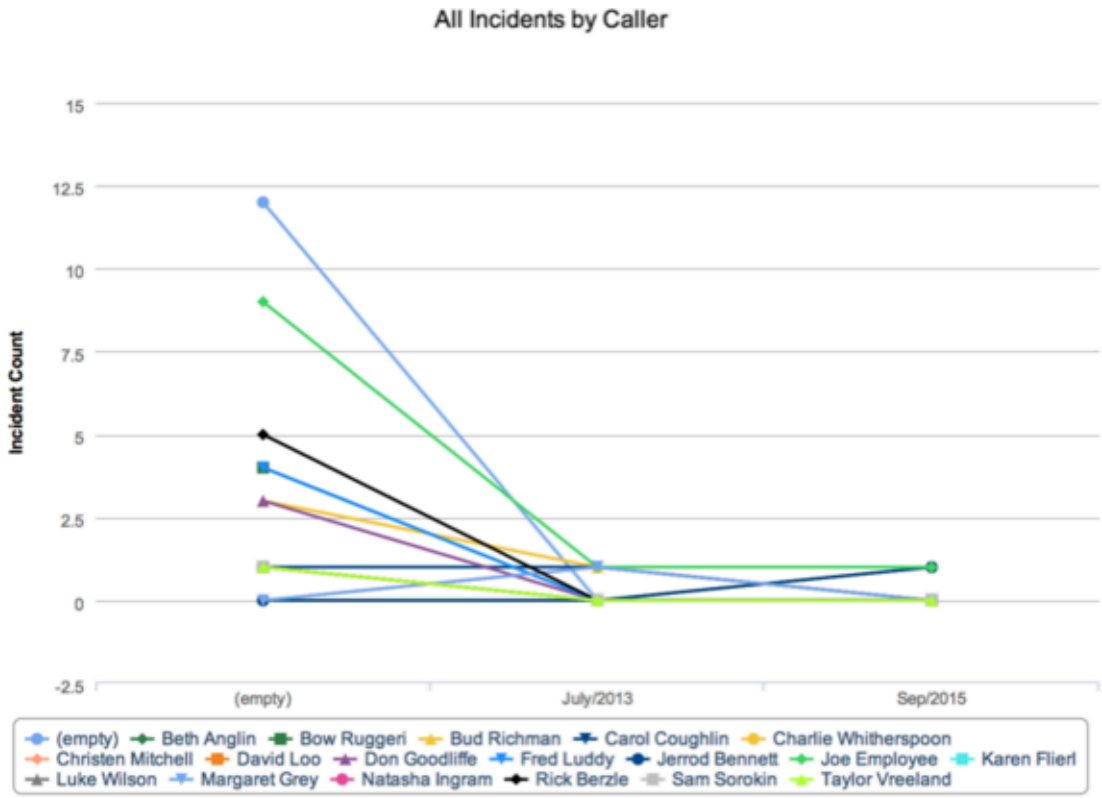
Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Time series visualization type use cases.

This data visualization is supported on the mobile platform. For more information, see Time series reports for mobile and Mobile dashboard preview.

For example, you can create a line report for incident counts, to show how the number of incidents changes over time. The incident count often increases during the first few months after a product upgrade is deployed. Over time, the number of reported incidents decreases as users become more accustomed to the changes in the product. This figure shows the number of incidents per caller over time.

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Line report



Create a line report

Create a line report to show the trend in the value changes of one or more items over time.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

For a line report use case, Time series visualization example.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Line** in the filter, select the Line report type in the **Time Series** section, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts

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Field	Description
Calendar	Calendar that is the basis for the time series in the report. Select either the standard calendar or a customized business calendar.
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**. ○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%.

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Field	Description
	○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

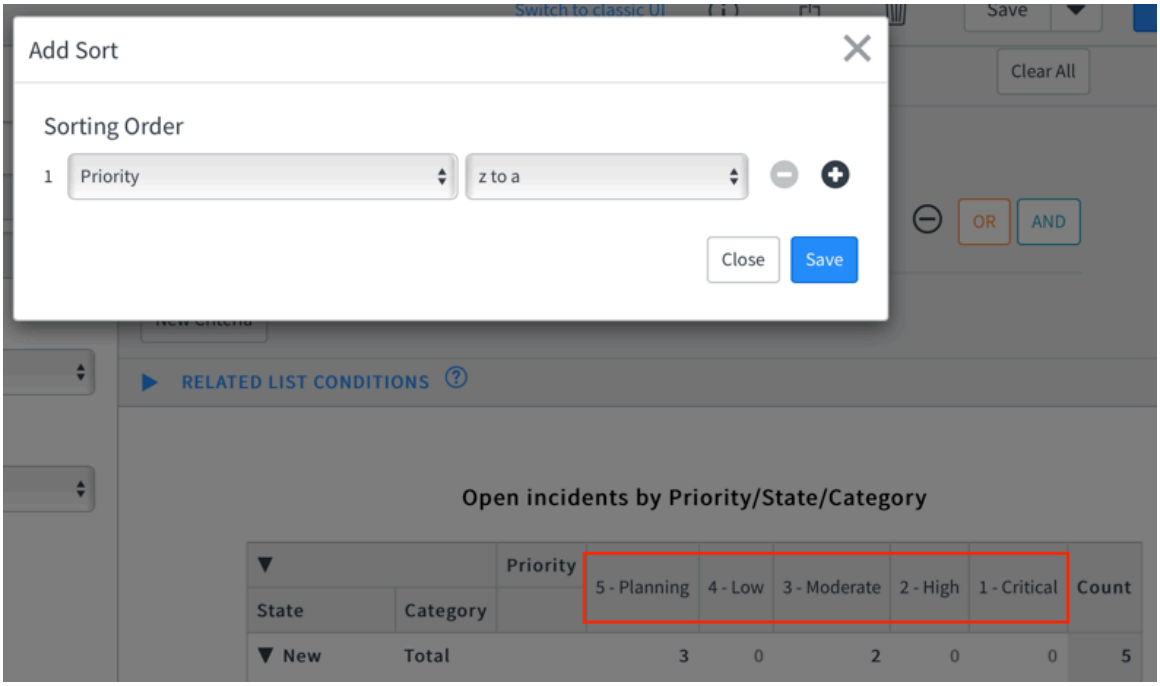
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Line report style options

Configure the look of your line report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Line chart style options

Field	Description
General	

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Line chart style options (continued)

Field	Description
Chart color	Source of colors used in the report. If you do not group or stack the report, **Use one color** is automatically selected. In this case, select a single, predefined system color. If you group or stack the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Check box to show the value for each data point.
Do not plot nil as zero	Check box to specify whether to replace missing data points with values of zero. This field is available when creating or editing time series reports (area, spline, line, and step line reports only) that include multiple datasets, and when creating or editing datasets within the applicable time series reports. This field is not available when data in the report is grouped, or is aggregated by Count or Count Distinct. If selected, the report may show gaps where no data exists. **Note:** This property cannot be selected when the source is MetricBase.
Show marker	Check box to display a symbol at each data point.
Custom chart size	Check box to specify the width and height of the report in pixels.

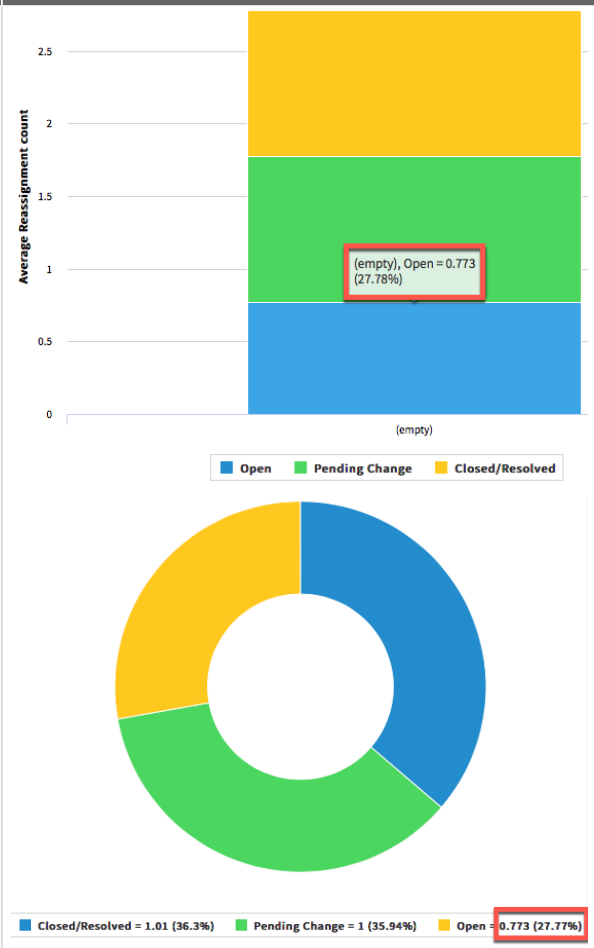
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Line chart style options (continued)

Field	Description
	Note: The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Line chart style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Line chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.

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Line chart style options (continued)

Field	Description
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

List reports

List reports display data in the form of an expandable list. You can configure whether lists appear expanded or collapsed. Lists are often used for enumerations such as the number of incidents or changes. They contain columns that show more detailed information, such as a short description, category, or state.

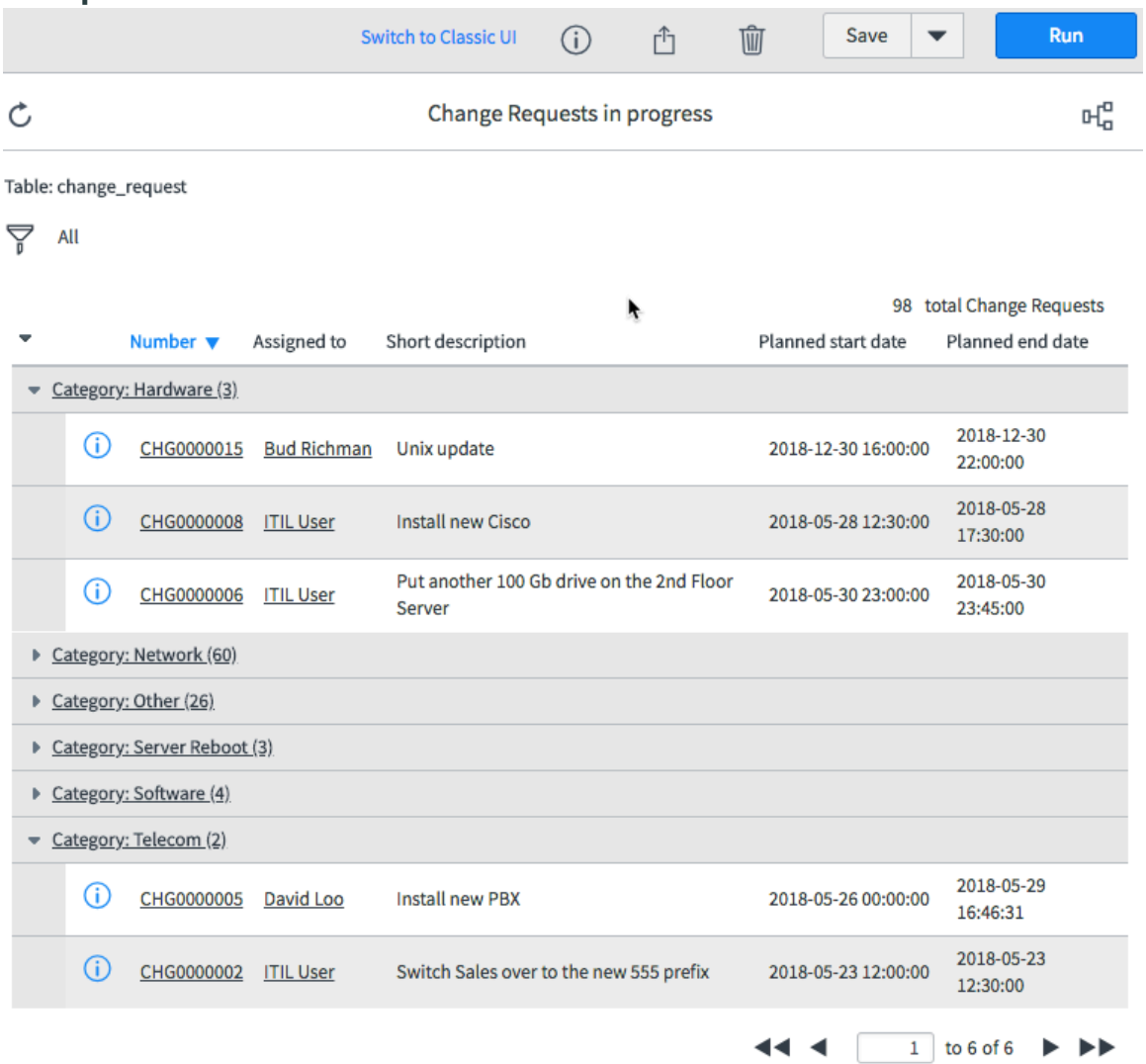
Note:

- This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a simple list visualization in the Visualization Designer.
- List reports display in List v2, even if List v3 is enabled.
- The record count and pagination buttons appear only at the bottom of the list.

This example list report displays incidents sorted by caller.

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List report



Types of list reports

There are three types of list reports.

Basic list reports

List reports with no additional features

List reports with variable columns

List reports based on a data source or table that has variables associated with it, for example, Service Catalog data sources. Variables are often variations in products such as amounts of storage in a computer.

List reports with question columns

List reports based on a data source or table that has questions associated with it. For example, if a form prompts a user to select the specific nature of a problem, you can create a list report with columns for their responses.

Basic list reports can use a table, a data source, an imported Excel spreadsheet, or a MetricBase table for their report sources. List reports with variable and question columns use only tables and data sources.

There are extra steps to configure the question and variable columns.

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Create a basic list report

List reports display data in the form of an expandable list. For example, an incident report grouped by priority displays only the priority names and a number of records that display if the user clicks the priority. You can configure whether lists display expanded or collapsed.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.

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5. On the **Type** tab, enter **List** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Choose columns	Fields to display as columns in the list report. In the Columns window that opens after you click **Choose columns**, select fields in the Available list that you want to appear in your report and move them to the Selected list. Click the info icon (ⓘ) for descriptions of the selected fields Depending on system configuration, you can add fields from tables that extend the selected table. For more information, see Report on extended tables.
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.

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Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

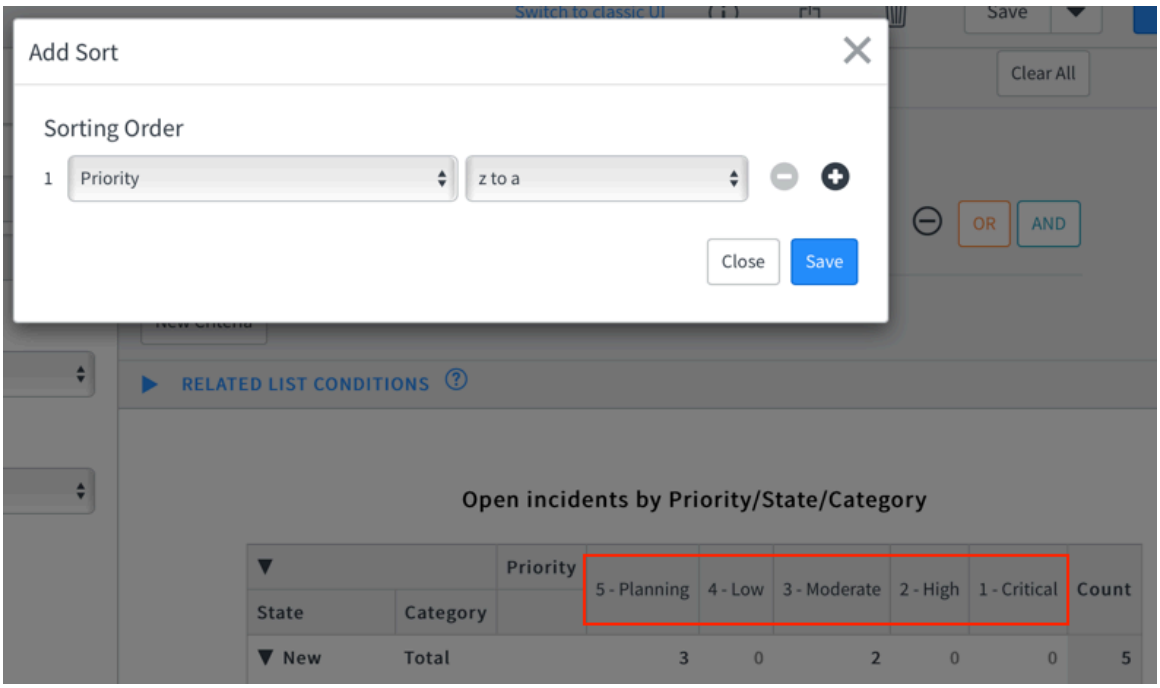
      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. **Optional:** On the **Style** tab, add and configure a report title.
   See List report style options.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Click the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules. For more information, see Share a report.

  Note:

  - The default number of rows in a list report exported to PDF is 1000. To configure this value, enter `sys_properties.list` in the Filter Navigator, and edit the property glide.pdf.max_rows. For more information, see: Add a system property.
  - Despite list filtering, pdf-format exported rows will count all record rows sequentially up to the export limit and show as blank for roles prevented by ACLs from viewing restricted data.
- Configure and use list functions

Create a list report with variable columns

You can create a list report with variables columns based on a data source or table that has variables associated with it. For example, if an item has a variable called **Storage**, you can create a list report that has a column for the values in this variable.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select a report source that has variables associated with it.
   There are two kinds of report sources. For list reports with variables, the report source is usually the service catalog table.

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Report source	Description
Data source	A table with filters applied to provide a single source of information for all users. **Note:** If you select a data source used by existing reports, a notification will display prompting you to view them.
Table	The raw data from a table with no filters applied.

4. Select **Next**.
5. On the **Type** tab, enter **List** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

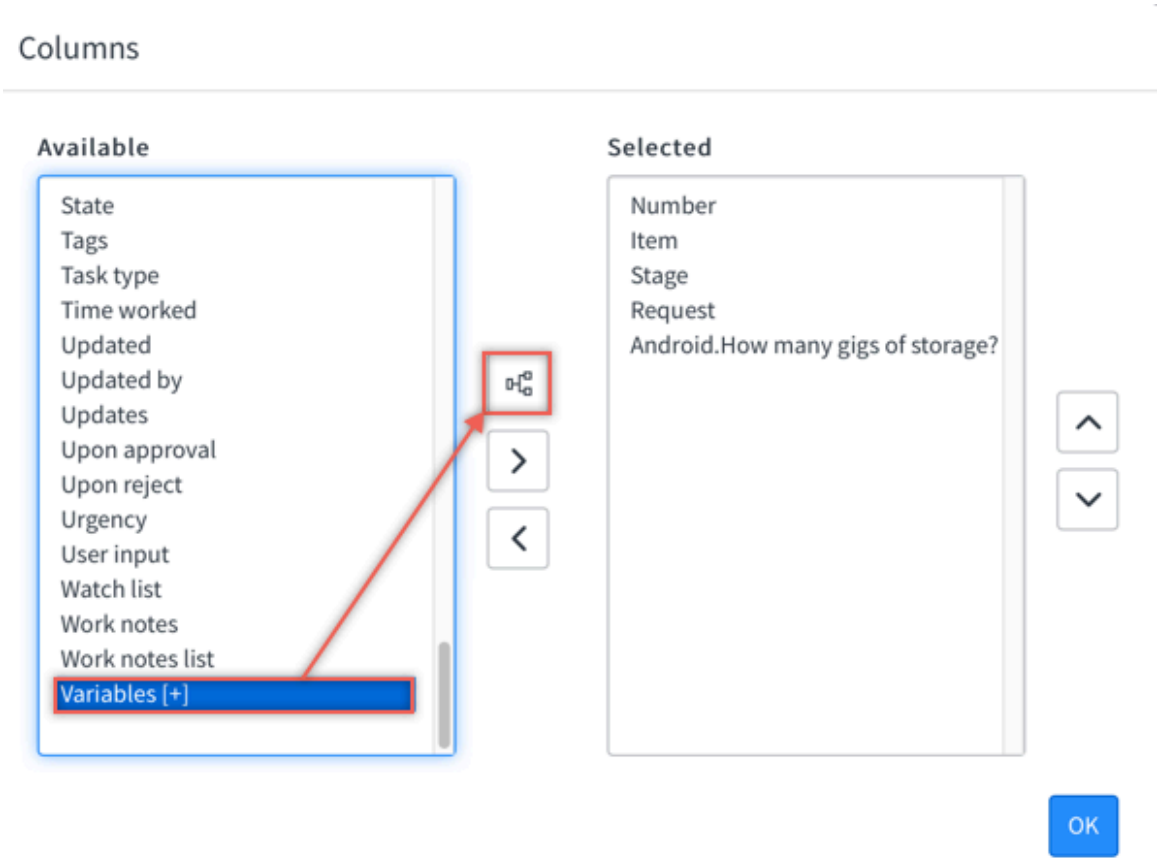
6. On the **Configure** tab, click **Choose columns** and select **Variables [+]** in the Columns window that opens.

   Variables [+] is at the bottom of the list of available columns.

   Depending on system configuration, you can add fields from tables that extend the selected table. For more information, see Report on extended tables.

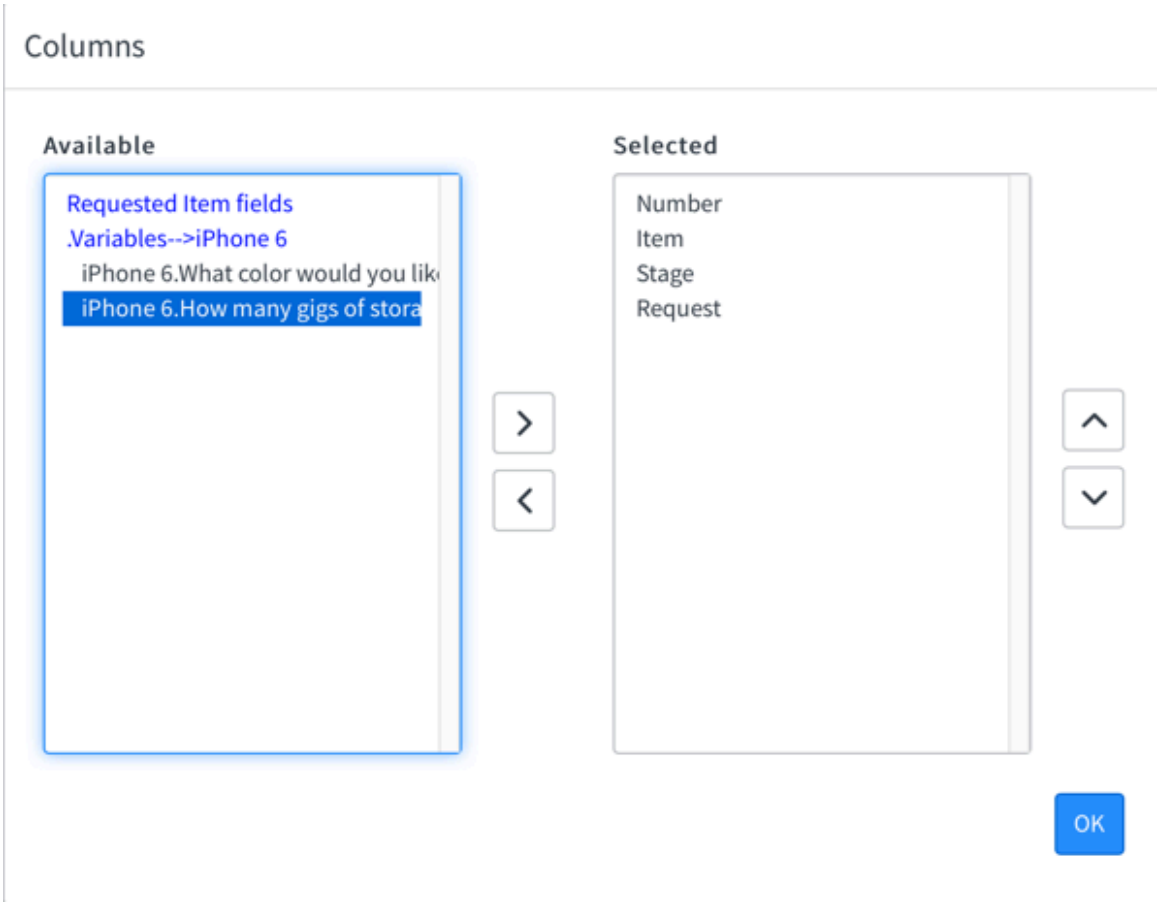
7. Click the structure icon ( ) to choose an item.

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8. Select an item from the Catalog item list that appears.
   The variables associated with the selected item then appear in the **Columns** window.

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9. Select and move variables to the **Selected** column and click **OK**.
10. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on

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Field	Description
	extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.

11. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

    Select the filter icon ( ) and choose **Add Sort**.

    a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

    The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

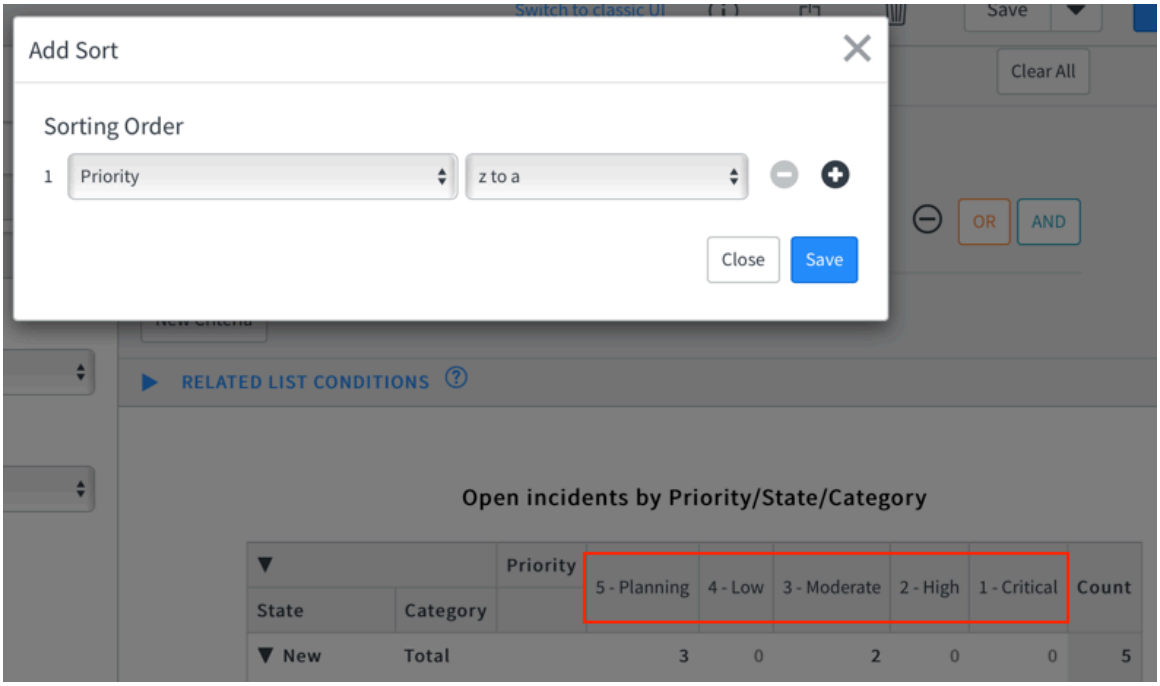
    Note:
    On fields from dot-walked (extended) tables, you can only sort on date fields.

    b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

    c. Select **Save**.

    For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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12. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
    To learn how to construct conditions, see Condition builder.

    Note:
    In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

13. **Optional:** On the **Style** tab, add and configure a report title.
    See List report style options.
14. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Click the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules. For more information, see Share a report.

  Note:
  - The default number of rows in a list report exported to PDF is 1000. To configure this value, enter `sys_properties.list` in the Filter Navigator, and edit the property glide.pdf.max_rows. For more information, see: Add a system property.
  - Despite list filtering, pdf-format exported rows will count all record rows sequentially up to the export limit and show as blank for roles prevented by ACLs from viewing restricted data.

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Create a list report with question columns

You can create a list report with question columns based on a data source or table that has questions associated with it. For example, if a form prompts a user to select the specific nature of a problem, you can create a list report that lists columns for those values.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
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2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select a report source that has variables associated with it.
   There are two kinds of report sources. For list reports with variables, the report source is usually the service catalog table.

Report source	Description
Data source	A table with filters applied to provide a single source of information for all users. **Note:** If you select a data source used by existing reports, a notification will display prompting you to view them.
Table	The raw data from a table with no filters applied.

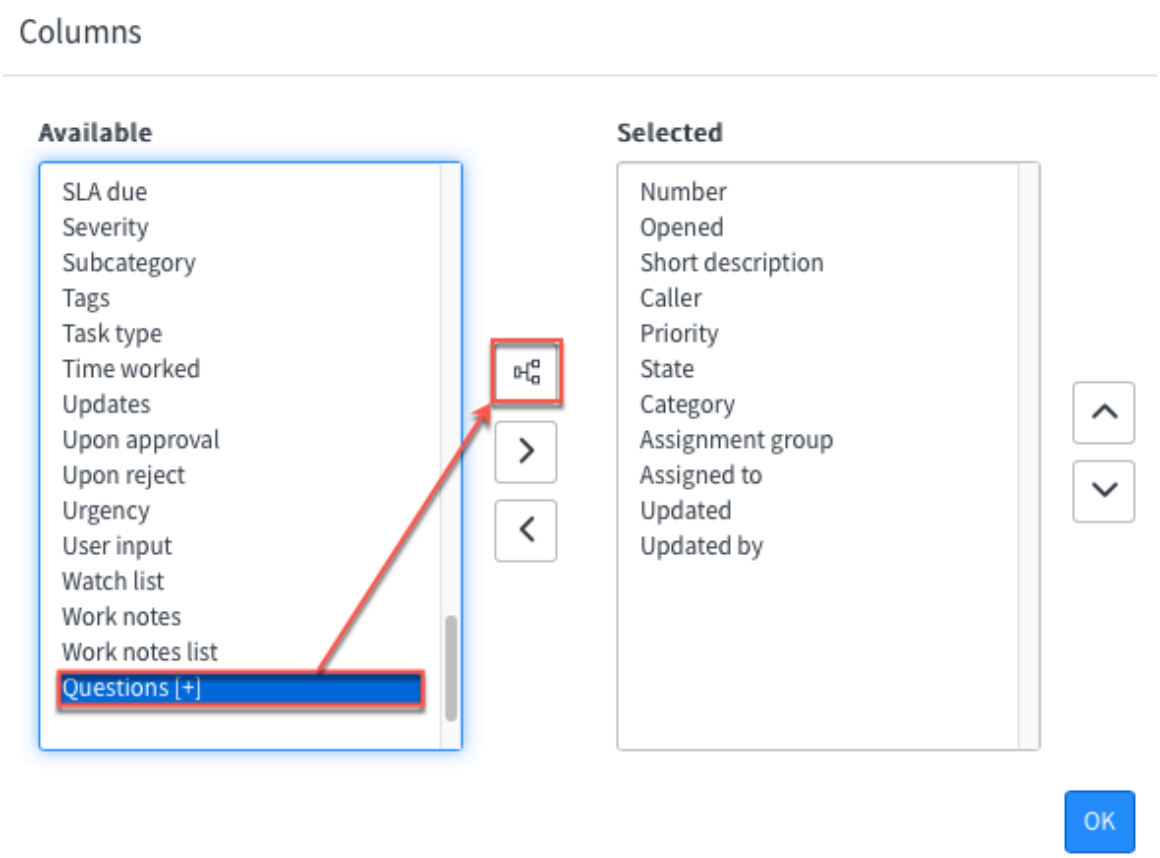
4. Select **Next**.
5. On the **Type** tab, enter **List** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, click **Choose columns** and select **Questions [+]** in the Columns window that opens.

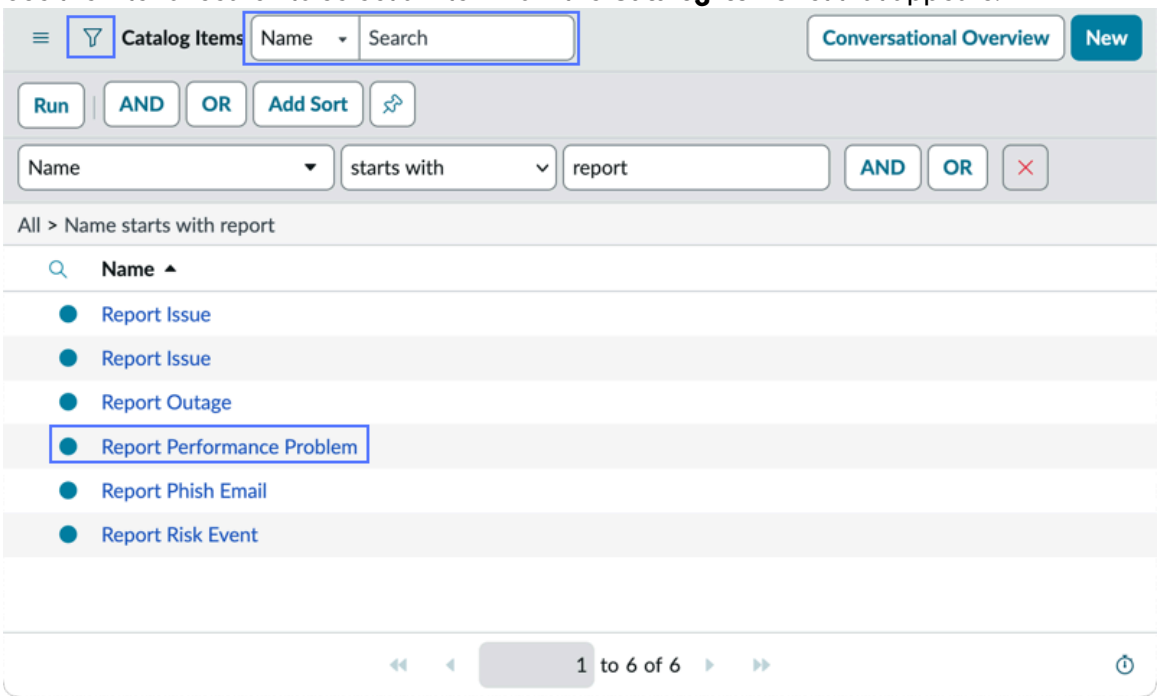
   Questions [+] is at the bottom of the list of available columns.

   Depending on system configuration, you can add fields from tables that extend the selected table. For more information, see Report on extended tables.
7. Click the structure icon ( ) to choose an item.

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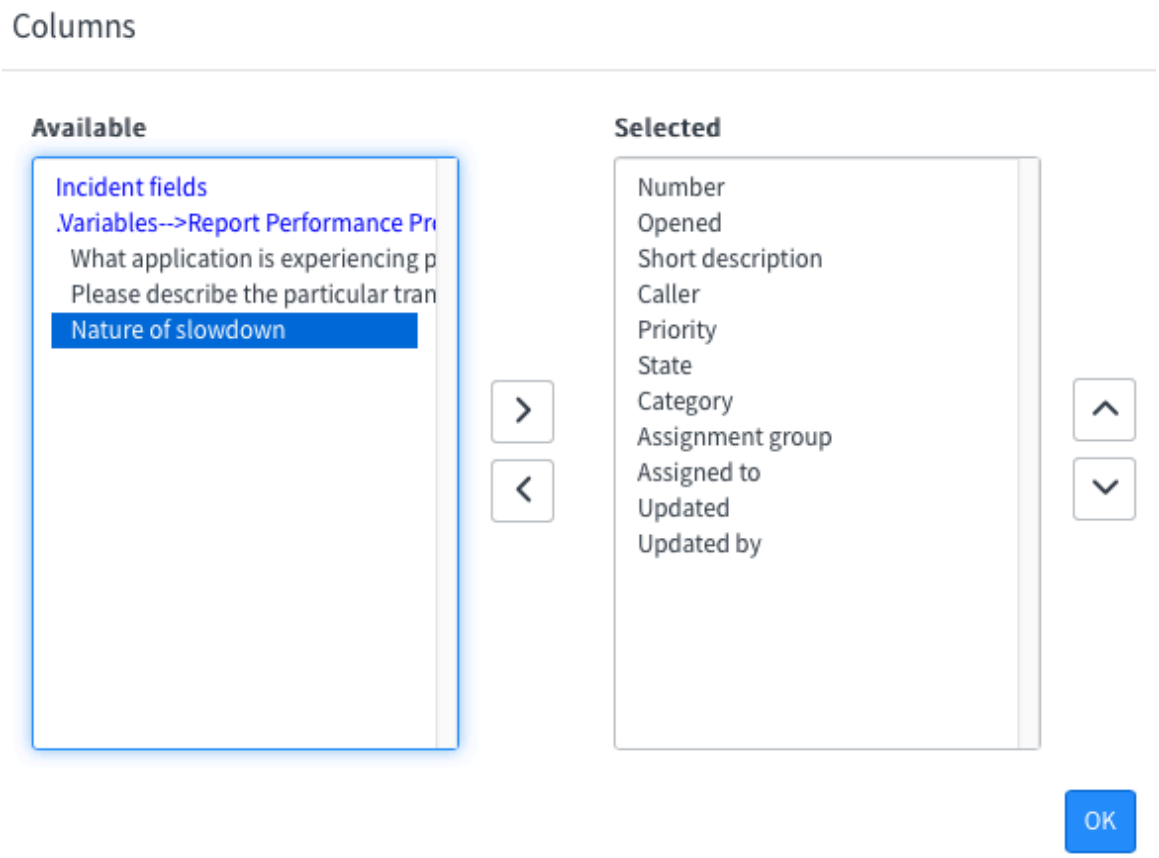


8. Use the filter or search to select an item from the **Catalog Items** list that appears.



The variables associated with the selected item then appear in the **Columns** window.

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9. Select and move questions to the **Selected** column and click **OK**.
10. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on

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Field	Description
	extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.

11. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

    Select the filter icon ( ) and choose **Add Sort**.

    a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

    The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

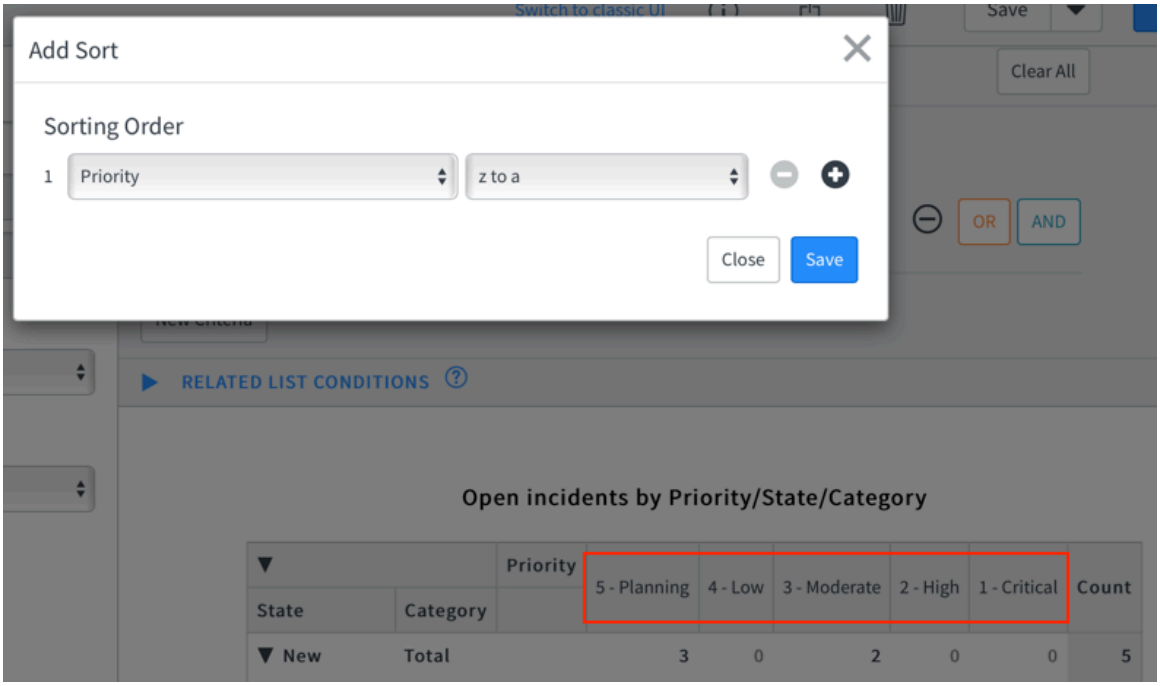
    Note:
    On fields from dot-walked (extended) tables, you can only sort on date fields.

    b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

    c. Select **Save**.

    For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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12. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
    To learn how to construct conditions, see Condition builder.

    Note:
    In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

13. **Optional:** On the **Style** tab, add and configure a report title.
    See List report style options.
14. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Click the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules. For more information, see Share a report.

  Note:
  The default number of rows in a list report exported to PDF is 1000. To configure this value, enter `sys_properties.list` in the Filter Navigator, and edit the property glide.pdf.max_rows. For more information, see: Add a system property.

List report style options

Add a title to your list report configure the title's size, color, and alignment.

When you create or edit a list report, you can add a title that replaces the report name you provide on the Data tab. Users you share the report with see the new title instead of the name of the report.

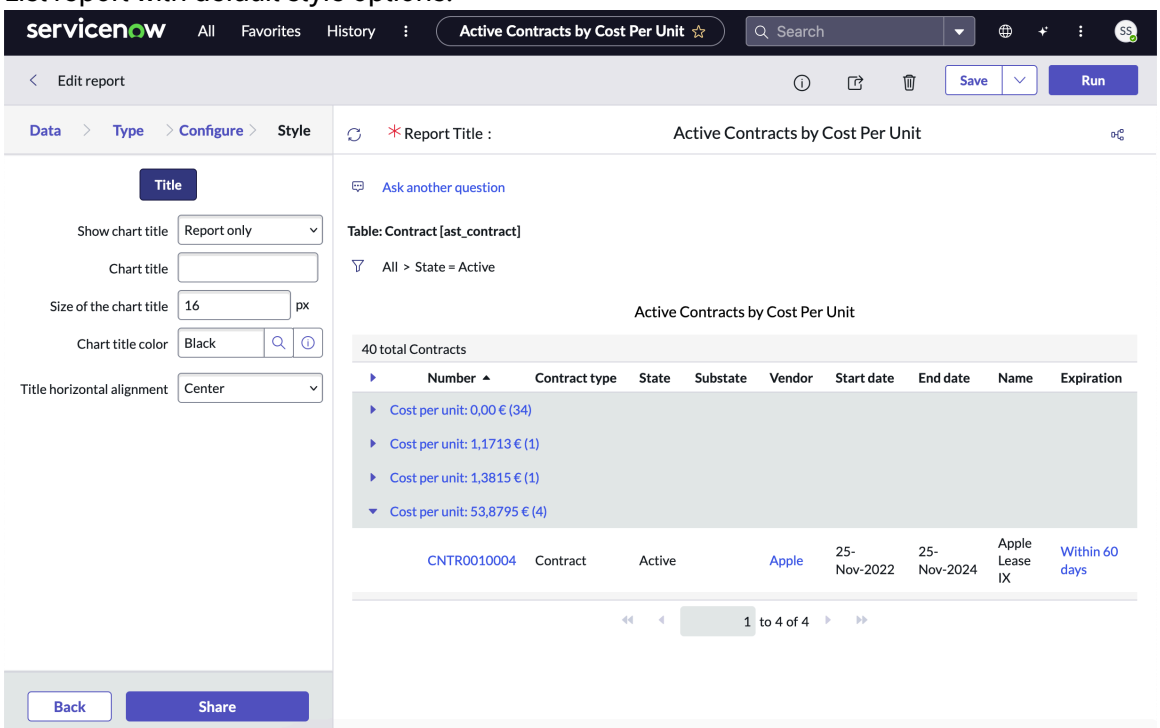
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List report style options

Field	Description
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.

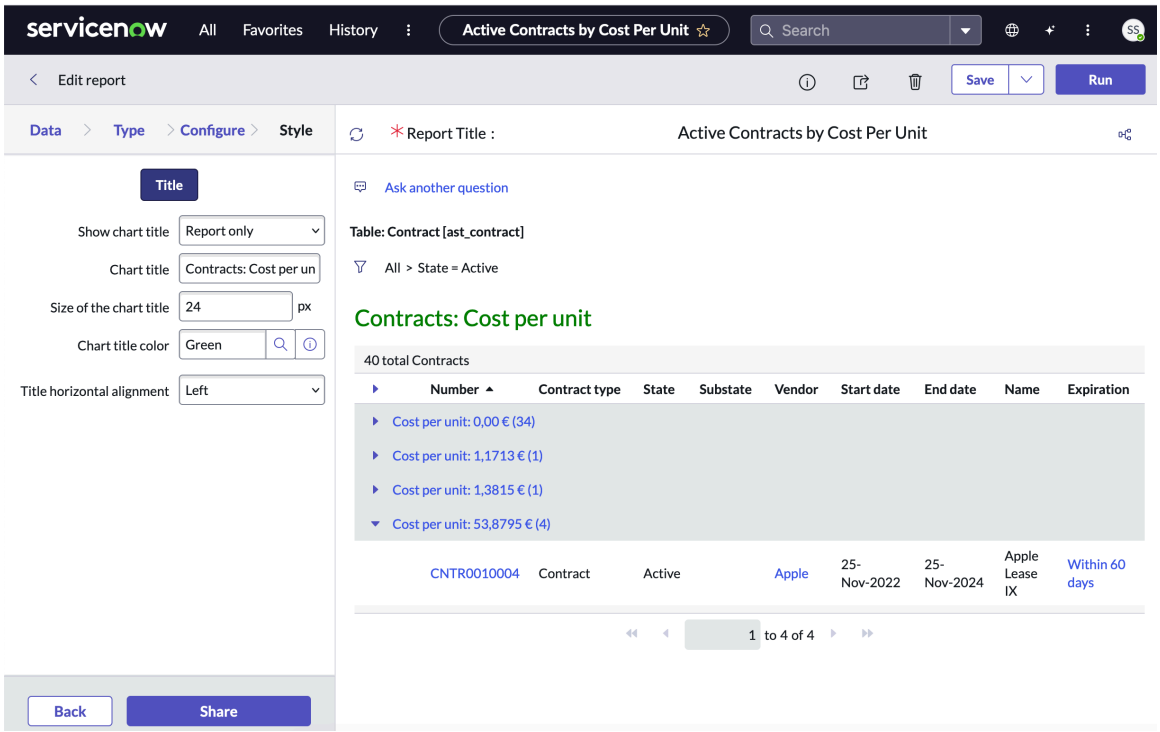
Examples

List report with default style options:



List report with configured title, title size, title color, and alignment:

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Group records in list reports

Grouped list reports can display only the records in each group that are configured to appear in a normal list. You can group rows of information in list reports by specific fields. You cannot group list reports by service catalog variables.

A list configured to display 100 records at a time can show only the first 100 records, regardless of the number of records in that group. Paging is not available within groups, and you cannot access the remaining records without leaving the grouped list. To access all the records in a group:

- Increase the display size of the list.
- Click the group header to return to a normal list for that group with paging enabled.

List reports do not support the user preference to automatically expand grouped records.

The sections of the report are collapsed by default. In this example, a list of products is grouped by manufacturer and the items associated with Gateway are expanded.

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Grouped list report

Name ▲	Manufacturer	Asset tag	Operating System	CPU speed (MHz)
Manufacturer: (empty) (2)				
Manufacturer: Apple (474)				
Manufacturer: Asus (36)				
Manufacturer: Cyberpower (13)				
Manufacturer: Dell Inc. (197)				
Manufacturer: Gateway (9)				
*CAROL3-GATEWAY	Gateway	P1000038	Windows XP Professional	2,992
8400-053105	Gateway	P1000224	Windows XP Professional	3,391
DIANEK	Gateway	P1000051	Windows XP Professional	3,192
DX Series	Gateway	P1000241	Windows XP Professional	
JENREALTY	Gateway	P1000221	Windows XP Professional	3,192
KIRKK	Gateway	P1000111	Windows XP Professional	2,394
MEGANS	Gateway	P1000222	Windows XP Professional	2,793
OLGAS	Gateway	P1000163	Windows XP Professional	3,049
Product KIOSK	Gateway	P1000096	Windows XP	
Manufacturer: IBM (35)				
Manufacturer: iBUYPOWER (4)				

Export a list report

You can export a list report to Excel, PDF, or CSV by scheduling an export of the report.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin.

Note:
Administrator-created restrictions may prevent users with these roles from seeing the **Schedule** option.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Export a visualization from the Visualization Designer.

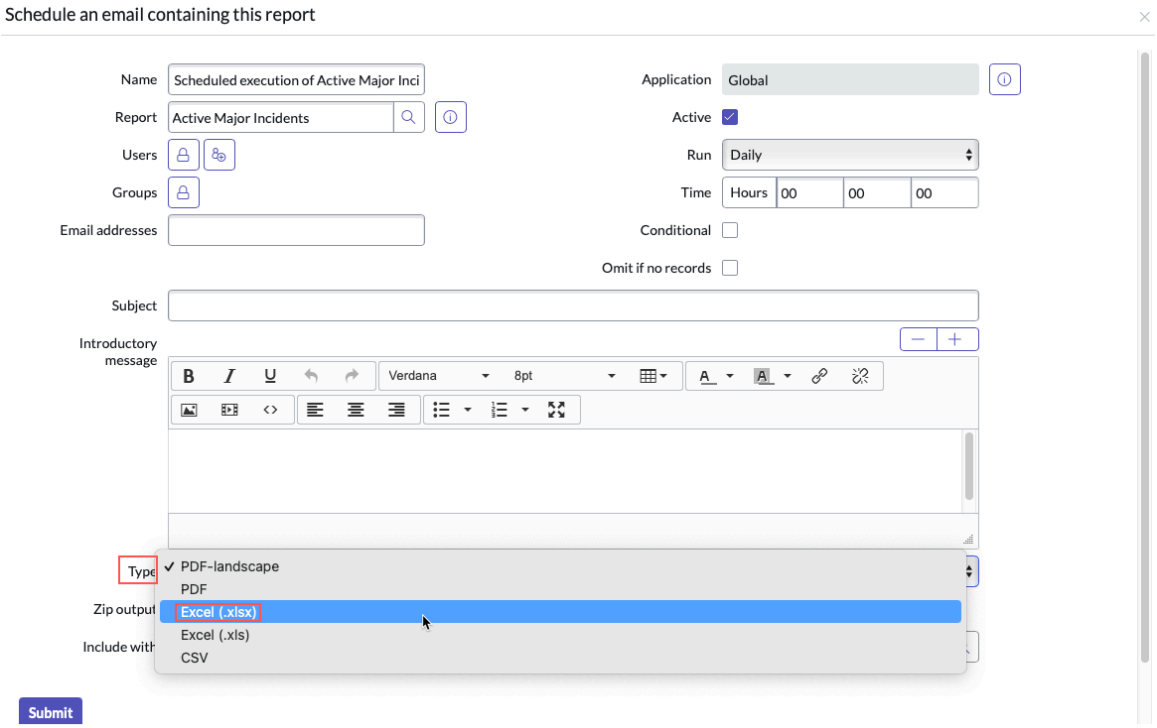
https://player.vimeo.com/video/1157360202?h=8fd6ff7c80&badge=0&autopause=0&player_id=0&app_id=58479%22

Procedure

1. Navigate to **Reports** > **View / Run**.
2. Open the list report that you want to export.
3. Select the **Sharing** icon ( ) and select **Schedule**.
4. Schedule the export of a saved list report in the desired format.

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Specify **Type** as PDF, PDF-landscape, Excel, or CSV. Excel displays report duration values in milliseconds, rather than the "<x> days <y> hours" format. For more information, see Schedule emails of reports.



Result

The recipients of the scheduled report will receive it in the form specified.

Export platform list to Excel

A list displays a set of records from a table. You can export information from lists in the classic environment to a spreadsheet.

Before you begin

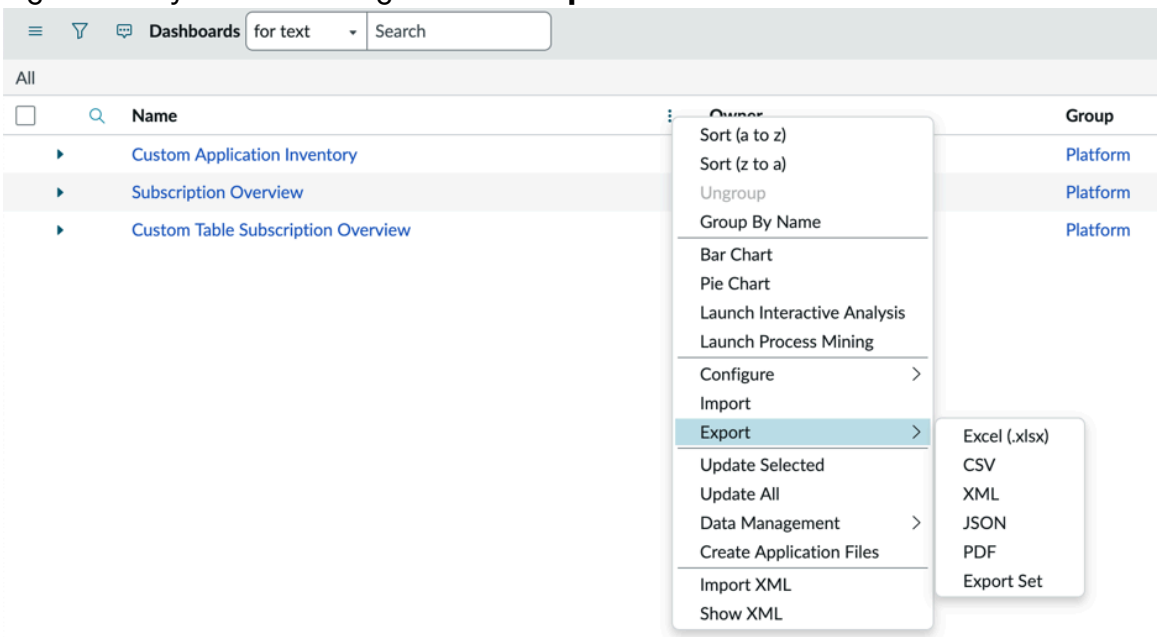
Role required: none, though you must have rights to view the list.

For more information, see Lists in the classic environment.

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Procedure

1. Navigate to the list you want to export.
2. Right-click any column heading and select **Export** > **Excel**.



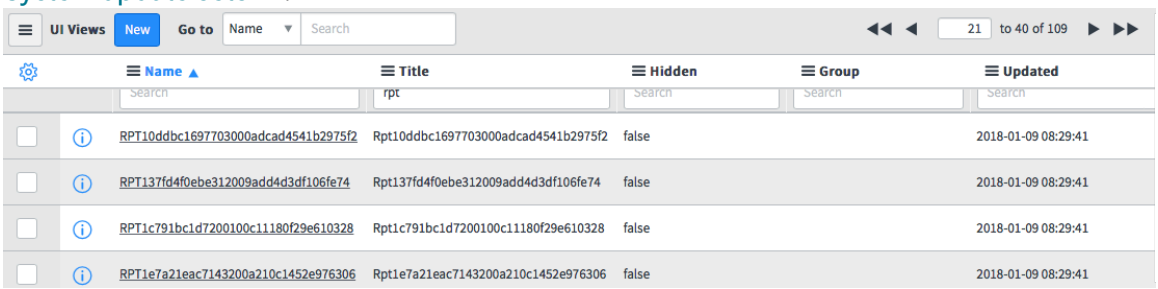
Applying list report column configurations with an update set

Configured columns in list reports can be moved to another instance by committing an update set.

Configured list report columns are not automatically applied to an instance when you commit an update set. List reports render using UI views created each time you save a report. To ensure configured columns render in a list report or on a dashboard widget in another instance:

1. From the UI View table, search for the sys_id of the report (RPT) view record for your changes.
2. Add it to the update set.

For information on adding customized configurations to an update set and applying them, see System update sets.



Map reports

Map reports display data on a map. You can display data as a geographical heatmap ( ) or view specific data points ( ).

Zoom in on a map to get a more detailed view. In heatmap mode, click any region on the map that contains data to drill down into its map.

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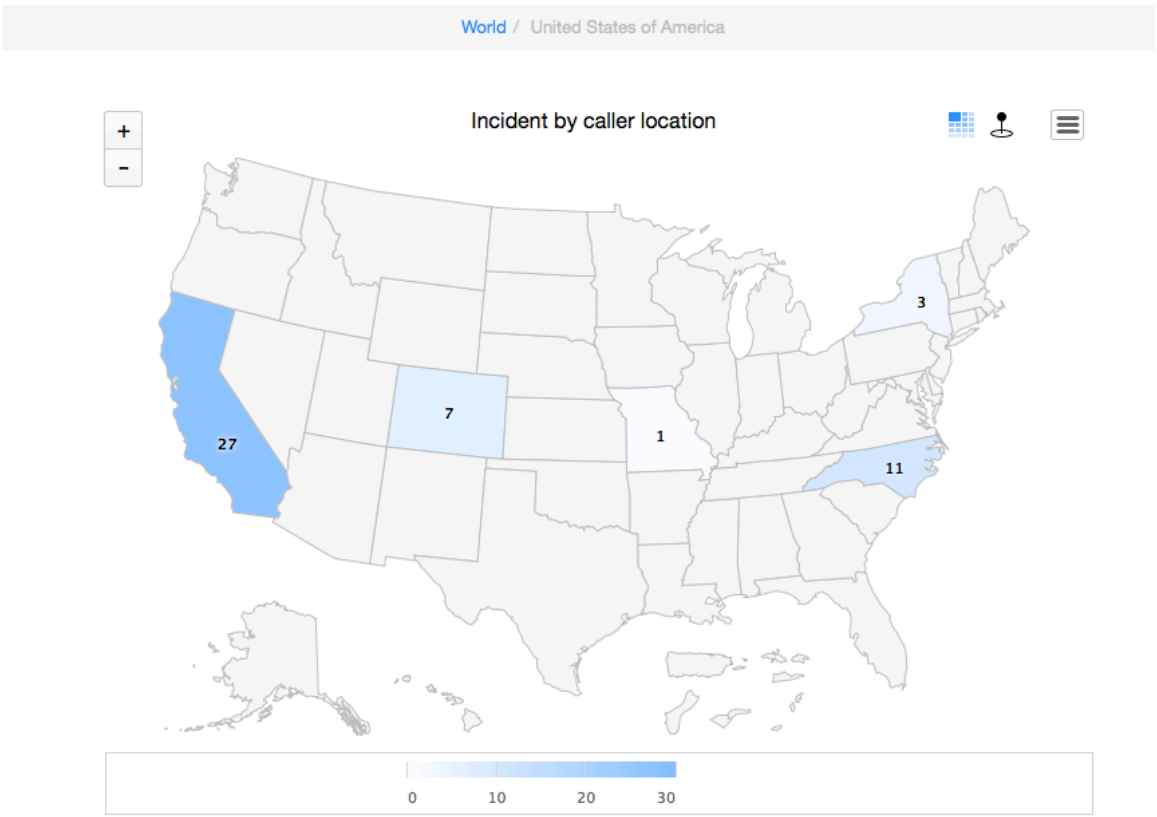
Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a geomap visualization in the Visualization Designer.

Save the map report to drill down into it. You cannot drill down into unsaved reports.

The lowest level of a map hierarchy can display only data points. Click data on this lowest level to see the data in list view, or in drill-down view if one has been configured.

Limitations

- Maps are not supported on Internet Explorer versions 7 and 8.
- Map reports cannot be saved as images on Internet Explorer versions 7 to 9, Firefox versions 31 to 37, Safari 5, or all versions of the Edge browser. For best results, use Chrome to work with map reports.
- Map reports cannot be exported as PDFs, but can be saved as images.
- This report type cannot be run as a scheduled report.



Create a map report

Create a map report to plot your data on geographical heatmap or with pin locations for specific data points.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Map** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

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Field	Description
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables.

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Field	Description
	For information about aggregating on FX currency values, see FX Currency values in reporting.
Map this data	The data that you want to plot on the map. Only data that a report administrator has prepared as a map source is available.
Set map	The starting map for the report. You can zoom in but cannot zoom out from this map.

7. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

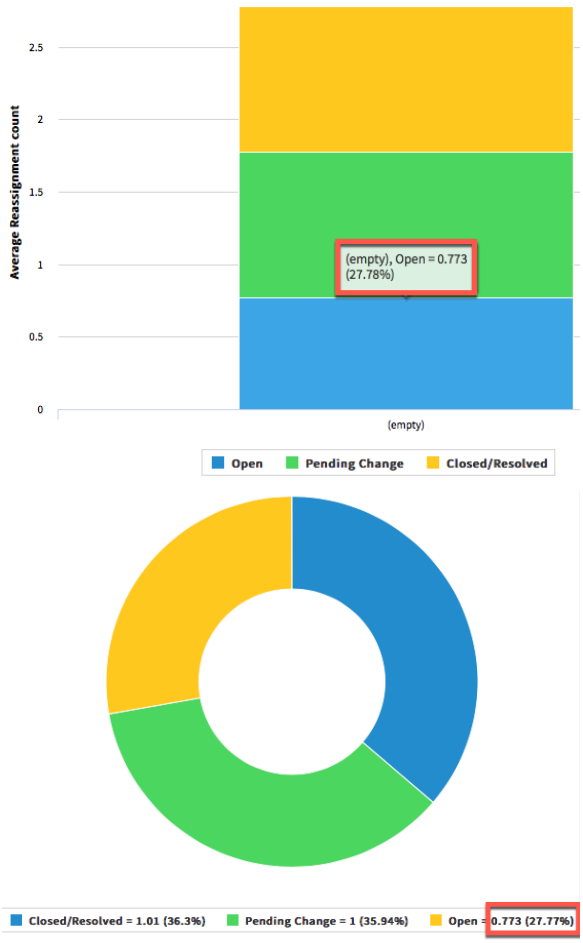
   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

8. On the **Style** tab, configure the appearance of the report.
   Fill in the fields as appropriate.

Map report style options

Field	Description
General	
Use heatmap colors	Check box to use different colors to indicate different values on the map. If you clear this check box, all geographical locations with data are displayed in the same color.
Color for high scores	Color to indicate high values.
Color for low scores	Color to indicate low values.
Display data labels	Check box to show the value for each data point.
Display geographical labels	Check box to display the names of geographical objects on the map, such as countries, regions, and states.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450.

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Field	Description
	This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	

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Field	Description
Show chart title	When the chart title is shown for the report. ○ **Never**: Never show the chart title. ○ **Report only**: Shows the chart title on reports. ○ **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend tab fields (available only when colors are used on the report)	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.

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Field	Description
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

9. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can share the report with users and groups, add the report to a dashboard, and publish the report to the web.

Multilevel pivot tables

Multilevel pivot tables display aggregate data broken down by multiple dimensions in a single table. They display separate cells for each row and column value combination, as well as a column subtotal for each first-level row. Aggregate information is presented in the top left of the chart.

You can also create multilevel pivot tables with columns and rows containing variables. See Use service catalog variables in a report.

You can expand and collapse the rows in the table to show the chart details, or only the subtotals. The top row of a multilevel pivot report is always visible.

Note:

- This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a pivot table visualization in the Visualization Designer.
- Some row configurations prevent the chart from displaying subtotal information, such as when a string column has the same text value but with different character cases.
- You can only schedule this report type as a PDF.

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Multilevel pivot with subtotals and expanded rows

Multilevel Pivot Report Example

▼		Active	false				true	Count
		State	Closed	New	In Progress	On Hold	Resolved	
Last name	Name							
▼ (empty)	Total			5		1		6
	(empty)			5		1		6
▼ Anglin	Total		1		5			6
	Sales		1		5			6
▼ Goodliffe	Total		4		4			8
	Development		4		4			8
▼ Johnson	Total		1		1	1		3
	Sales		1		1	1		3
▼ Loo	Total		6		1	1		8
	Development		6		1	1		8
▶ Luddy	Total				2	1		3
▶ Richman	Total		1		1		2	4
▶ User	Total		3		6	2		11
▶ Whitherspoon	Total		1					1
▶ Wilson	Total		3					3
Count			20	5	20	6	2	53

Create a multilevel pivot report

Create a multilevel pivot report to display aggregate data broken down by multiple metrics in a single table.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.

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3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Multi-level pivot table** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Select columns	One or more fields to use as chart columns. The chart displays data broken down by a combination of row and column values. You can select up to three columns. Click the info icon ( ) for descriptions of the selected fields **Note:** It is not possible to group by the **Tags** field.

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Field	Description
Select rows	One or more fields to use as chart rows. The chart displays data broken down by a combination of row and column values. You can select up to five rows. Click the info icon (ⓘ) for descriptions of the selected fields **Note:** The **Tags** field is not supported for multilevel pivot reports.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.

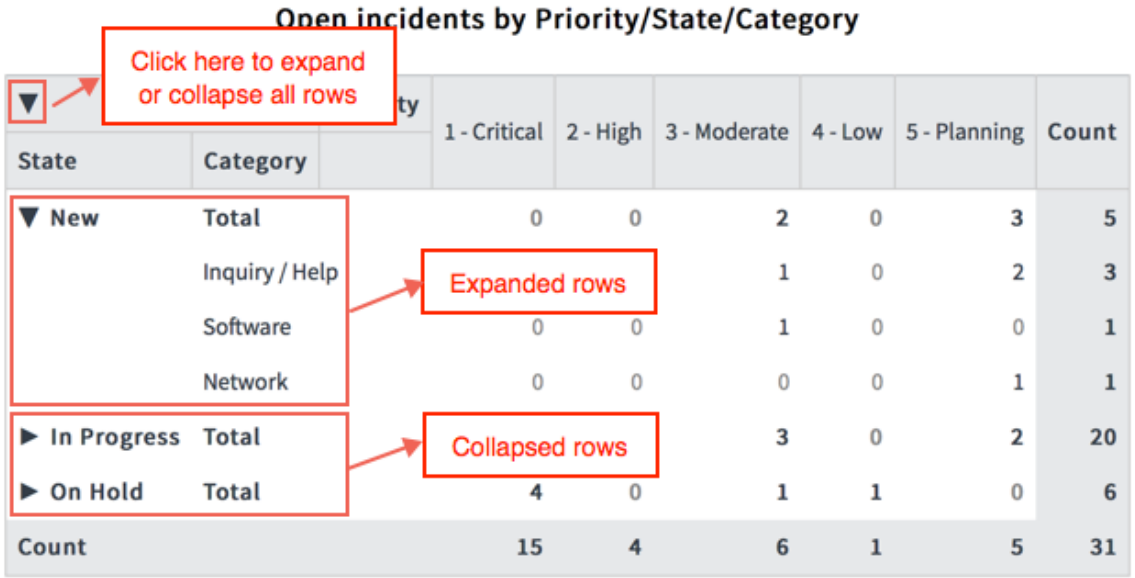
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Field	Description
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

Note:
Currency fields default to two decimal places. With the **Set Value Formatting** option, you can configure decimal precision for 0-4 decimal places.

7. **Optional:** Select **Default expanded** to display the report with the rows expanded. Otherwise, the report will display with all rows collapsed.

Multilevel pivot report with collapsed and expanded rows



State	Category	1 - Critical	2 - High	3 - Moderate	4 - Low	5 - Planning	Count
▼ New	Total	0	0	2	0	3	5
	Inquiry / Help			1	0	2	3
	Software	0	0	1	0	0	1
	Network	0	0	0	0	1	1
▶ In Progress	Total			3	0	2	20
▶ On Hold	Total	4	0	1	1	0	6
Count		15	4	6	1	5	31

8. **Optional:** Check **Display row lines** and **Display column lines** to show the lines that separate the cells in the report.

Open incidents by Priority/State/Category

▶ State	Category	Priority	1 - Critical	2 - High	3 - Moderate	4 - Low	5 - Planning	Count
▶ New	Total		0	0	2	0	3	5
▶ In Progress	Total		11	4	3	0	2	20
▶ On Hold	Total		4	0	1	1	0	6
Count			15	4	6	1	5	31

9. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

Select the filter icon ( ) and choose **Add Sort**.

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a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

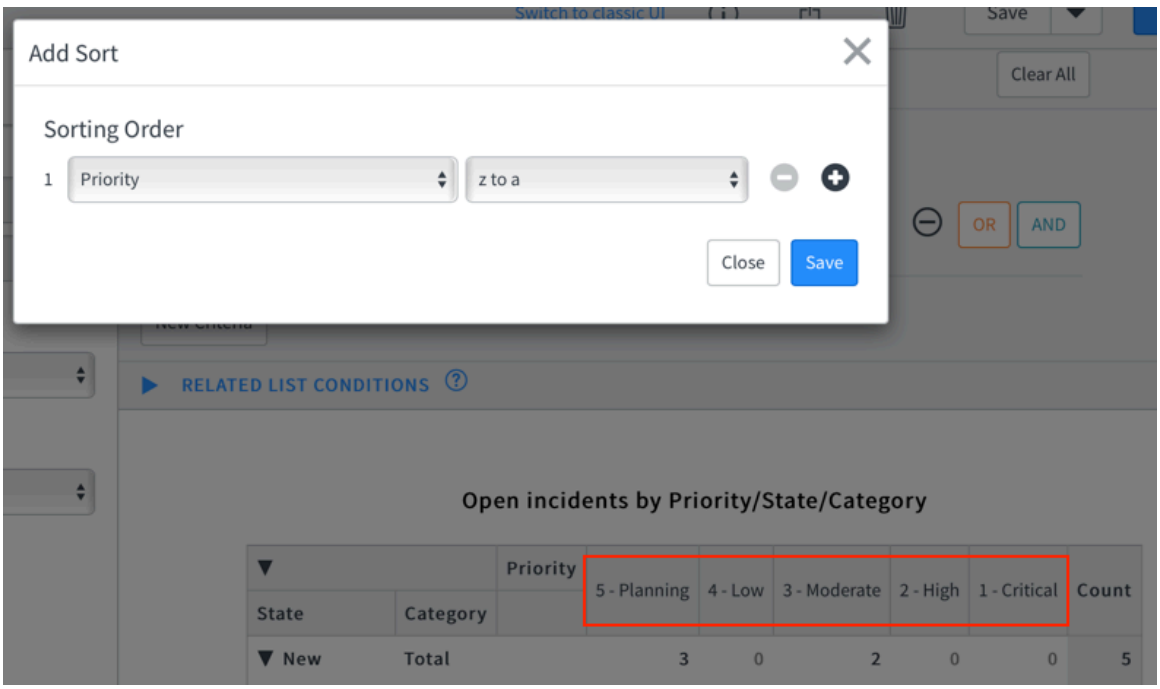
   The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

   Note:
   On fields from dot-walked (extended) tables, you can only sort on date fields.

b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



10. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
    To learn how to construct conditions, see Condition builder .

    Note:
    In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

11. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
12. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

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What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.
- Search the Community site for more insight or help with multi-level pivot reports.

Create a multilevel pivot report with variable columns and rows

You can create a multilevel pivot report with variables columns and rows based on a data source or table that has variables associated with it. Variables are descriptions of catalog items.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new

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Option	Description
	file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Multi-level pivot table** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, click **Select columns**.

   From the Available list in the **Multilevel Pivot Columns** window, select columns that you want to use in the report and move them to the **Selected** list.

   Note:
   It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT.

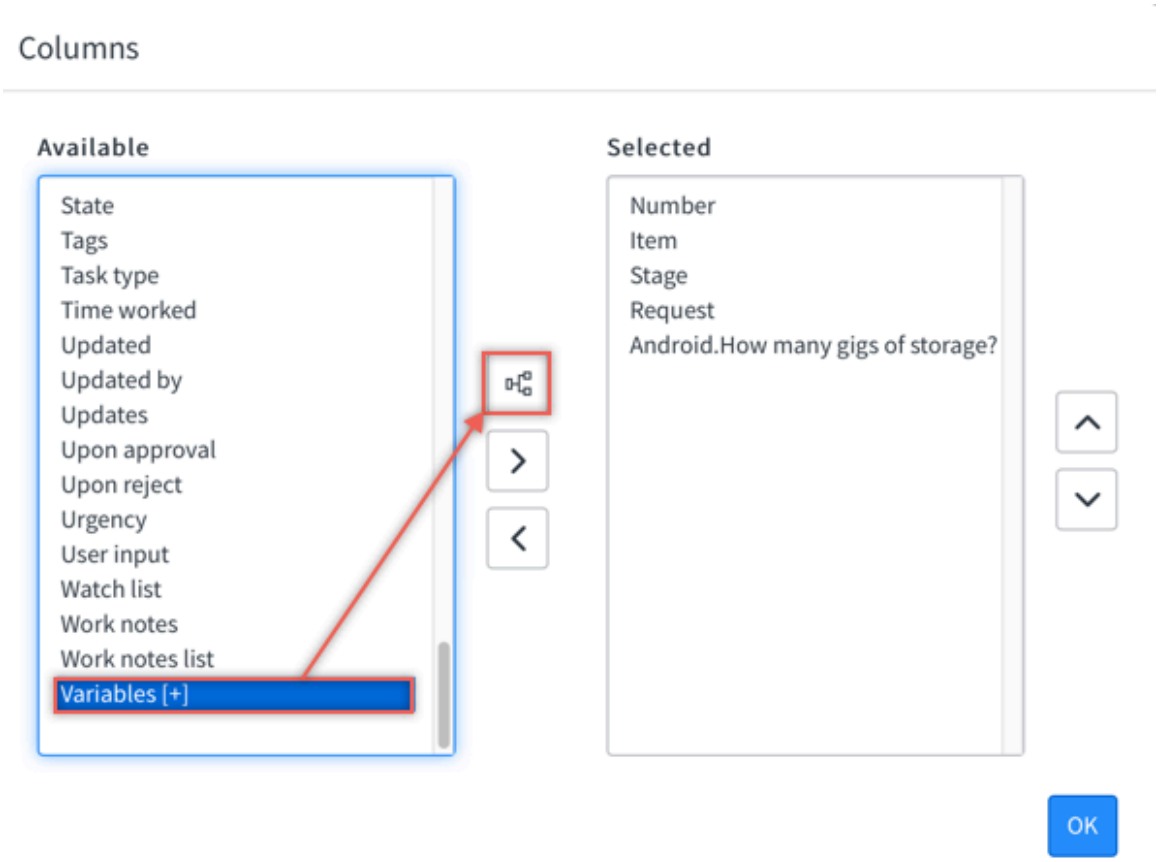
   Depending on system configuration, you can add fields from tables that extend the table selected as the report data source. For more information, see Report on extended tables.

7. Select variables to use as columns:

   a. Select one or more fields to use as report columns.
   The report visualization displays data broken down by a combination of row and column values. You can select up to three columns including the variables.

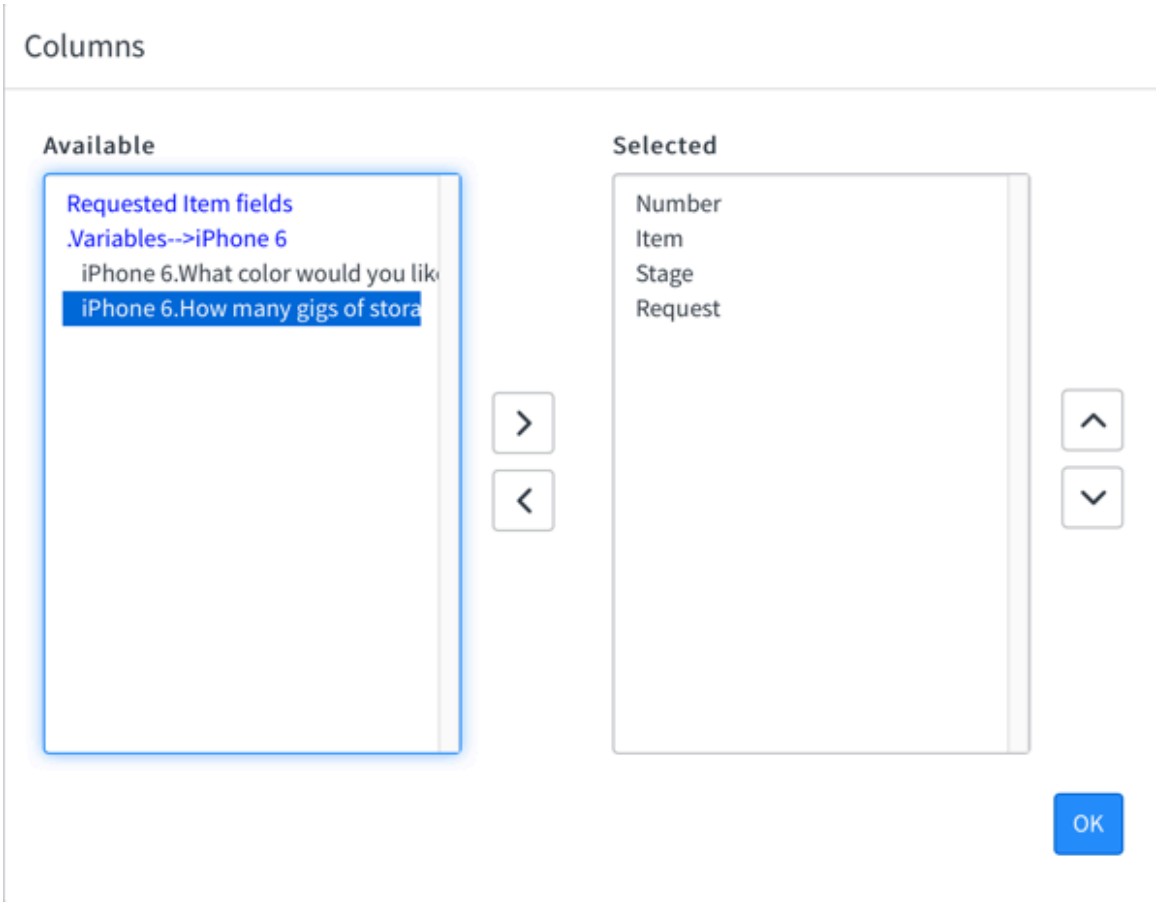
   b. Select **Variables [+]** and click the structure icon ( ) to choose an item.

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c. Select a **Catalog item** from the pop-up window.
The variables associated with the item appear in the **Columns** window.

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d. Move the selected variables to the **Selected** column and click **OK**. Click the info icon (ⓘ) for descriptions of the selected fields

8. Click **Select rows** to select one or more fields to use as report rows.

You select rows similarly to how you select columns. Click the info icon (ⓘ) for descriptions of the selected fields.

The report visualization displays data broken down by a combination of row and column values. You can select up to five rows including the variables.

Note:
It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT.

9. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields.

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Field	Description
	Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

Note:
Currency fields default to two decimal places. With the **Set Value Formatting** option, you can configure decimal precision for 0-4 decimal places.

10. **Optional:** Check **Display row lines** and **Display column lines** to show the lines that separate the cells in the report.

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Open incidents by Priority/State/Category

▶		Priority	1 - Critical	2 - High	3 - Moderate	4 - Low	5 - Planning	Count
State	Category							
▶ New	Total		0	0	2	0	3	5
▶ In Progress	Total		11	4	3	0	2	20
▶ On Hold	Total		4	0	1	1	0	6
Count			15	4	6	1	5	31

11. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

    Select the filter icon ( ) and choose **Add Sort**.

    a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

    The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

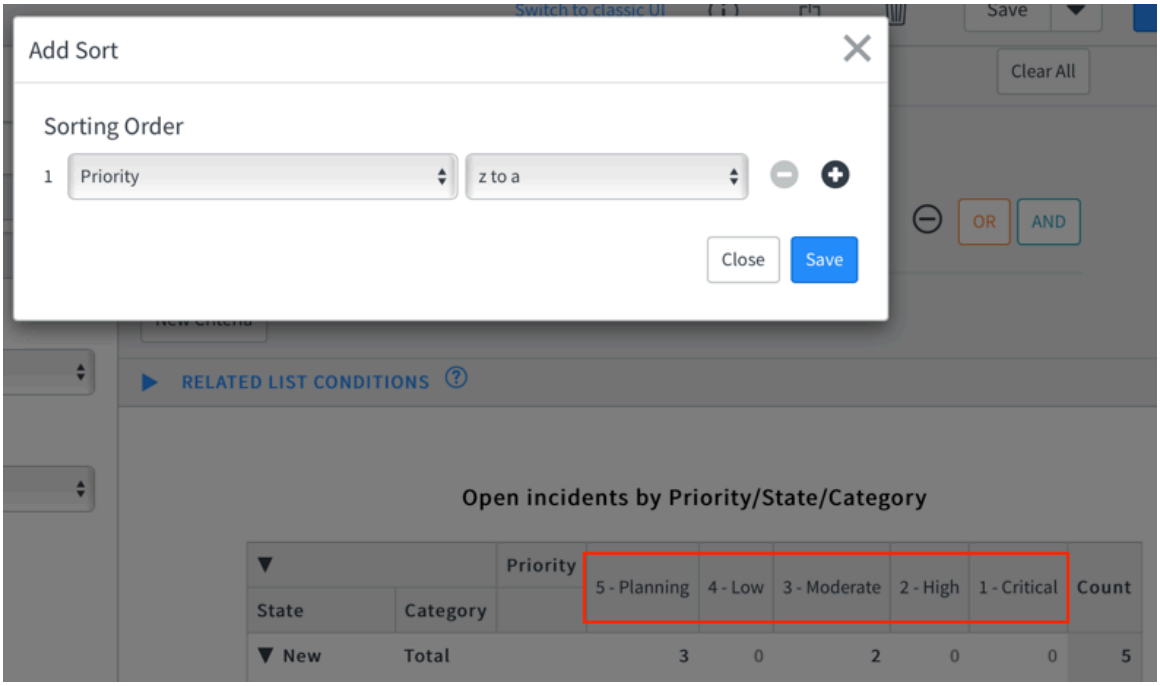
    Note:
    On fields from dot-walked (extended) tables, you can only sort on date fields.

    b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

    c. Select **Save**.

    For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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12. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
    To learn how to construct conditions, see Condition builder.

    Note:
    In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

13. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
14. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.
- Search the Community site for more insight or help with multi-level pivot reports.

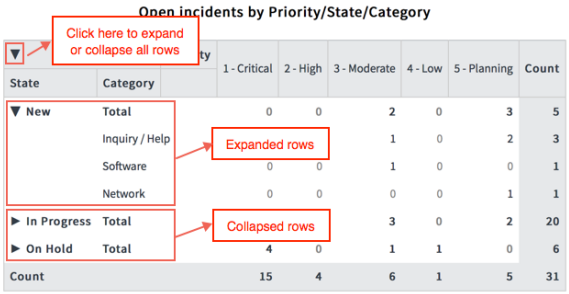
Multilevel pivot report style options

Change the look of your multi-level pivot chart.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

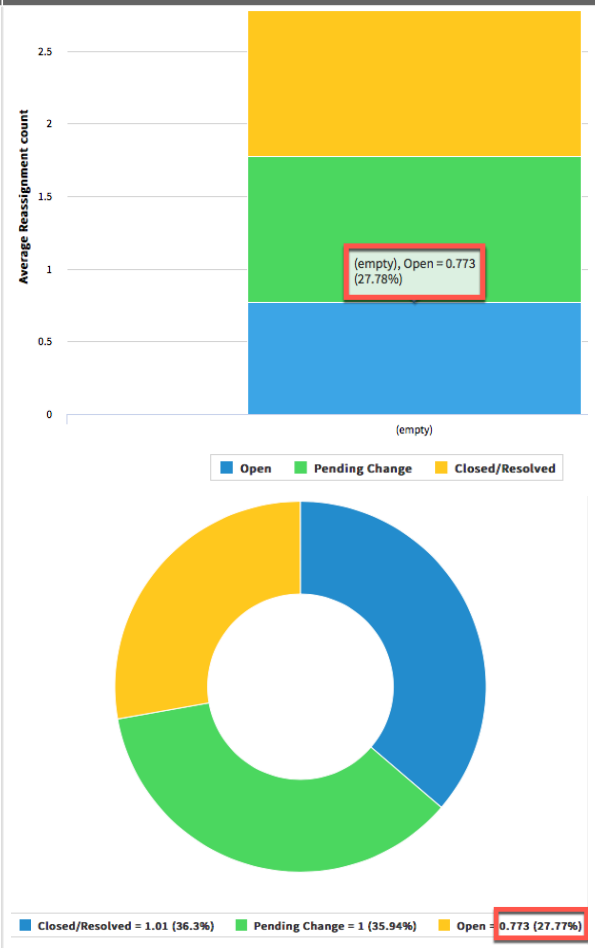
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Multilevel pivot report style options

Field	Description
General	
Display Zero	Check this box to display the number **0** when the value of a cell is 0. Clear this check box to display an empty cell when the value of a cell is 0. Applicable when **Aggregation** is **Count** or **Count Distinct**.
Default expanded	Check this box to expand all rows when the report is displayed. Clear this check book to collapse all rows when the report is displayed. 
Display row lines	Check this box to display lines between rows in the report.
Display column lines	Check this box to display lines between columns in the report.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Edit coloring rules	Click this hyperlink to configure how cells and cell text with numerical values are colored in the report. You can create rules to define which colors are used based on operators and values. For example, you can specify that any value greater than 5 displays in red. See Create coloring rules for multilevel pivot reports. **Note:** It is not possible to apply coloring rules to the Total cells in multilevel pivot reports.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Multilevel pivot report style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.

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Multilevel pivot report style options (continued)

Field	Description
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.

Pareto reports

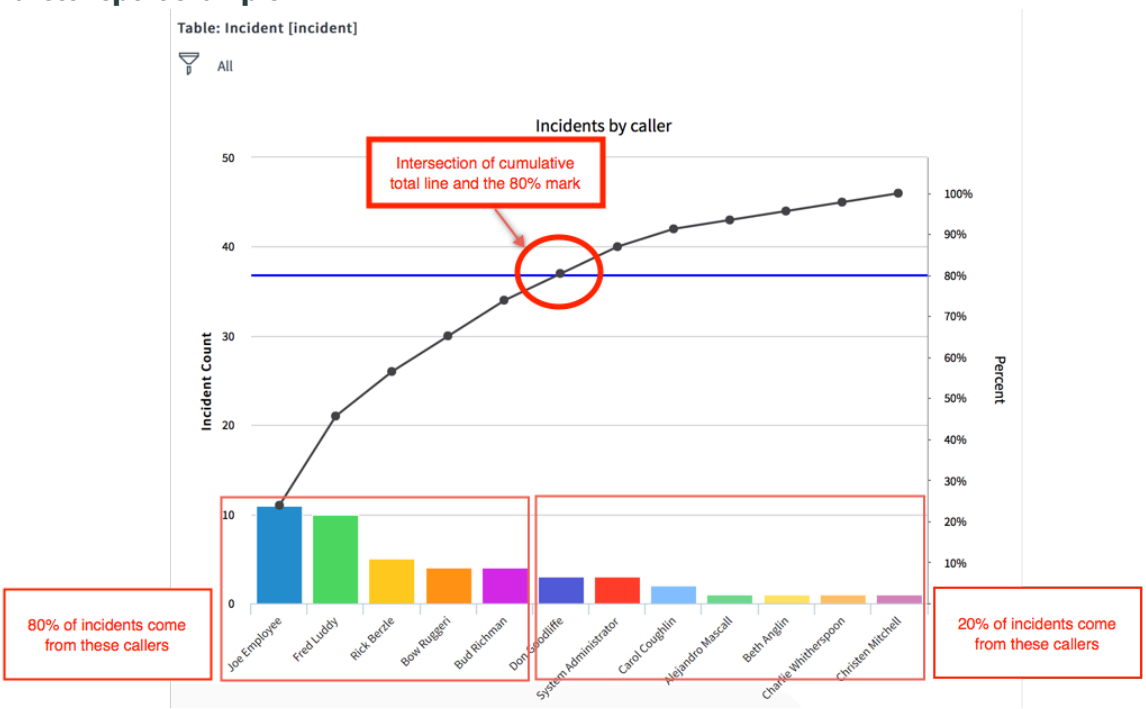
Pareto charts help you identify the most important dimension in a large set of dimensions. Columns show data in descending order. A line shows cumulative percentage.

Pareto charts contain both bar and line graphs. The bars display the data in descending order from left to right, and the line graph shows the cumulative totals from each category in the same order. The left Y axis is the record count, and the right Y axis is the cumulative percentage of the total number of records evaluated. The blue line at the 80% mark helps determine which data is the most influential in the process. The data to the left of the intersection of the line graph and the 80% mark have the greatest effect on the overall outcome.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a Pareto bar data visualization.

The figure below shows that five callers account for 80% of the incident calls, while seven account for the other 20%.

Pareto report example



Create a Pareto report

Create a Pareto report to identify the most important factors in a large set of factors. Columns show data in descending order while a curve shows cumulative percentage.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Pareto** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

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Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon (ⓘ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.

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Field	Description
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

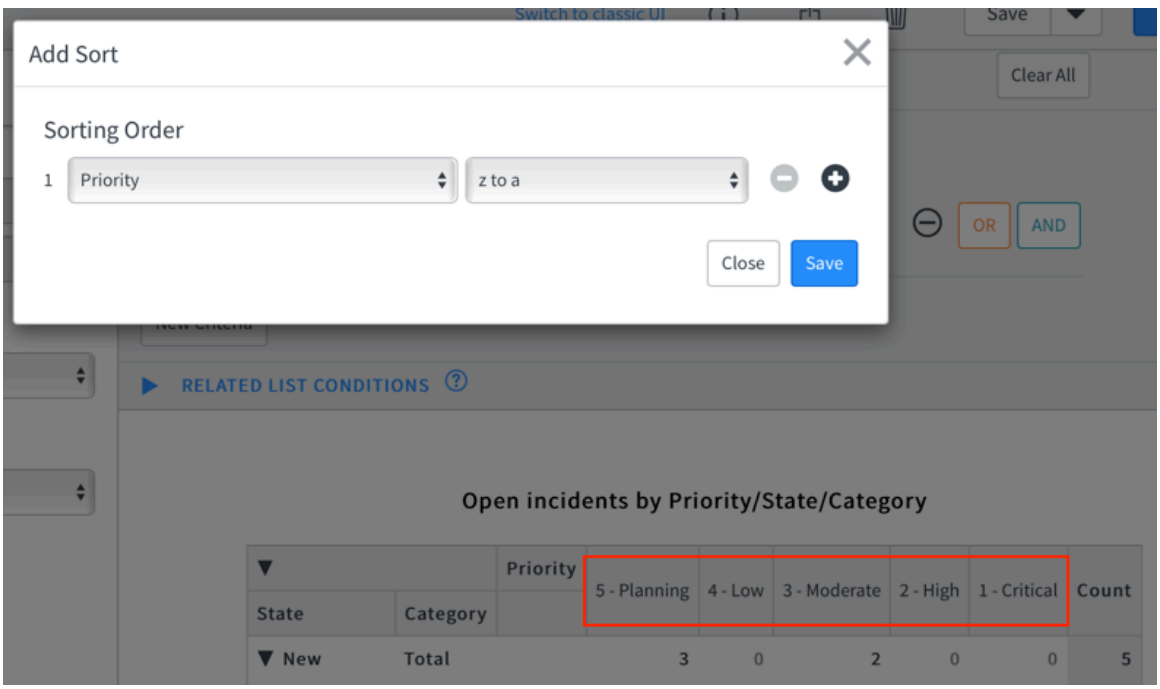
   The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

   Note:
   On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Pareto report style options

Change the look of your Pareto report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Note:
The cumulative totals percentage line is not configurable. It cannot be disabled and the color cannot be changed.

Pareto chart style options

Field	Description
General	
Chart color	Source of colors used in the report. If you are not stacking the report by a field, you can select one of the following options: • **Use one color**: Select a single predefined color in the **Chart color field**. • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. If you are stacking the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**.

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Pareto chart style options (continued)

Field	Description
	For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Select to display the current value for each bar. This field is available when you select None from the **Stacked by** list or if there is no **Stacked by** list. • Select **Data labels in the middle** to show the labels in the middle of each bar. • Select **Allow data labels to overlap** to override default separation of labels in the visualization.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.

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Pareto chart style options (continued)

Field	Description
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Title bold	Check this box to show the axis title in a bold typeface.

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Pareto chart style options (continued)

Field	Description
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Pie charts

Pies charts show the proportions that make up a whole.

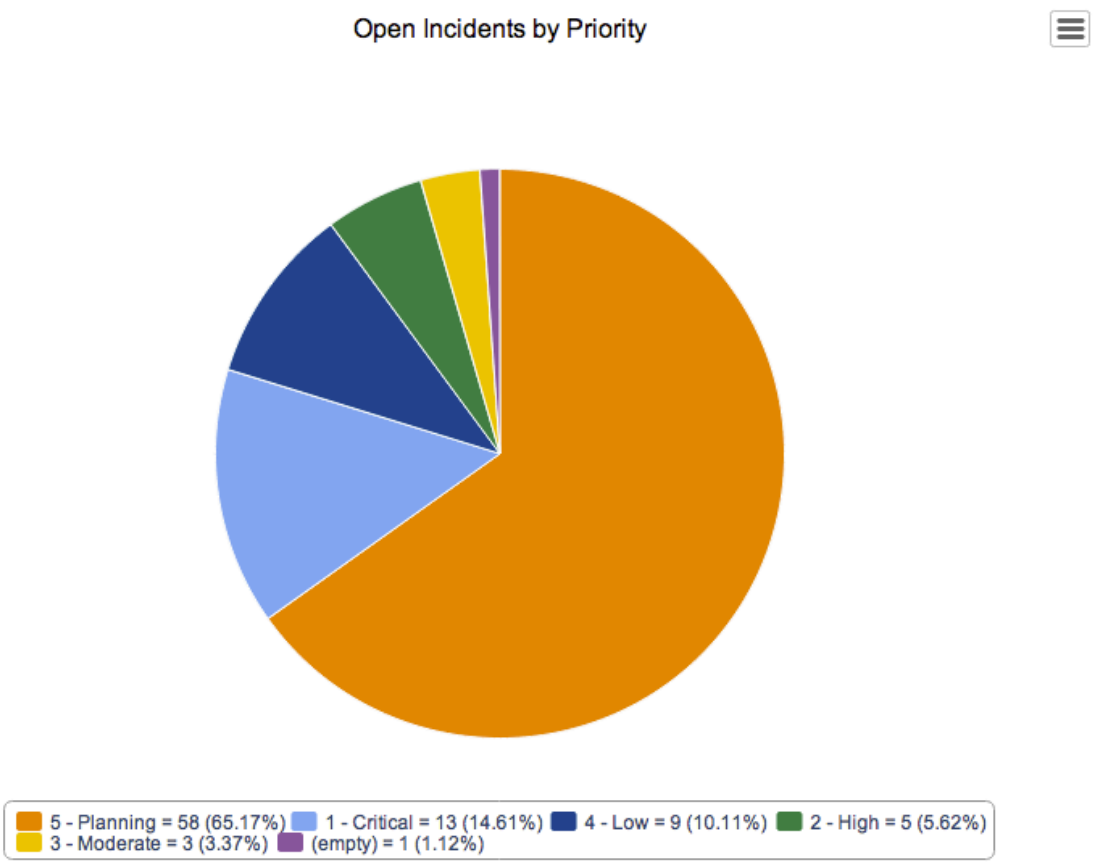
You can use a pie chart to show things like open incidents by priority. For example, suppose that an organization has a policy that critical incidents can never exceed 40% of all open incidents. Given that there are always open incidents of various priority levels, you can quickly see with a pie chart when incident counts exceed acceptable ranges. This figure shows that 14.61% of the open incidents are critical.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a pie or donut visualization in the Visualization Designer.

This data visualization is supported on the mobile platform. For more information, see Pie charts for mobile and Mobile dashboard preview.

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Pie chart



Create a pie chart

Create a pie chart to compare the size of individual categories to the whole.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by existing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Pie** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values.

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Field	Description
	Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

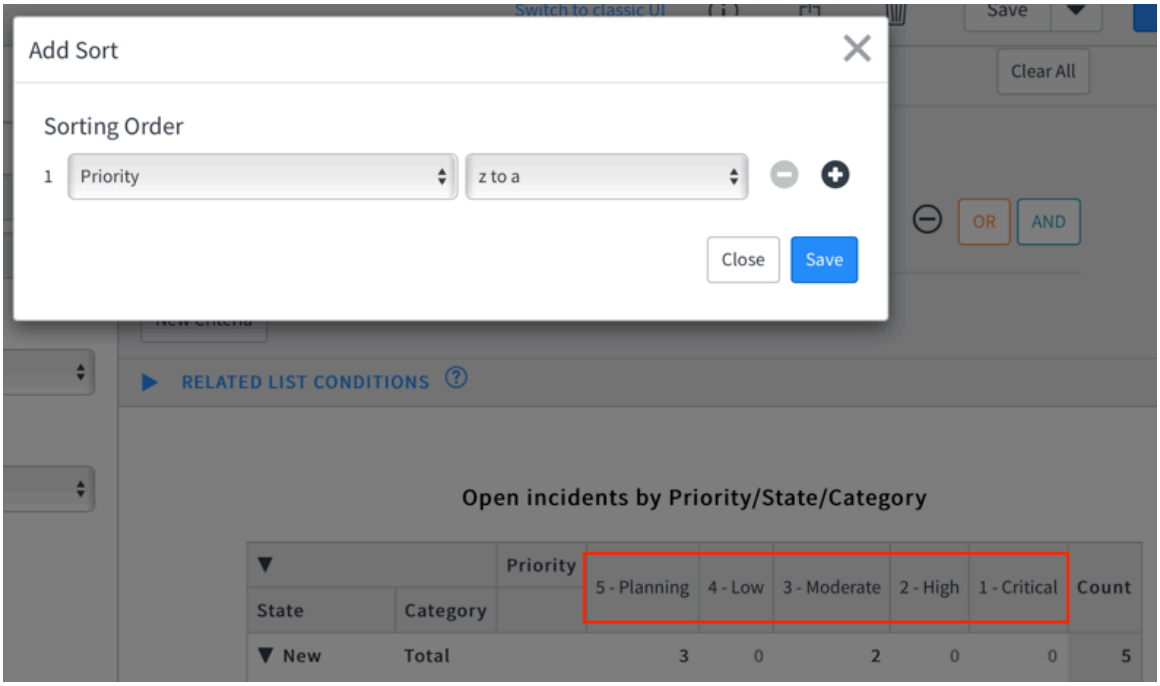
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Pie chart style options

Change the look of your pie chart.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Chart style options

Field	Description
General	

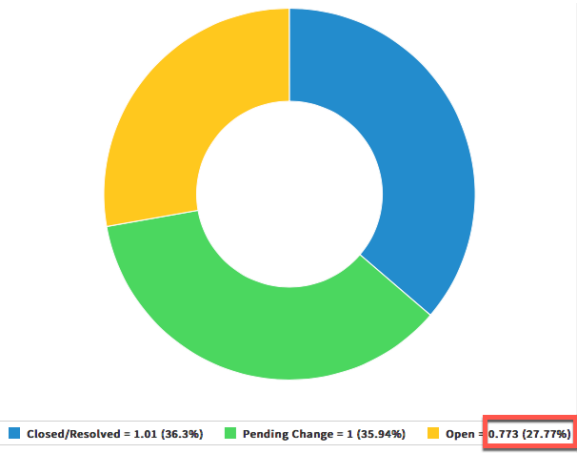
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Chart style options (continued)

Field	Description
Chart color	Source of the colors used in the report. Select from the following: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Check box to display the value for each slice.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.

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Chart style options (continued)

Field	Description
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. This option is available for Average aggregations. **Note:** Percentage labels do not change accordingly with the decimal precision specified. 
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.

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Chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.

Pivot tables

Pivot tables aggregate data from a table into columns and rows, which you define. They help you quickly investigate the source of the summarized data. Non-empty cells display tooltips to indicate how many records the cell represents. Click a non-empty cell to display a breakdown of those records.

You can configure a filter to refine the data further and select the aggregation values.

Note:
While the pivot table report is still available, no enhancements are planned for this report and limitations are not being fixed. For new reports and older reports with problems, use the multilevel pivot table report. The multilevel pivot table is more stable, has more features than the pivot table, and is being continuously maintained. For more information, see Multilevel pivot table.

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Pivot table

Incident Breakdown

Assigned to	Category						
	Request	Inquiry / Help	Software	Hardware	Network	Database	Total
(empty)	0	0	1	0	1	0	2
Beth Anglin	0	2	1	1	1	0	5
Bow Ruggeri	0	1	0	0	0	0	1
Bud Richman	1	0	1	0	0	0	2
Charlie Whitherspoon	0	0	1	0	1	0	2
David Loo	0	4	1	3	0	1	9
Don Goodliffe	0	3	2	1	0	1	7
Fred Luddy	0	0	1	0	0	0	1
Howard Johnson	0	0	2	1	0	0	3
ITIL User	0	8	5	2	0	0	15
Luke Wilson	0	2	1	0	0	0	3
Total	1	20	16	8	3	2	50

Create a pivot table

Create a pivot table to aggregate data from a table into columns and rows. Tooltips indicate what the values represent.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources.

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Option	Description
	Note: If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Pivot** in the filter, select the Pivot report type from the **Other** section, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Row	Select one field for the chart rows. The chart displays data broken down by a combination of row and column values. To select a source field on extended table, see How to report on extended tables. Select the info icon ( ) for a description of the selected field.
Column	Select one field for the chart columns. The chart displays data broken down by a combination of row and column values. To select a source field on an extended table, see How to report on extended tables. Select the info icon ( ) for a description of the selected field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results

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Field	Description
	for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Max number of groups	Maximum number of groups that the **Group by** condition returns. The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, all groups up to a limit of 50 are displayed. The rest of the results are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

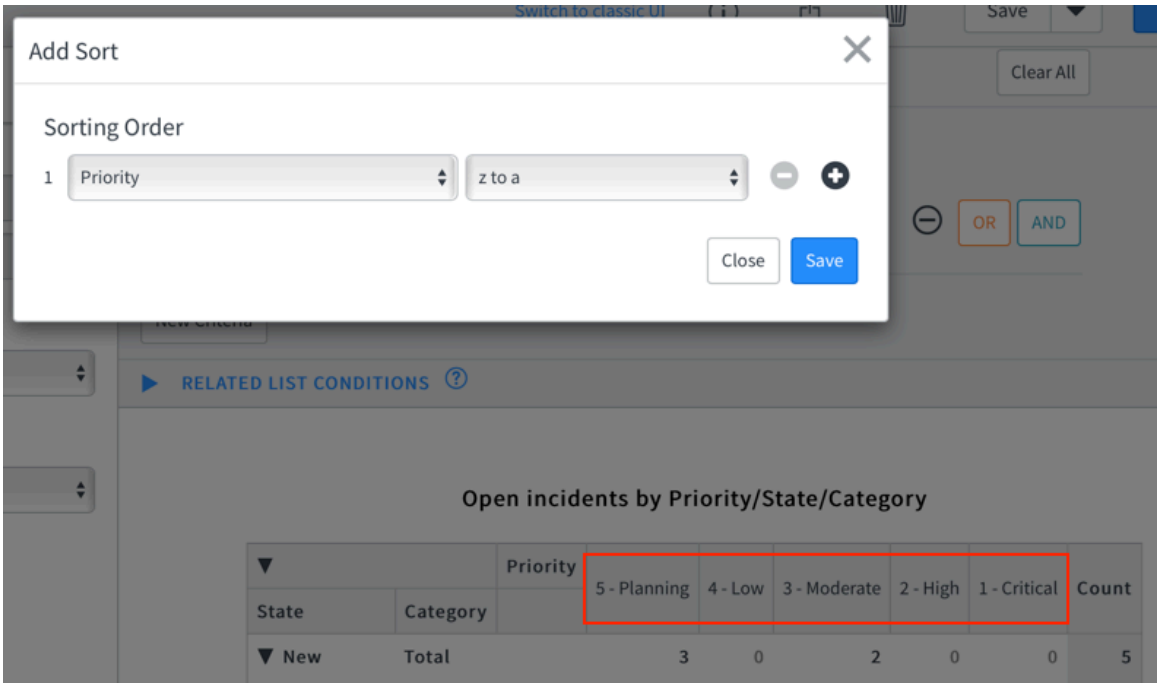
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

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b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

c. Select **Save**.

For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.
- Search the Community site for more insight or help with pivot reports.

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Note:
While the Import Export property glide.pdf.max_rows applies to row limits for pdf data exports in the platform product, for pivot reports exported to pdf from the Reporting product, it sets the maximum number of total cells (both rows and columns).

Pivot report style options

Change the look of your pivot report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Pivot report style options

Field	Description
General	
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.

Single score report

Single score reports display a single value that is key to your business. Add single score reports to dashboards and configure them to update in real time.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a single score data visualization in the Visualization Designer or on a dashboard.

Single score reports which include dynamic conditions added at the report level will not show real-time updates on dashboards unless manually refreshed, or upon a page refresh. The real-time dashboard widget relies on the record watcher to know when an update has been made in order for the single score widget to auto-refresh. However, dynamic conditions aren't supported as part of the record watcher. See further explanation in Create a real-time score visualization for a score widget.

Single score report that has been added to a dashboard



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Note:
This report type cannot be run as a scheduled report.

This data visualization is supported on the mobile platform. For more information see Single score reports for mobile and Mobile dashboard preview.

Create a single score report

Create a single score chart to display a metric or score that is key to your business. The value updates in real time on a dashboard.

Before you begin

Role required: itil, report_user.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on

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Option	Description
	the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Single score** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

6. On the **Configure** tab, fill in the following fields and select **Next**.

Configuration tab

Field	Description
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Aggregation	Computational method for aggregating report data. The default is **Count**, which displays the number of records selected. **Note:** A single score chart displays only the aggregate value. If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**. If you select **Average**, **Sum**, or **Count Distinct**, a list of fields from the selected **Table** appears. You may further be able to aggregate on fields from extended tables. See How to report on extended tables. Select a field to aggregate by from this list. For example, if you select a duration field, such as **Business duration** on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as the **Priority** field, the data is expressed as a number. You may further be able to aggregate on fields from extended tables. See How to report on extended tables.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

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Note:
Currency fields default to two decimal places. With the **Set Value Formatting** option, you can configure decimal precision for 0-4 decimal places.

7. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

Note:
In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

8. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
9. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can share the report with users and groups, add the report to a dashboard, and publish the report to the web.

Single score report style options

Change the look of your single score report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Single score chart style options

Field	Description
General	
Display Zero	Check box to display the number **0** when the value of the report is zero. Clear this check box to display an error message when the value of the cell is 0. Applicable when **Aggregation** is **Count** or **Count Distinct**.
Default color	Color of the score in the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Edit coloring rules	Click this hyperlink to configure how values are colored in the report. You can create rules to define which colors are used based on operators and values. For example, you can specify that any value greater than 5 displays in red. See Create coloring rules for single score reports.
Title	

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Single score chart style options (continued)

Field	Description
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.

Step line reports

Step line reports plot individual data points to show how the value of one or more items changes over time. Horizontal lines in the step report show the duration of a change and vertical lines show its magnitude.

The values of an item at specific dates or times are displayed as data points connected by horizontal lines. Values along the horizontal axis of the step line report represent the time measurement (years, hours, minutes, milliseconds, and so on). Values on the vertical axis represent the magnitude of changes to the items being monitored. Users with the report_admin role can define the ranges that are used in a step line report.

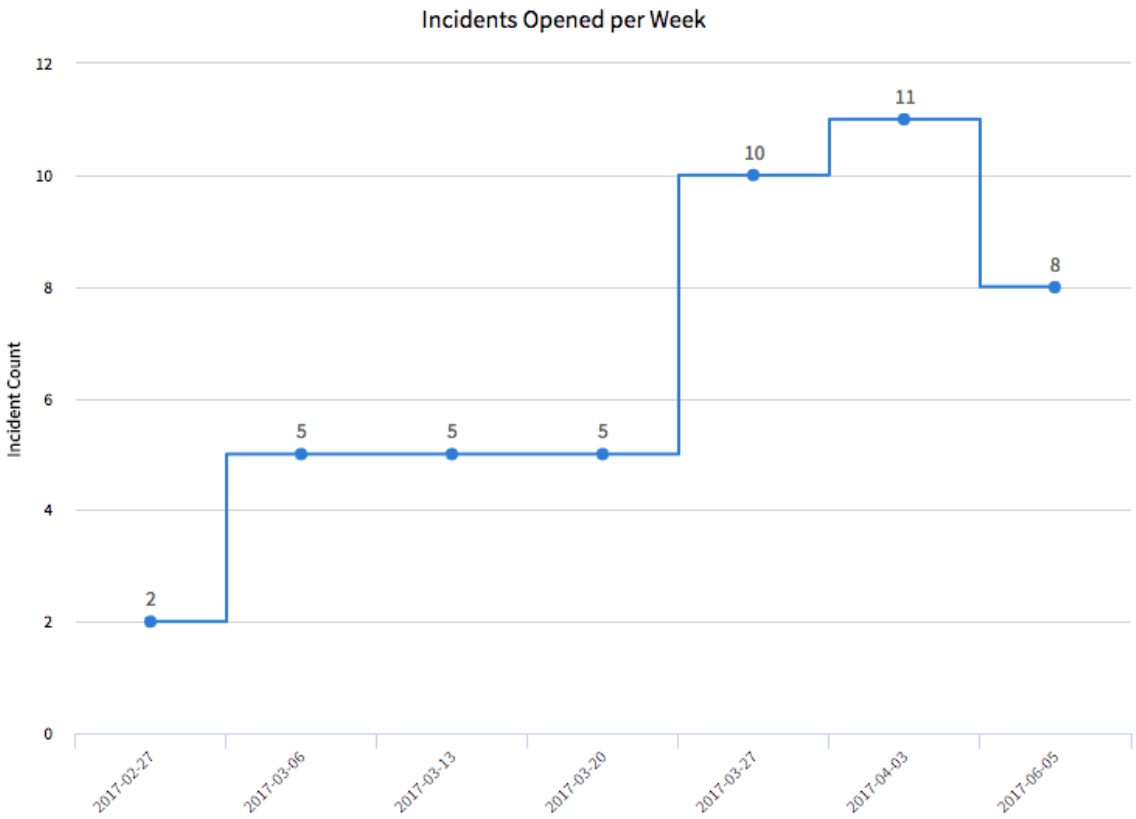
For example, you can create a step line report for incident counts, to show how the number of incidents changes over time.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Time series visualization type use cases.

This data visualization is supported on the mobile platform. For more information, see Time series reports for mobile and Mobile dashboard preview.

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Step line report



Create a step line report

Create a step line report to show how the value of one or more items changes over time. Step line reports emphasize the duration and magnitude of the change.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

For a step line report use case, Time series visualization example.

About this task

This task refers to the Yokohama release using Core UI.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single

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Option	Description
	source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Mi crosoft Excel document.
MetricBase	MetricBase enables you to collect, retain, ana lyze, and visualize custom time series data on the ServiceNow AI Platform. For more informa tion, see

4. Select **Next**.
5. On the **Type** tab, enter **Step** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts

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Field	Description
Calendar	Calendar that is the basis for the time series in the report. Select either the standard calendar or a customized business calendar.
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**. ○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%.

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Field	Description
	○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

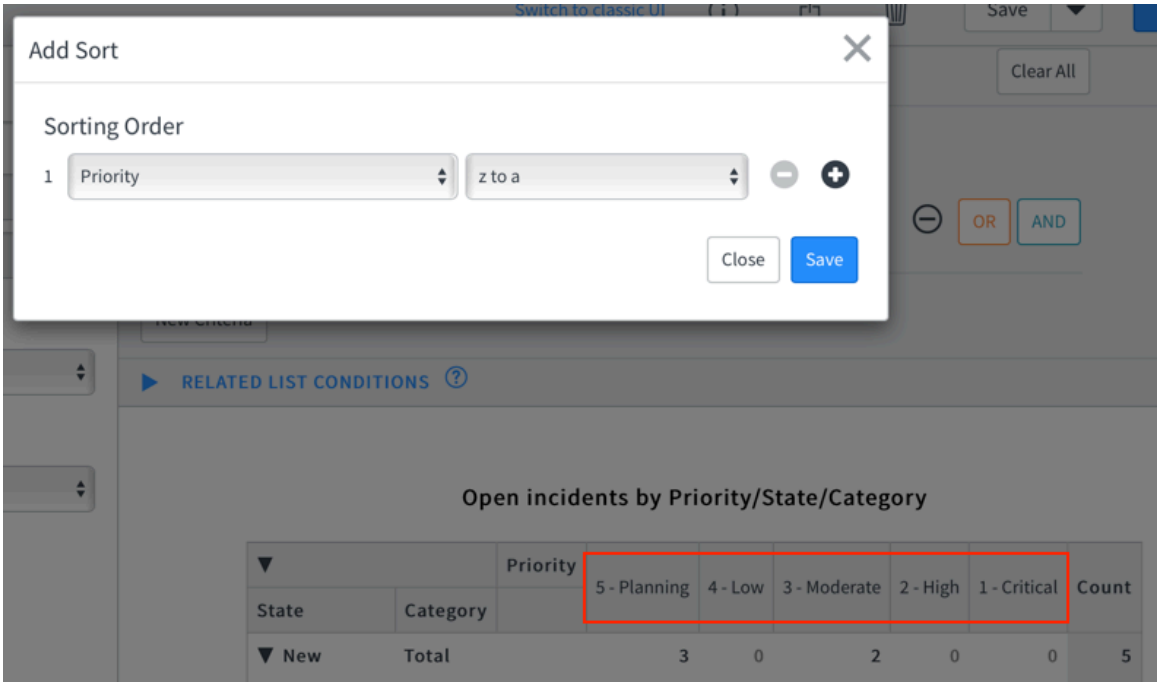
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Step line report style options

Configure the look of your step line report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Step line report style options

Field	Description
General	

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Step line report style options (continued)

Field	Description
Chart color	Source of colors used in the report. If you do not group or stack the report, **Use one color** is automatically selected. In this case, select a single, predefined system color. If you group or stack the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon () to choose from the **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Check box to show the value for each data point.
Do not plot nil as zero	Check box to specify whether to replace missing data points with values of zero. This field is available when creating or editing time series reports (area, spline, line, and step line reports only) that include multiple datasets, and when creating or editing datasets within the applicable time series reports. This field is not available when data in the report is grouped, or is aggregated by Count or Count Distinct. If selected, the report may show gaps where no data exists. **Note:** This property cannot be selected when the source is MetricBase.
Show marker	Check box to show a symbol at each data point. When selected, the marker shows in the center of the step and the endpoints of the report visualization.
Custom chart size	Check box to specify the width and height of the report in pixels.

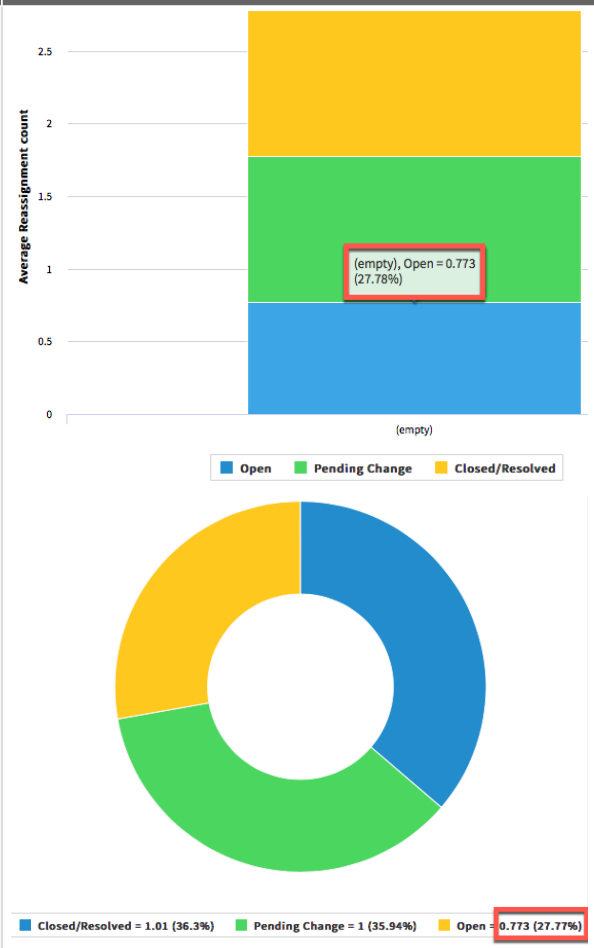
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Step line report style options (continued)

Field	Description
	Note: The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Step line report style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Step line report style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.

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Step line report style options (continued)

Field	Description
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

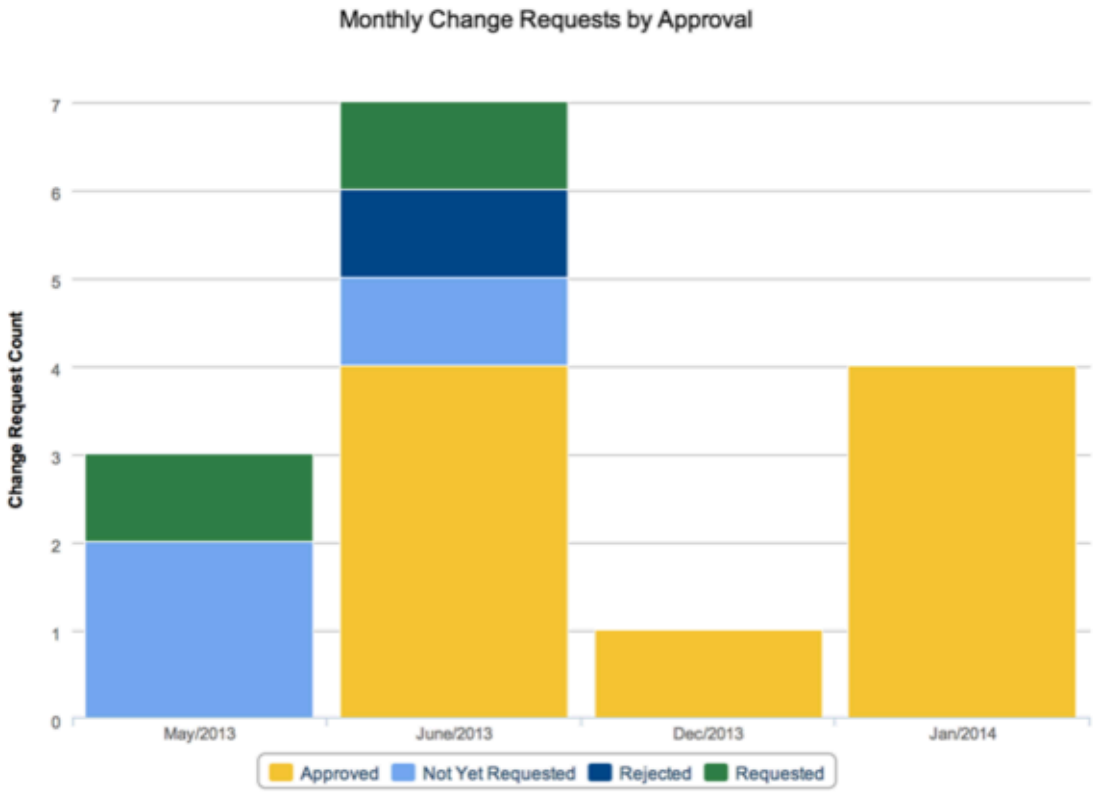
Trend reports

Trend reports show how the value of one or more items changes over time. Values along the horizontal axis of the trend report represent the time measurement. Values on the vertical axis represent the changes to the items being monitored.

Users with the report_admin role can define the ranges that are used in a trend chart report. See Report ranges for information on creating report ranges.

An example of an item that changes over time is incident count. The incident count will likely increase during the first few months after a product upgrade is released. Over time, the number of incidents reported drops as users become more accustomed to the changes in the product.

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Create a trend report

Create a trend report to show how the value of one or more data element changes over time.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.

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Option	Description
Table	The raw data from a table with no filters applied. When you select a table, its short description appears below the table name. For trend reporting, you can also select a remote table, which aggregates, in memory, data retrieved from an external source. Then select a **Trend by** field option to aggregate its data. To learn more about remote tables, see Retrieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Trend** in the filter, select the Trend report type from the **Other** section, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain MySQL database field types, such as MEDIUMTEXT. For more information, see Database field type . ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on

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Field	Description
	extended tables as well, see How to report on extended tables. Click the info icon (ⓘ) for descriptions of the selected fields Configured function fields appear in this list after you save the report. **Note:** ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.

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Field	Description
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values. Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.
Percentage calculation	Method of calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field appears when **Aggregation** is set to **Average**, **Sum**, or **Count Distinct**. ○ **Use Aggregation** calculates the percentage using the selection in the **Aggregation** field. Only data that is displayed in the report is used to calculate the percentage. For example, a report shows assets by department with the **Aggregation** set to **Sum** and the percentage calculated using aggregation. If the total cost of assets is $100,000 and the cost of assets for Customer Support is $10,000, the percentage for Customer Support is 10%. ○ **Use Record Count** calculates the percentage using the total number of records in the data set. For example, a report shows incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the low-priority section is 40%.
Set Value Formatting	Enables you to configure how to show numerical values in reports, including decimal precision, rounding, minimum and maximum duration units, and abbreviations for duration units. See Value formatting in reports. **Note:** Decimal precision does not work on currency fields.
Max number of groups	Maximum number of groups that the **Trend by** condition returns. This limit only affects the x-axis. The number of groups that the **Group by** condition returns on the y-axis is not affected.

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Field	Description
	The groups with highest values are shown first. Any groups beyond the limit are combined into the single group **Other**. If you select **Show all**, the 50 largest **Trend by** groups are displayed on the x-axis. If there are more than 50 groups, the remainder are grouped as **Other**.
Show Other	Check box to include the Other group in the report. The Other group contains data for all groups that exceed the number specified in **Max number of groups**.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

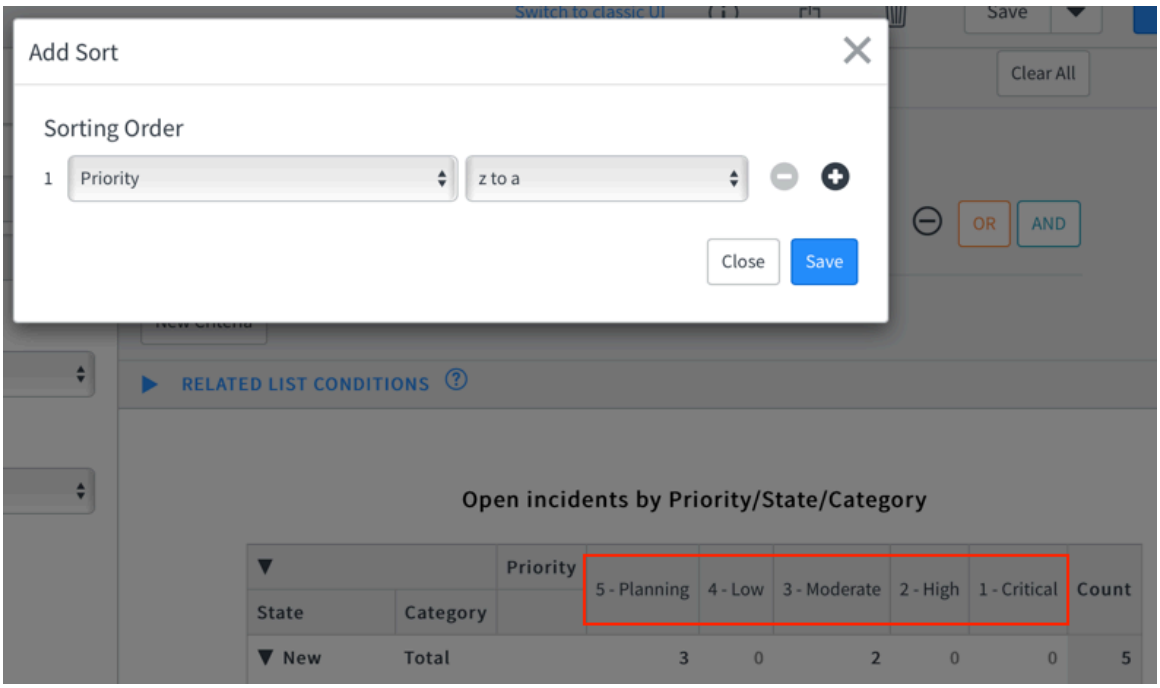
   The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

   Note:
   On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.



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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Trend report style options

Change the look of your trend report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

Trend chart style options

Field	Description
General	
Chart color	Source of colors used in the report. If you do not group or stack the report, **Use one color** is automatically selected. In this case, select a single, predefined system color. If you group or stack the report, select one of the following options: • **Use color palette**: Select a color palette from the predefined system color palettes. • **Use several colors**: Define a custom set of **Colors** using hex codes. You can add any number of colors. • **Use chart colors**: Use the colors defined in **Reports** > **Chart Colors**. For more information about the differences between these options, see Predefined colors in reports.
Set color	Color used in the report. This field displays when you select **Use one color** from the **Chart color** list. Click the search icon ( ) to choose from the **Color Definitions** list.
Set palette	Color palette used in the report. This field appears when you select **Use color palette** from the **Chart color** list. The palettes are defined in the Chart Color Scheme [pa_chart_color_schemes] table.

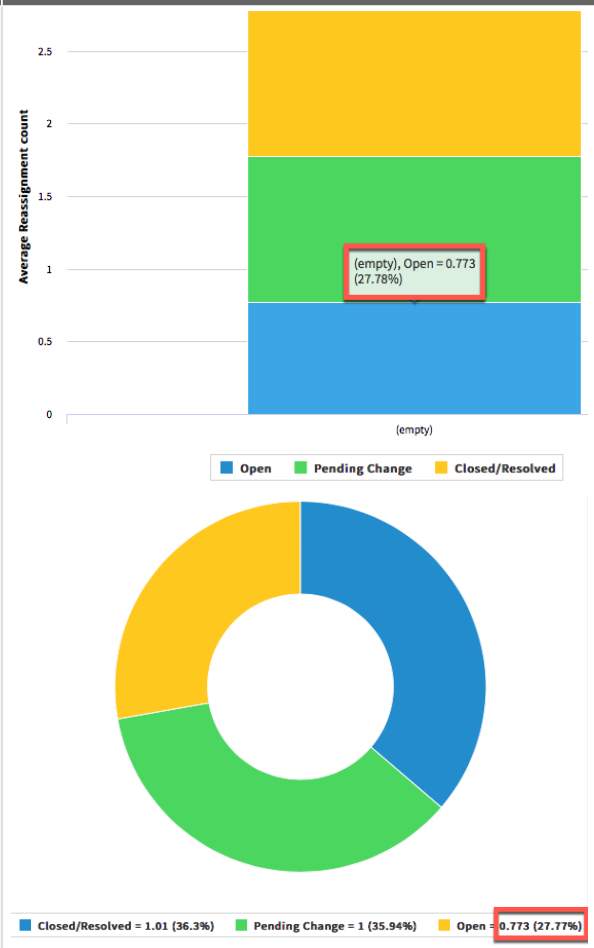
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Trend chart style options (continued)

Field	Description
Colors	Colors used in the report. This field displays when you select **Use several colors** from the **Chart color** list. Enter a comma-separated list of hexadecimal color codes. These colors are independent of the predefined system colors that color palettes and the chart colors use. **Note:** It is not possible to use transparency hex values.
Display data labels	Select to display the current value for each bar. This field is available when you select None from the **Stacked by** list or if there is no **Stacked by** list. • Select **Data labels in the middle** to show the labels in the middle of each bar. • Select **Allow data labels to overlap** to override default separation of labels in the visualization.
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Drilldown view	List view to show when a user selects a segment of a report for which no drilldown report type is specified. This view is also used when the user reaches the lowest drilldown level of a report. See Configure the list layout . If you specify a **Report drilldown**, **Drilldown view** is ignored. For more information, see Define a report drilldown.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Trend chart style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Trend chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Legend	
Show legend	Check box to show a chart legend. This check box appears when a **Group by** field is selected on the report form. Legends are truncated by default. To adjust truncation lengths, configure the properties *glide.chart.label.legend.truncate_to* and *glide.chart.label.legend.truncate_to.large*. For more information, see Reporting properties.
Legend horizontal alignment	How the legend is aligned horizontally. This field appears when **Show legend** is selected.
Legend vertical alignment	How the legend is aligned vertically. This field appears when **Show legend** is selected.
Show legend border	Check box to show a border around the legend. This check box appears when **Show legend** is selected.
Left align legend text	Check box to left-align the legend text when the report is viewed in a browser. By default, the legend text is centered. When the report is exported to PDF, PNG, or JPG, the legend remains centered. This check box appears when **Show legend** is selected.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.

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Trend chart style options (continued)

Field	Description
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** • Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator. • If you format duration fields additionally using **Set Value Formatting** from the Configure tab: ○ Values entered in the **From**/**To** fields (**Style** > **Y axis** are in seconds. The visualization displays y-axis labels as the selected **Minimum/Maximum duration unit** (**Configure** > **Set Value Formatting**), and returns data that falls within the From/To (seconds) values. ○ Example: If you set the minimum and maximum duration unit to **Minute**, the visualization displays y-axis labels as minutes, and returns data which falls within the corresponding seconds values set in the From/To fields.

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Trend chart style options (continued)

Field	Description
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Trendbox reports

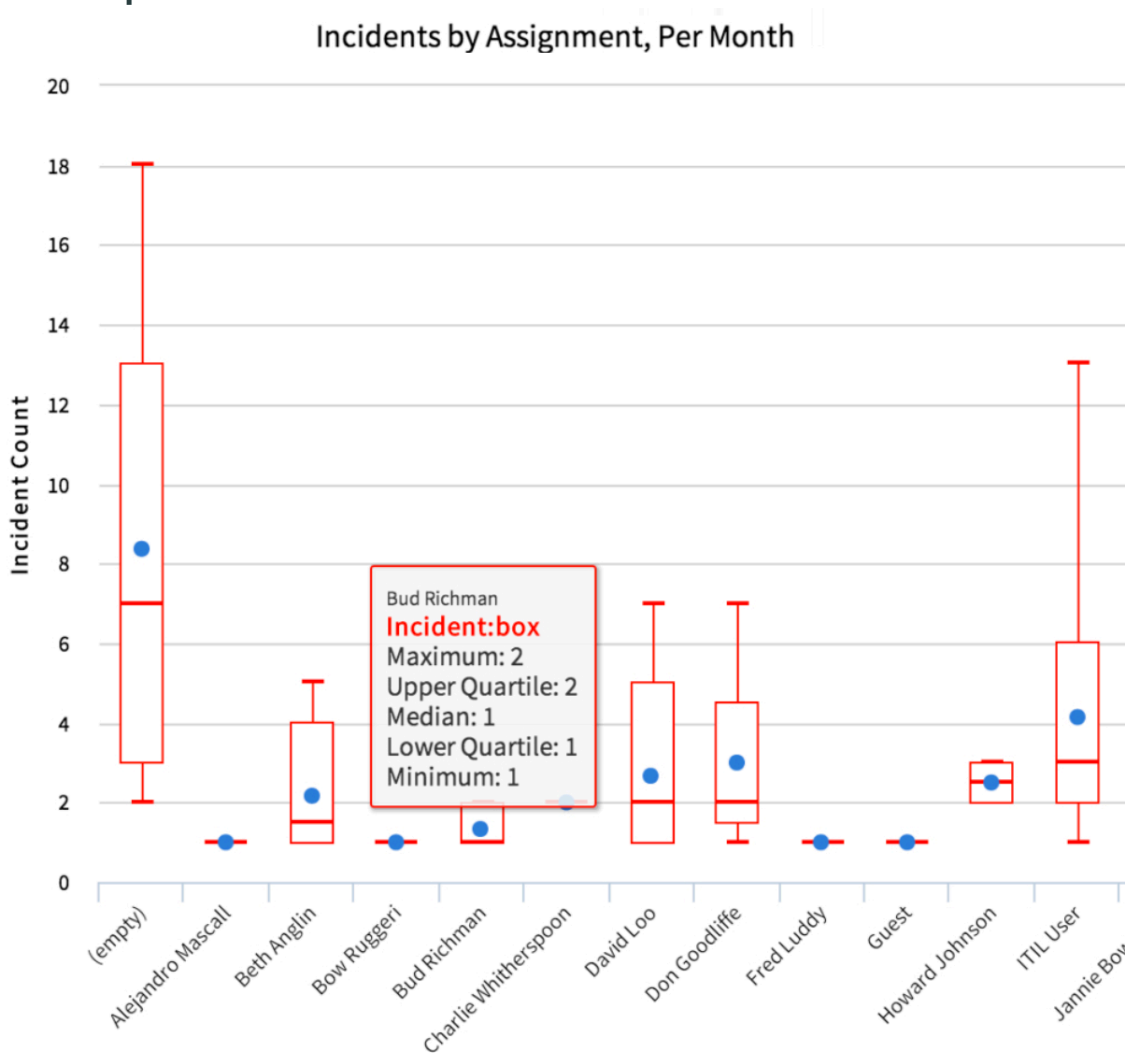
Trendbox reports visualize the distribution of data between groups over a specific time period.

A trendbox report is similar to a box report, but it also allows you to specify a time period for the report. When defining the report, use a descriptive title that indicates the use of the time period. Use trendbox reports when you have multiple small data sets from different sources that are related to each other. Examples include incident resolution times for different product features, or incident resolution times for different priorities.

For example, a trendbox report can show incidents per support agent. A trendbox report can show, by employee, the number of incidents and where the number each agent handles falls by median and quartile. With this information, you can compare incidents handled per employee, or you can use the information to estimate future support staffing levels.

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Trendbox report

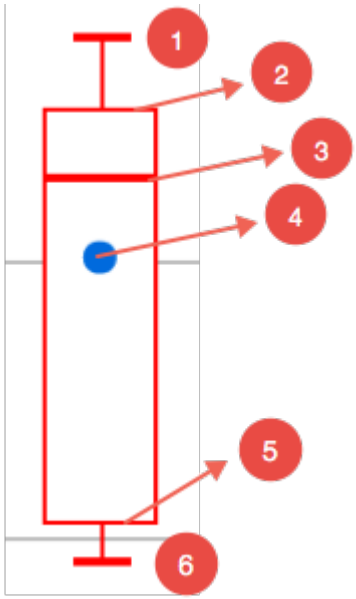


About trendbox reports

Each box in a trendbox report displays the following information for each group of data:

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Box chart scale



1- Sample maximum	The highest count reached during the time frame.
2- Upper quartile	The median of the upper half of the data.
3- Median	If all the interval counts are ordered from minimum to maximum, the median represents the center most value.
4- Mean	The mean is visualized by the blue dot. It is the average of all the data points, or the sum of the counts divided by the number of intervals.
5- Lower quartile	The median of the lower half of the data.
6- Sample minimum	The lowest count reached during the time frame.

To understand how to read the box chart scale, reference the following theoretical trendbox which reports on incidents assigned to an employee per month. The employee worked the following number of incidents per month:

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
1 incident	3 incidents	5 incidents	2 incidents	6 incidents	5 incidents

In this example report which shows trends per month, the values are:

- **Median**: In the dataset 1,2,3,5,5,6, the median is 4, because it's an even dataset ((3+5)/2). If the dataset was an odd number of values, the median would be the exact center value.
- **Upper quartile**: When the data is split, 5,5,6 represents the set of data in the upper half. In the example, the upper quartile is 5. Because the example data set is an even number of values, the upper quartile is an exact value. If the dataset was an odd number of values, you would average the two center values.
- **Maximum value**: The month where the employee had the most incidents assigned, or 6 incidents in month 5.
- **Mean**: (1+3+5+2+6+5)/6, or 3.66.

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- **Lower quartile**: When the data is split, 1,2,3 represents the set of values in the lower half of the data. In the example, the lower quartile is 2. Because the dataset has an even number of values, the lower quartile is an exact value. If the dataset had an odd number of values, you would average the two center numbers.
- **Minimum**: The month where the employee had the least number of incidents assigned, or 1 incident in this example.

Note:
When accessibility is enabled, this visualization includes a report that screen readers can interpret. For more information, see Enabling accessibility features.

Create a trendbox report

Create a trendbox report to show the distribution of values in a data set, with a specified time period.

Before you begin
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

Procedure
1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select the applicable source for the report.

Option	Description
Data source	Also called a report source, a data source is a table with filters applied to provide a single source of information for all users. For more in formation, see Report sources. **Note:** If you select a data source used by exist ing reports, a notification prompts you to view them.
Table	The raw data from a table with no filters ap plied. When you select a table, its short de scription appears below the table name. For trend reporting, you can also select a re mote table, which aggregates, in memory, da ta retrieved from an external source. Then se lect a **Trend by** field option to aggregate its da ta. To learn more about remote tables, see Re

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Option	Description
	trieving external data using remote tables and
External import	Choose an existing imported report source, or select the Upload icon ( ) to import a new file. See Create a report from an imported Microsoft Excel document.
MetricBase	MetricBase enables you to collect, retain, analyze, and visualize custom time series data on the ServiceNow AI Platform. For more information, see

4. Select **Next**.
5. On the **Type** tab, enter **Trendbox** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.
6. On the **Configure** tab, fill in the following fields and select **Next**.

Trendbox report configuration options

Field	Description
Group by	Group report data using the values of this field. For example, in an incident report grouped by **Assignment group**, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. To group by fields on extended tables, see How to report on extended tables. Select the info icon ( ) for a description of the selected field. Configured function fields appear in this list after you save the report. **Note:** ○ It is not possible to group or stack reports by the **Tags** field, or by certain field types, such as MEDIUMTEXT. ○ Grouping or stacking by Variables or Questions fields is not supported for reports based on database views. ○ Label names longer than 20 characters may show or print a truncated view.
Additional group by	Extra fields to group the report by. When you select **Additional group by** fields or function fields, the report includes a control at the bottom that allows you to group the report by any one of the additional fields. To group by fields on extended tables as well, see How to report on extended tables. Click the info icon ( ) for descriptions of the selected fields Configured function fields appear in this list after you save the report.

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Field	Description
	Note: ○ You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect. ○ The limitations listed for the main **Group by** field also apply to the **Additional group by** field. For more information, see Add an additional group by or stack by.
Configure function field	Configure fields based on calculation of multiple inputs including arithmetic functions. For more information, see Report on function fields. Function field results are calculated when the report is run. You can use the results for aggregations and grouping. You have to save the report before you can configure function fields. Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.
Trend by	Table field whose values you want to show in a time sequence. Select the info icon (ⓘ) for a description of the selected field. **Note:** If you selected a remote table in the **Table** field, the option you select in this field aggregates the data that was retrieved from an external source and aggregated in memory. To learn more about remote tables, see Retrieving external data using remote tables and scripts
per	Time period to group data by. The range of available time periods depends on the calendar that you selected. Time periods range from an hour to a year. You can also specify a date. **Note:** If reporting per week: When the report range includes more than one calendar year, inconsistencies result when a week is split between two years. To show data values more accurately according to ISO weeks, add and enable the **glide.db.aggregates.trend.use_iso_week** property in the System Properties [sys_properties] table.
Aggregation	Mathematical calculation to perform on the data. The default is **Count**, which shows the number of records selected. To show only unique records, select **Count Distinct**. Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. Select a field to **Aggregate by** from this list. If you group the report by a field and select an **Average** aggregate, you get the average of each group. If a Total value is shown, it is the average of these group averages, not of the individual field values.

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Field	Description
	Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For more information on aggregation options, see Aggregation in reporting. If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, or **Maximum**, you may be able to aggregate on fields from extended tables. See How to report on extended tables. For information about aggregating on FX currency values, see FX Currency values in reporting.

7. **Optional:** Configure the sort order of the applicable fields in the report (column, row, Group by, Stack by or Trend by depending on the report type).

   Select the filter icon ( ) and choose **Add Sort**.

   a. In the Sorting Order list, choose the field you want to sort on and then choose **a-z** or **z-a** for alphabetical order or reverse alphabetical order.

      The list contains all possible fields from the report's source and fields on extended, or related, tables. The only effective values, however, are the fields chosen for the current report (column, row, Group by, Stack by, or Trend by depending on the report type).

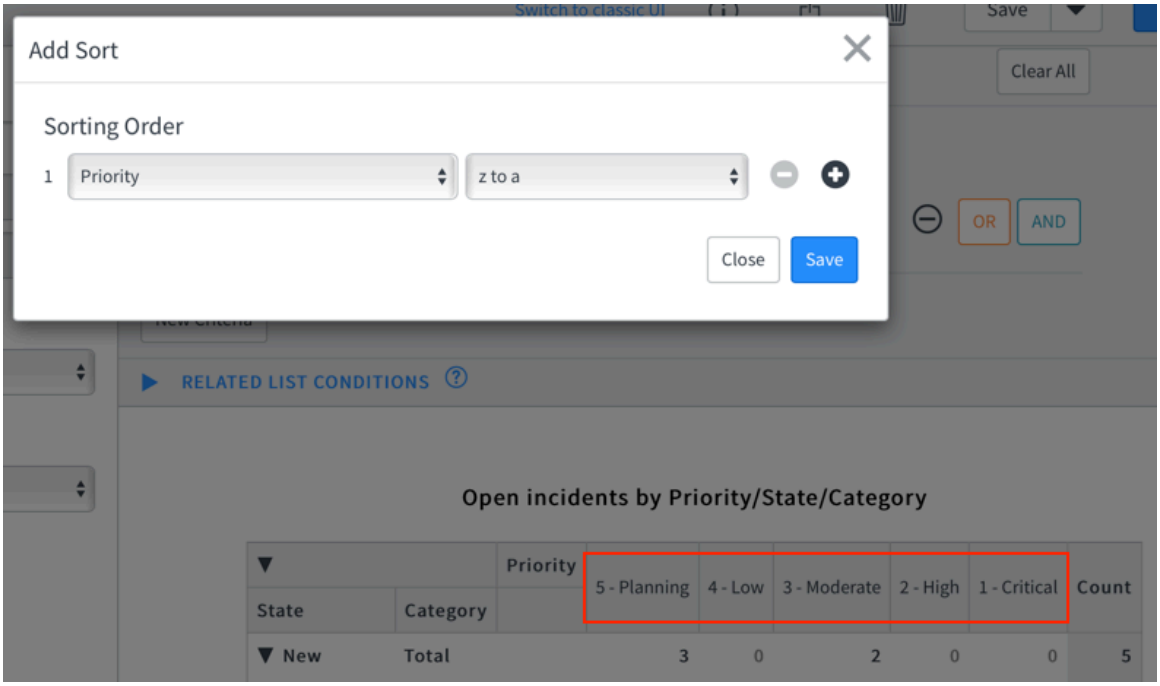
      Note:
      On fields from dot-walked (extended) tables, you can only sort on date fields.

   b. Select the sort plus icon ( ) to configure additional sorting order conditions. (Select the sort minus icon ( ) to delete configured sorting order conditions.)

   c. Select **Save**.

   For fields of the type Choice list, sort order is not determined alphabetically based on Label, it is sorted based on the **Value** of the choice field. For multi-level pivot table and heatmap reports, sort order is determined by the sequence of the choices in the list.

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8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder .

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report.
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

Related topics

Share a report

Trendbox report style options

Change the look of your trendbox report.

When you create or edit a report, click the **Style** tab for options to configure the look of your report. The options are organized under two or more of the following tabs: **General**, **Title**, **Legend**, and **Axis**. To see how the report looks with the changed settings, click **Save**.

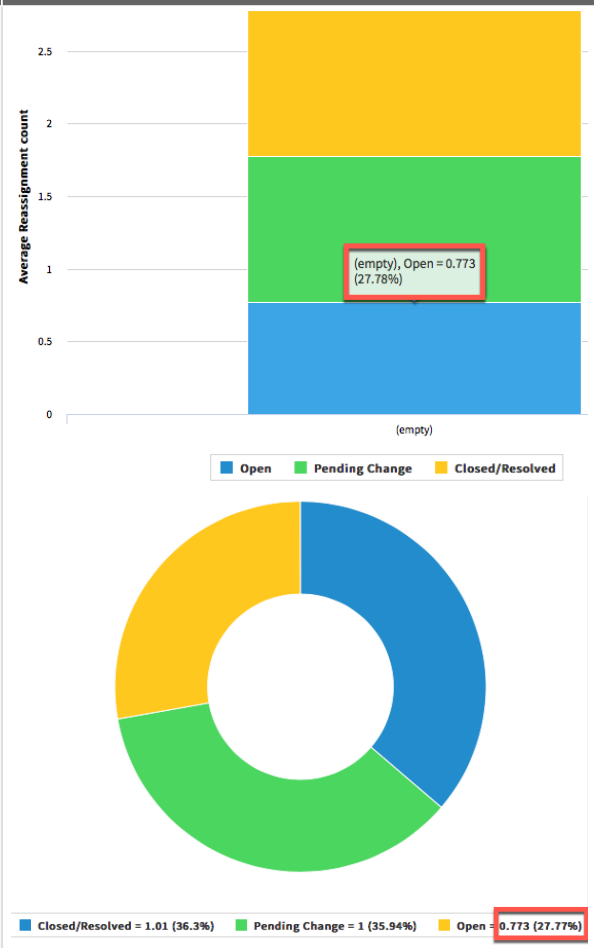
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Trendbox chart style options

Field	Description
General	
Custom chart size	Check box to specify the width and height of the report in pixels. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Chart width	Width of the report in pixels. The default value is 600. This field is available when **Custom chart size** is selected.
Chart height	Height of the report in pixels. The default value is 450. This field appears when **Custom chart size** is selected.
Chart size	Chart size. This field is available when **Custom chart size** is cleared. Options are **Small**, **Medium**, and **Large**. **Note:** The chart size is ignored when you export the report to PDF. In PDFs, the full page width is used to show the chart.
Decimal precision	Number of decimal places to show. You can show from zero to four decimal places. Default value: 2. To change the default value, create the system property glide.chart.decimal.precision and specify the value. **Note:** Percentage labels do not change accordingly with the decimal precision specified.

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Trendbox chart style options (continued)

Field	Description
	
Title	
Show chart title	When the chart title is shown for the report. • **Never**: Never show the chart title. • **Report only**: Shows the chart title on reports. • **Always**: Shows the chart title on reports, dashboards, and landing pages.
Chart title	The chart title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Size of the chart title	Size of the chart title in pixels. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Chart title color	Color of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.
Custom chart title position	Check box to specify X and Y coordinates for the position of the chart title. This field appears when **Report only** or **Always** is selected from the **Show chart title** list.

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Trendbox chart style options (continued)

Field	Description
Chart title X position	Number of pixels to adjust the chart title position right or left. By default the title appears at the center top of the chart. To move the chart title to the right, enter a positive value. To move the title to the left, enter a negative value. This field appears only when **Custom chart title position** is selected.
Chart title Y position	Number of pixels to adjust the chart title position up or down. By default the title appears at the center top of the chart. To move up the chart title, enter a positive value. To move the chart title down, enter a negative value. This field appears only when **Custom chart title position** is selected.
Title horizontal alignment	How the chart title is aligned horizontally. This field is available when the **Custom chart title position** option is cleared.
Title vertical alignment	How the chart title is aligned vertically. This field appears when **Custom chart title position** is cleared.
Axis	
Y axis and X axis	Axis to configure the titles, appearance, and labels for.
Title	Title for the axis.
Title size	Size of the axis title in pixels. Default value is 12.
Title bold	Check this box to show the axis title in a bold typeface.
Opposite	On the **X axis** tab, select this check box to show the X-axis title on the right side of the report instead. On the **Y axis** tab, select this check box to show the Y-axis title on top of the report instead of across the bottom.
Display grid	On the **X axis** tab, select this check box to show horizontal grid lines on the report. On the **Y axis** tab, select this check box to show vertical grid lines on top the report.
Grid dotted	Check this box to show dotted grid lines instead of solid lines.
From	Specify a minimum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available. **Note:** Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator.
To	Specify a maximum Y-axis value to limit the amount of information in the report. If you select an aggregation field that is not of the type **Number**, the **From** and **To** fields are not available.

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Trendbox chart style options (continued)

Field	Description
	Note: Depending on configured Highcharts settings, the minimum value may be rounded up or down. If you require the settings that affect this changed, contact the administrator.
X axis / Y axis label size	On the **X axis** tab, specify the size of the labels for the rows of the report. On the **Y axis** tab, specify the size of the labels for the columns in the report.
Label bold	Check this box to show the labels of the report in a bold typeface.

Advanced reporting topics

Learn how to customize report visualizations and the data you report on.

Topics in this section are appropriate for users who are already familiar with the basics of report creation. However you do not need to be an admin or a report_admin to configure reports as described in this section.

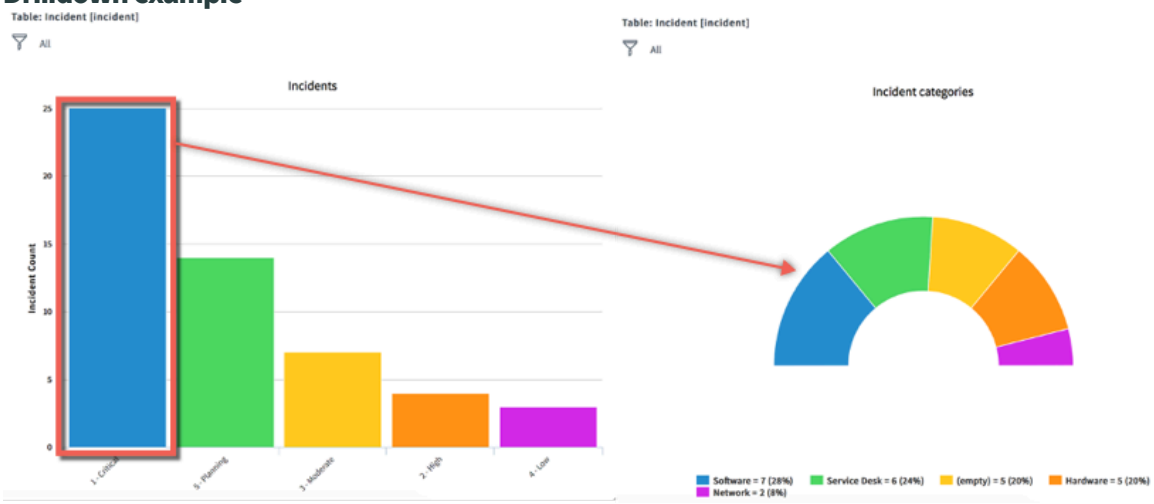
Drilling down within reports

You can drill down within a report to visualize a subset of its data. For example, you can click on the critical section of a report sorted by priority to view the categories of those critical incidents.

For reports with a defined drilldown, click on a portion of the chart to display a subset of data. The subset may use a different chart type. In the example, the user clicks on the critical incidents in a bar chart to reveal the categories of critical incidents in a semi-donut chart.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Chart interactions in a data visualization.

Drilldown example



All chart types except for list, histogram, calendar, control, box, and trendbox charts support drilling down. Drilling down is not available on charts added to forms, and charts embedded as iframes. You can define any number of drilldown levels for a report.

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Note:
Drilldown reports do not export to PDF. If you select **Export to PDF** on a drilldown, a PDF of the top level report is generated.

Define a report drilldown

You can define a report drilldown to enable reporting users to view subsets of the report data. When you define a report drilldown, it applies only to the report for which you define it.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin.

The report that you want to define a drilldown for must exist.

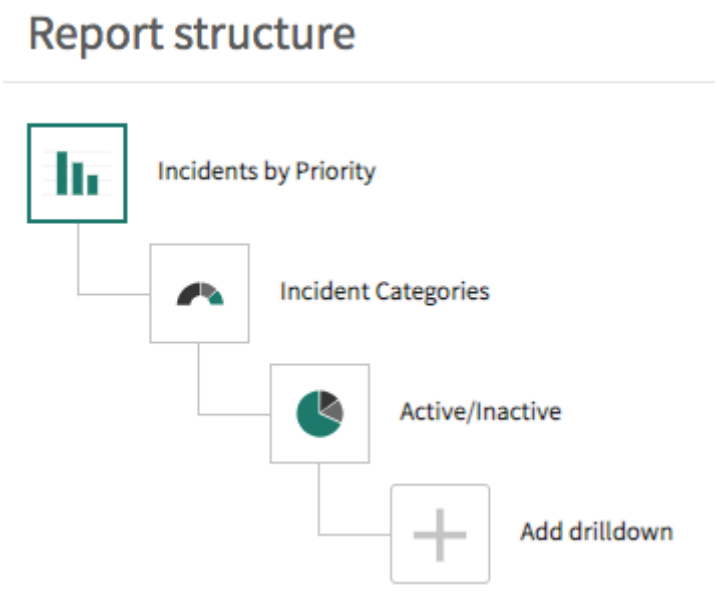
Note:
You can only drill down to data in the same table as the report. The following report types do not support the drilldown feature: list, histogram, calendar, control, box, and trendbox.

This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see the Chart interaction section of the data visualization type you're configuring.

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report you want to add a drilldown to.
3. Click the **Show report structure** icon ( ).
   A badge on the Report structure icon displays the number of defined drilldowns.
4. Click the Add drilldown icon ( ).

Drilldown example



5. Enter a **Title** for the drilldown and click **Next**.
6. Select the report **Type** to display the data and click **Next**.
   See Report types. The drilldown report type can be different than the parent report.
7. Configure the drilldown report the same way you would configure any other report.

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Configuration options depend on the selected drilldown report **Type**.

8. Click **Save drilldown**.

Result

The user can drill down from the top-level report to the specified drilldown report visualizations.

Note:
All users can view report visualizations, such as pie charts and column reports. However, the last level of a drilldown is always a list. Platform access control lists determine user access to list information. Users may see a message indicating that rows were removed from the list by Security constraints. For more information, see Access control list rules.

Set the on-click behavior of a report

You can configure a URL to open when you select a section of a report.

Before you begin

Role required:

- When creating reports: Any
- When editing reports created by others: report_admin, report_global, or report_group

About this task

Redirect the user to a URL rather than to the configured drilldown or the list that underlies the selected section of a report.

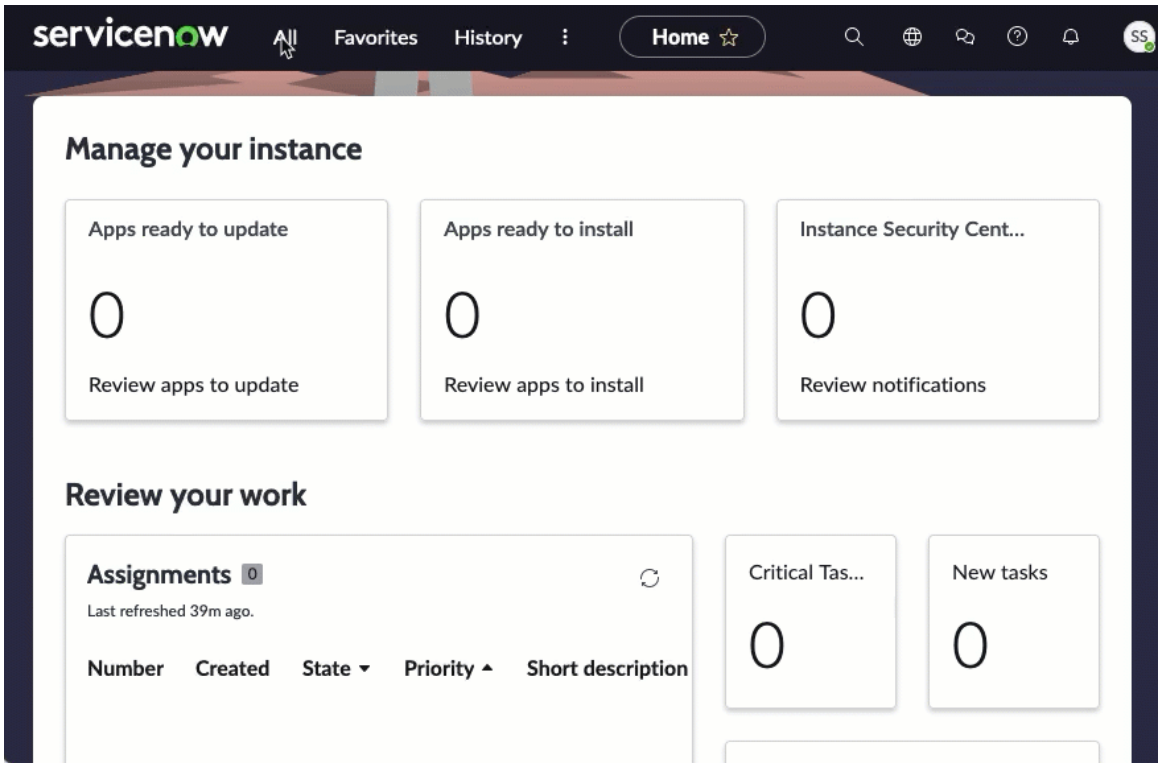
See Define a report drilldown for the report types that don't support the drilldown feature.

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report that you want to configure.
3. Select the **Show report structure** icon ( ).
4. Select the link icon (.
5. In the **Set redirect URL** dialog box, enter relative link within the instance, for example, `/$knowledge.do?sys_id=123`.
   When the user points to the report, the tooltip includes the text **Click to open**.
6. **Optional:** Enter a label for the URL.
   When the user points to the report, the tooltip includes the text **Click to open** and the text of the label, for example, Click to open Knowledge Base.

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7. Select **Save**.



Result
When you select the report, the redirect URL replaces any drilldown functionality.

Add an additional group by or stack by

You can configure a report to let users adjust its grouping and stacking.

Before you begin
Role required: itil, report_user

About this task
Configure **Additional group by** and **Stack by** choices that users can select when viewing the chart. Additional group bys can be added to any report that supports group bys (such as bar or pie) and to list reports as columns. When you configure an additional group by to a bar or horizontal bar, it is also added as an additional stack by. You can add variables and variable groups as additional group bys.

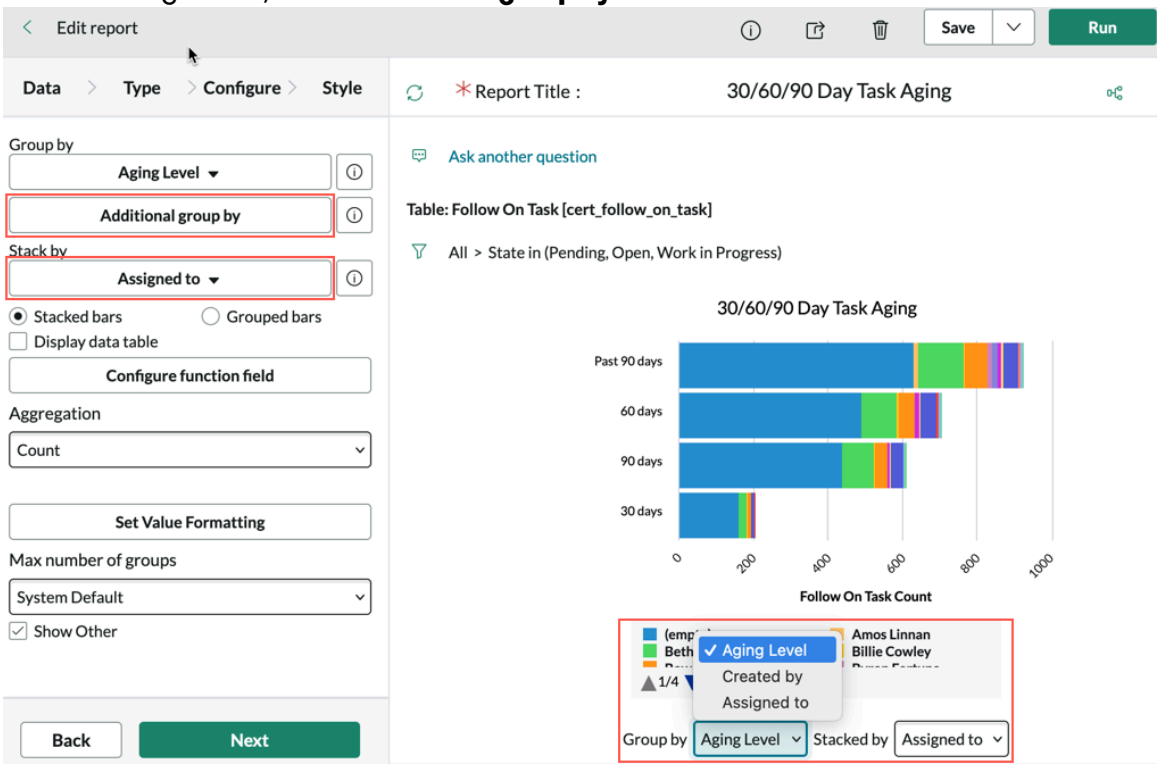
Note:

- Available **Stack by** fields are limited to catalog variables, reference fields, choice lists, and boolean values. Date/time, integer, long, string, list, and text fields cannot be used as stacked fields.
- You can see choices in the **Additional group by** list that do not appear in the main **Group by** list. The report does not support grouping or stacking by the extra fields you see. Unlike the main **Group by** choices, the **Additional group by** fields are not filtered. If you select an unsupported field, it has no effect.
- When you select an Additional Group by field on a report and then export that report, the export shows only the initial group by set on the report, not the additional group by that you have selected.

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Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select a report.
3. On the Configure tab, select **Additional group by**.



4. Move one or more fields to the **Selected** list.
5. **Optional:** Select a **Stack by** field used to show the relationship of individual items from the selected field to the whole.

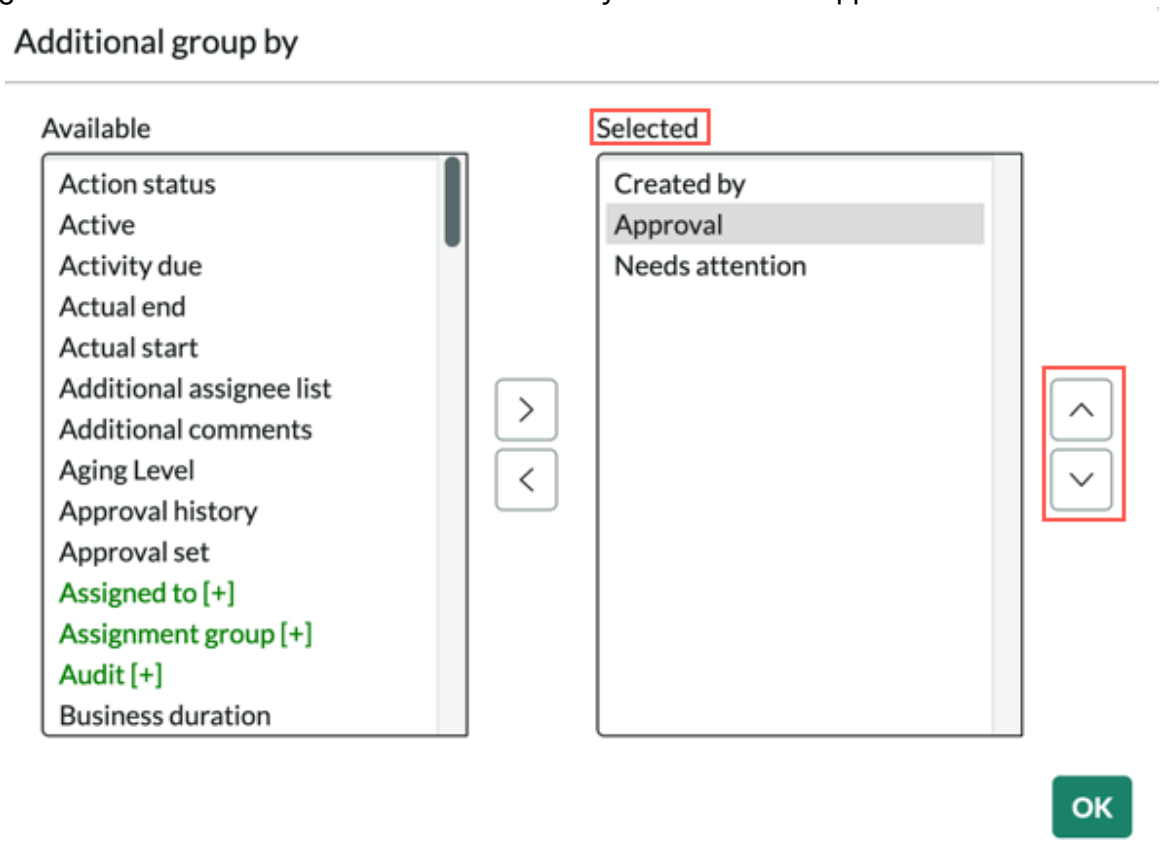
   (Optional) For example, group a bar chart of incidents by **Category** and stack by **Priority**. The viewer can then determine at a glance the proportion of high, medium, and low priority issues for each category.

   Users viewing the report can select one of these fields to group or stack the report data. The report **Group by** and **Stack by** field values are the default choices.

> **Note:**
> Only bar and horizontal bar reports use stacked data. Other report types allow only grouping.

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6. Arrange the fields in the **Selected** column in the order you want them to appear to users.



7. Select **OK**.
8. Select **Save**.

Using multiple datasets in a report

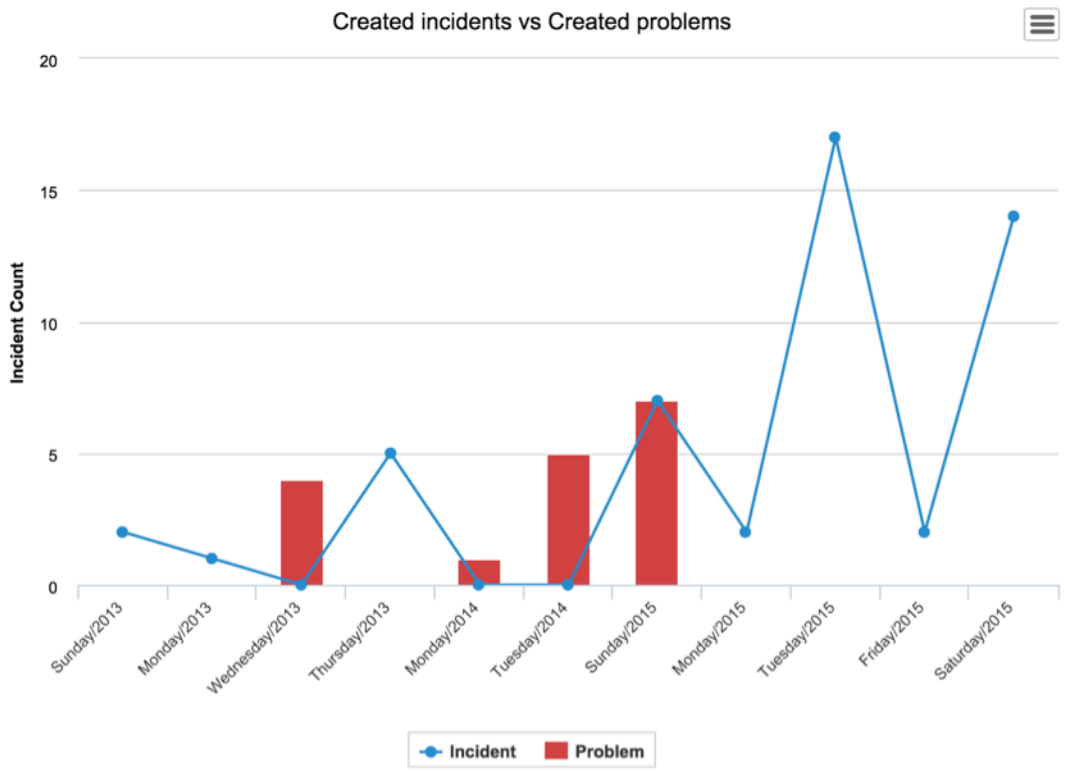
You can create reports that use datasets from up to five tables in a single report.

The following report types support multiple datasets: bar, horizontal bar, column, line, step line, area, spline.

Multiple **Group by**s are not supported on multiple datasets. When using multiple datasets, the report legend is always displayed.

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Incident and Problem data in one report



Restrictions

Bear the following restrictions in mind when creating a report with multiple data sets:

- Up to a maximum of 5 additional datasets can be added to any particular report. Keep in mind that each additional dataset will require additional processing and querying of the database, so if a particular report is experiencing performance issues, it could be due to the fact the report has multiple data sets associated.
- All datasets associated with a parent report must be of the same type (such as bar, donut, or pie) as the parent report.
- For multiple datasets associated with a time series chart, all additional data sets must have the same setting in the Per field as the parent report.
- For multiple datasets on a Bar or Horizontal Bar chart, all associated datasets must have the same Group By value.
- The Show Legends option is always, by default, displayed on a report with multiple datasets, even if the parent report has this option unselected.

Add an additional dataset to a report

Add up to five extra datasets to visualize data from multiple sources in a single report.

Before you begin

Role required: itil, report_user. The property *`glide.ui.doctype`* must be enabled.

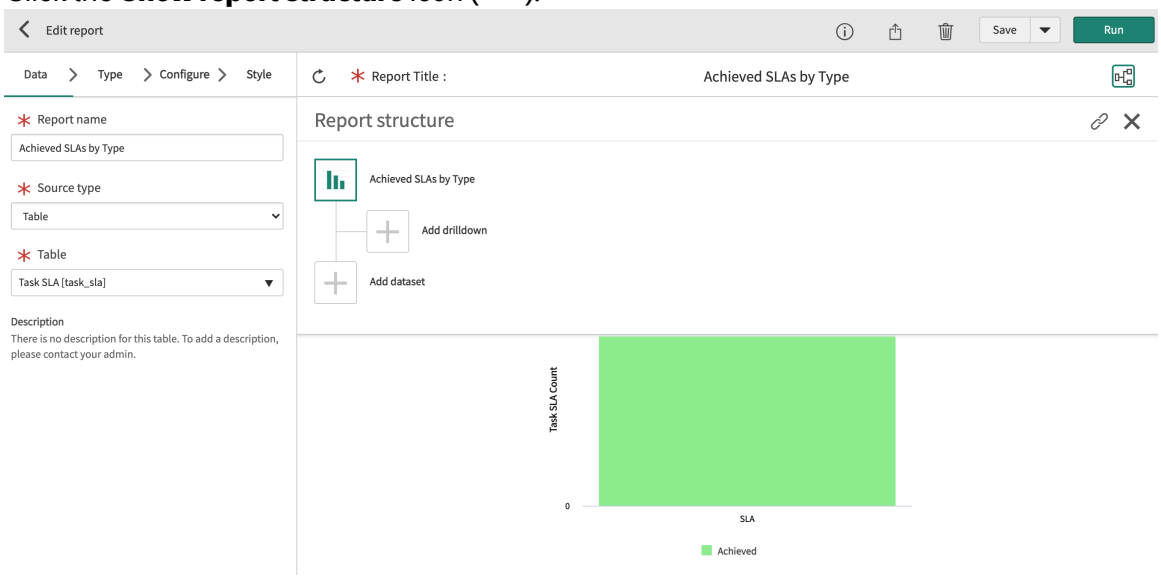
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Procedure

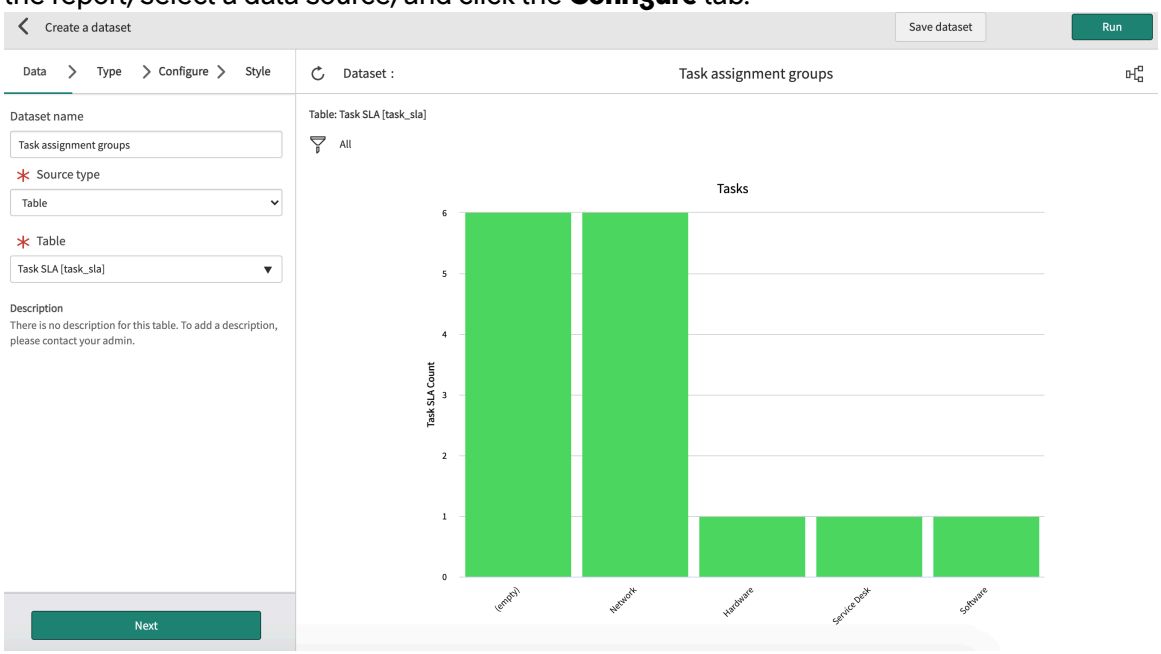
1. Navigate to **All** > **Reports** > **View / Run**.
2. Create a report of a type that supports multiple datasets, or select an existing report of one of these types.

   You can add additional sets to bar, horizontal bar, line, column, area, and spline reports.

3. Click the **Show report structure** icon ( ).



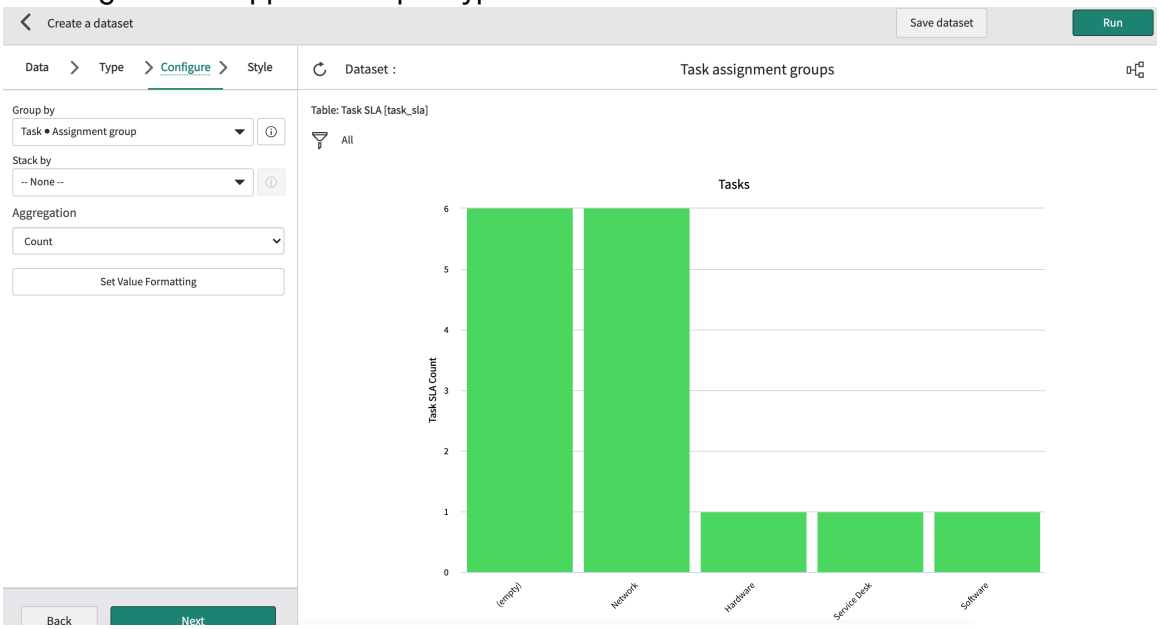
4. Select **Add dataset**.
5. On the **Data** tab, provide a custom name for the additional data set to appear in the legend of the report, select a data source, and click the **Configure** tab.



6. On the **Configure** tab, specify applicable fields the same way that you would configure a standalone report.

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The dataset must have the same Group by and Stack by values as the parent report. The dataset should also have the same aggregation on the same field. Note attention to the following fields on applicable report types.



Note:
The **Display data table** option is not available from the **Add dataset** module, but is only available from the **Configure** tab of the main Report Designer. If the **Display data table** option is selected, only the first dataset will display on the data table.

7. On the **Style** tab, specify the following fields the same way that you would configure a standalone report.
8. Click **Save dataset**.

Result
The report is generated with the information from the additional dataset.

Create a report from an imported Microsoft Excel document

You can import Excel spreadsheets (`.xlsx` files) of data maintained outside of your instance and create reports from those files.

Before you begin
Role required: pa_admin, report_admin

You must have the subscription version of Performance Analytics to create reports with imported data. See Activate your Performance Analytics subscription.

The following restrictions apply to imported data:

- The maximum file size is 2 MB.
- The maximum number of rows is 10,000. The maximum number of columns is 25.

Note:
You can import `.xlsx` files of up to 50,000 rows, but only the first 10,000 rows appear in your data set.

- Only the first sheet of an `.xlsx` file with multiple sheets is imported.

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- The first row and first column of the imported file must not be empty. The first row is used to identify the column names.
- It is not possible to join columns, calculate fields, or make other changes to the table after import. These changes must be made before import.
- The imported `.xlsx` file must have a specified expiration date.
- If the owner deletes the table after import, reports based on the imported table are also deleted.

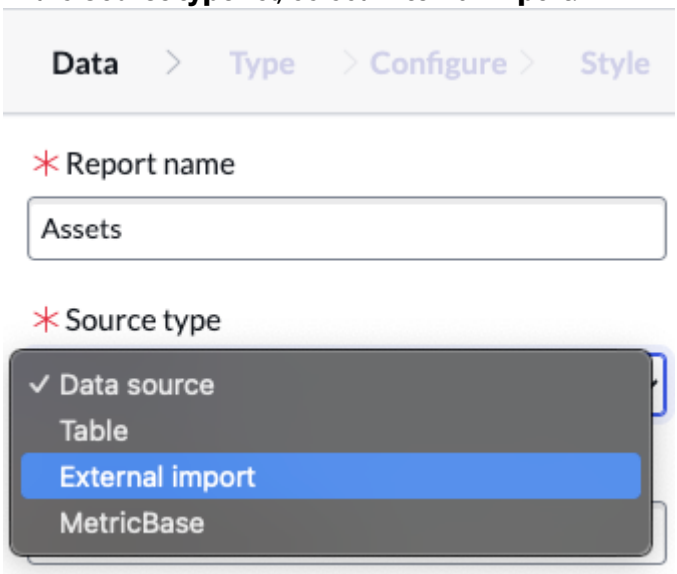
Note:
Report_view access control lists (ACLs) have to be defined for users to view these reports. For more information, see Report_view access control.

About this task

Importing report data in this way is useful when you have information that is maintained outside of your instance, for example, recurring third-party data. To import an external data set into your instance permanently, see Importing data using import sets.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. In the **Source type** list, select **External import**.



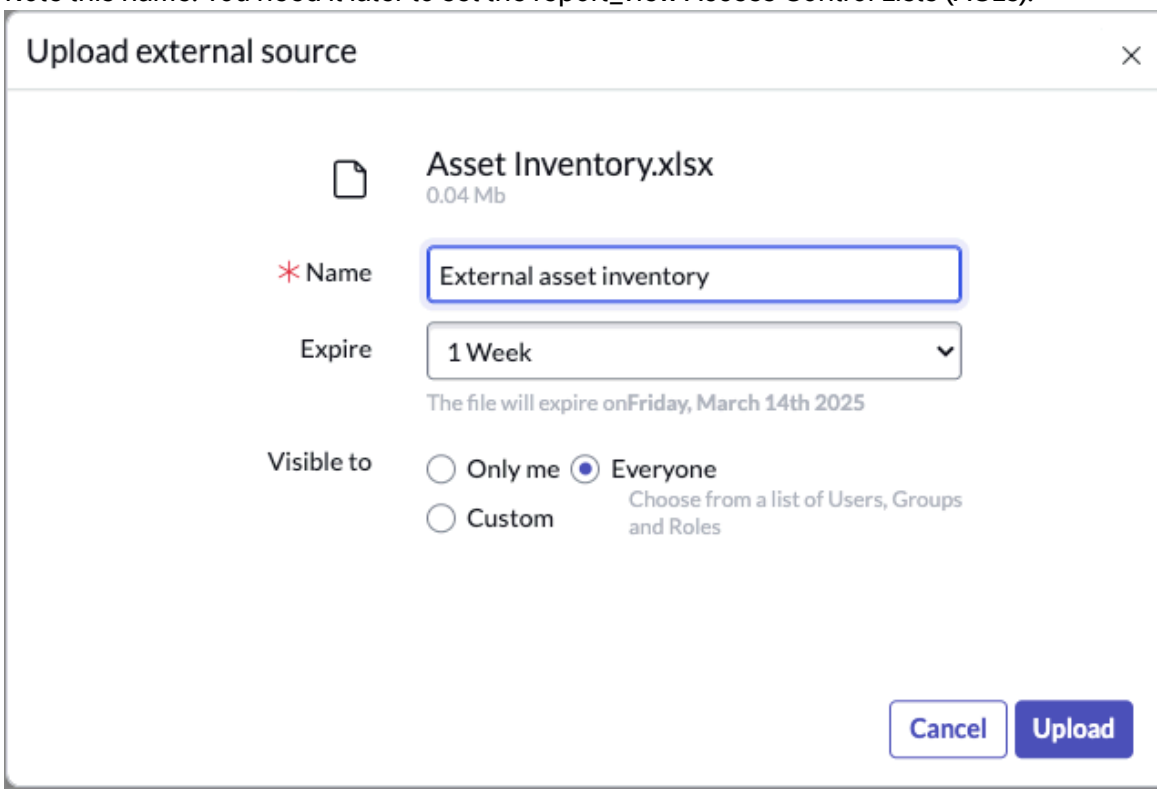
Note:
The **External import** menu option is only available if the subscription for Performance Analytics is enabled.

4. Choose an existing imported report source, or select the **Upload** icon ( ) icon to import a file.
5. If you selected **Upload**, follow these steps:

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a. Select and drag the file onto the drop zone that opens, or select **Browse files** to choose it from your file system.

b. In the Upload external source dialog that opens, specify a name for the report source being created from the uploaded file.
Note this name. You need it later to set the report_view Access Control Lists (ACLs).



c. Set the expiration of the report source.
After this date, the imported file is deleted and reports based on it are no longer available.

d. Select who can see the report source:

- Only you
- All users
- Specified users, groups of users, or roles

Note:
This setting does not affect report_view ACLs.

e. Select **Upload**.

f. Select **Done**.
The file is saved as a new table on your instance.

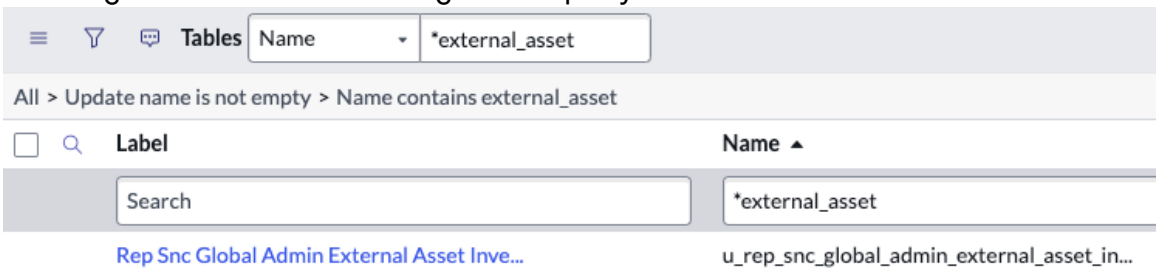
6. Select **Next**.
7. Complete report creation as normal.
For information on specific report types, see Report types. For general information about creating reports, see Create a report.

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8. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.
9. Create report_view ACLs for the table you created when you uploaded the external data in Step 4.
   To view the report you created, users must have report_view access to this table.

   a. Navigate to **All** > **System Definition** > **Tables**.

   b. Search for a table whose name contains the name of the report source you specified in Step 4b.
   For example, if you uploaded a file named 'External asset inventory,' you would search for `*external_asset` and find the table u_rep_snc_global_admin_external_asset_inventory, reflecting that it was created in the global scope by an admin user.



   c. Copy the table name.

   d. Navigate to **All** > **System Security** > **Access Control (ACL)**.
   The admin role with the elevated security_admin role is required. If you are not an admin, consider passing the table name to a ServiceNow AI Platform administrator along with a request for the desired roles to have report_view read permission.

   e. Create report_view ACLs for roles that you want to be able to read the report, as described in Report_view access control.

Result
The report is created from the external source. On a dashboard, this report has an icon to show that the report is temporary and expires when the external data source expires.

What to do next
Share the report, as described in Distribute reports.

Edit an imported data source

You can edit imported Excel spreadsheets (`.xlsx` files) of data maintained outside of your instance.

Before you begin
Role required: None, but only the person who imported the data source can edit it.

About this task

Procedure
1. Navigate to **All** > **Reports** > **View / Run**.
2. Click the name of a report that uses to imported data source to open the report in the Report Designer.

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3. On the **Data** tab, click the pencil icon ( ) next to the name of the external import.
4. In the **Edit external import** dialog box you can make these changes:

   Change file

   Select this option to upload a new `.xlsx` file with the same name and structure.

   Name

   Provide a new name for the external import. This name appears on the **Data** tab of the Report Designer in the **External Import** list.

   Expire

   Set a new expiry date for the external import.

   After this date, the imported file is deleted and reports based on it are no longer available.

   Visible to

   Change the visibility for the uploaded file: Only you, Everyone, or Custom. Select **Custom** to specify users, groups, or roles.

   If you select **Custom**, click **Next** to choose who can use the data in the imported file and click **Submit**.

5. Click **Submit**.

Result

If you changed the file, the data from the new file replaces that of the old in any reports that are based on the imported file. Changed name, expiry date, and visibility apply to the imported file.

Create reports from MetricBase time-series data

Use the MetricBase application to create time-series reports from MetricBase data.

Before you begin

You must have the MetricBase product. To get it, see Requesting the MetricBase product. For more information about MetricBase, see MetricBase.

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

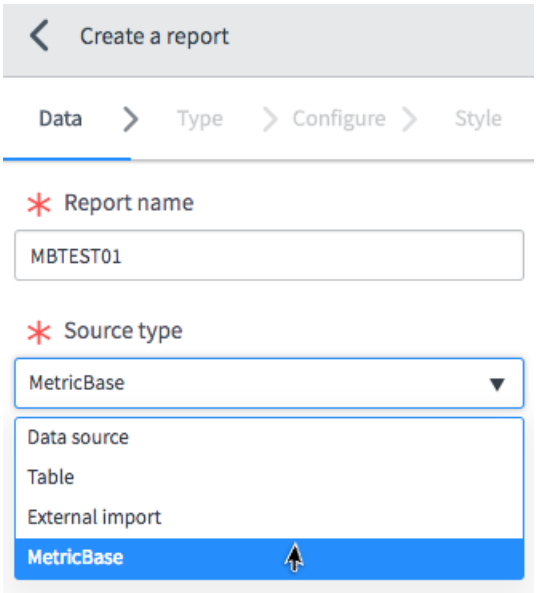
Procedure

1. Navigate to **All** > **Reports** > **Create New**.
2. On the **Data** tab, enter a report name that reflects the information in the report.
3. In the **Source type** list, select **MetricBase**.

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Note:

- The **MetricBase** menu option is available only if you have MetricBase installed on your instance.
- The default maximum number of series per data set is 20. You can increase the maximum value up to 100 by configuring the *glide.report.metric_max_series* system property. However, due to the 10,000 data points limit, increasing the number of series in a data set results in a smaller number of data points per series.
- The total number of data points that can be displayed per series is 10,000 / (actual number of series in dataset * number of data sets). For example:
  - 1 dataset used with 20 series: 10K / (20*1) = 500
  - 2 datasets used with 20 series: 10K / (20*2) = 250
  - 1 dataset used with 100 series: 10K / (100*1) = 100
- If the actual number of data points in a series exceeds the limit, the data is resampled.



4. Choose an existing MetricBase table.
5. Click **Next**.
6. On the **Type** tab, select the type of report to create and click **Next**.
   Only time series reports are available. For information on specific reports types, see Report types. To view the updated report, click **Run**.
7. On the **Configure** tab, fill in the following fields and select **Next**.

Configure tab form

Field	Description
Group by	Report data that you group by any of the applicable fields in the Metrics table.
Metric	Metrics determined in your MetricBase database. Click the plus icon (**+**) to add multiple metrics. For each metric, you can set one or more transforms. Click the minus icon (**-**) to remove a metric.
Transform	Data is altered.

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Field	Description
	○ Select no transforms to show the raw data in your report. ○ Select one transform. ○ Select multiple transforms to create a transform chain. A transform chain applies a new transform to the results of the previous transform. For more information, see MetricBase transforms.
Time range	Period of time that the report covers. Relative values are a number of minutes, hours, days, months, or years from the current time. Absolute ranges enable you to specify the start time and end time of the report.
Display data table	Select this option to show report data in a list below the report. The list appears on dashboards where the report is added. All report visualizations show the report data when the glide.ui.section508 system property is set to **true**. The glide.ui.section508 property overrides the **Display data table** field.

8. **Optional:** To limit the information displayed in the report, select the filter icon ( ) and specify conditions to filter the report data.
   To learn how to construct conditions, see Condition builder.

   Note:
   In aggregated and list reports, language-dependent filter conditions may return zero results on localized instances.

9. On the **Style** tab, fill in the fields as appropriate to configure the appearance of the report. See the Style options section of the report that you are creating for more information.
   - Area and spline report style options
   - Line report style options
   - Step line report style options
10. Select **Save** to continue editing the visualization, or **Save and close** to return to the Analytics Center main screen.

Result

The report is created from the MetricBase source. If the report visualization is truncated, a message appears.

What to do next

- Select the Report info icon ( ) and add a description of the report.
- Select the sharing icon ( ) to open the **Sharing** menu. On this menu, you can add the report to a dashboard, export the report to PDF, publish the report to the web, and set visibility and schedules.

MetricBase transforms

Transforms enable you to visualize MetricBase data in different ways.

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Available transforms

All transforms except for the **Label** transform are mathematical functions you can apply to the metrics data. Apply multiple transforms to create a transform chain.

Transform	Description
Add	Calculates an outcome by adding the specified value to the data points in the dataset.
Average	Calculates the arithmetic means of all currently selected metrics.
Bottom	Shows only the lowest specified number of values of the metric dataset.
Chi-square	Shows how well a statistical model fits the metric dataset.
Count	Shows the count of data points within the metric dataset.
Decompose	Separates out components of predictive models. You can decompose and request both the min and the max to get the lower and upper bounds of a predictive model.
Divide	Calculates an outcome by dividing the data points in the dataset by a specified value.
Envelope	Shows the minimum and maximum values of the metric dataset.
Filter	Produces a new series with values calculated using the given aggregation function over a sliding time window of the given duration. A sliding 15-minute average would use the Filter transform with the **Average** aggregation function and a duration of 15 minutes. Supported aggregation functions: • AVG • CHISQUARE • LAST • MAX • MEDIAN • MIN • STDDEV
Fit	Generates a prediction model that can be used by the model-based trigger.
Fractiles	Returns a new series with values representing the given percentiles of the underlying data. For example, to query for the 90th and 99th percentile response times, supply an array of [0.9,0.99].
Interpolate	Constructs new data points a specified duration to calculate an outcome.
Label	Enables you to set a label for your transform.
Last	Returns the last defined value in the period window.
Log	Calculates the natural logarithm of all values in the dataset.
Max	Shows the largest value at each point in time for the metric dataset.
Median	Shows the median of the metric dataset. The median separates the higher values of the metric dataset from the lower values.

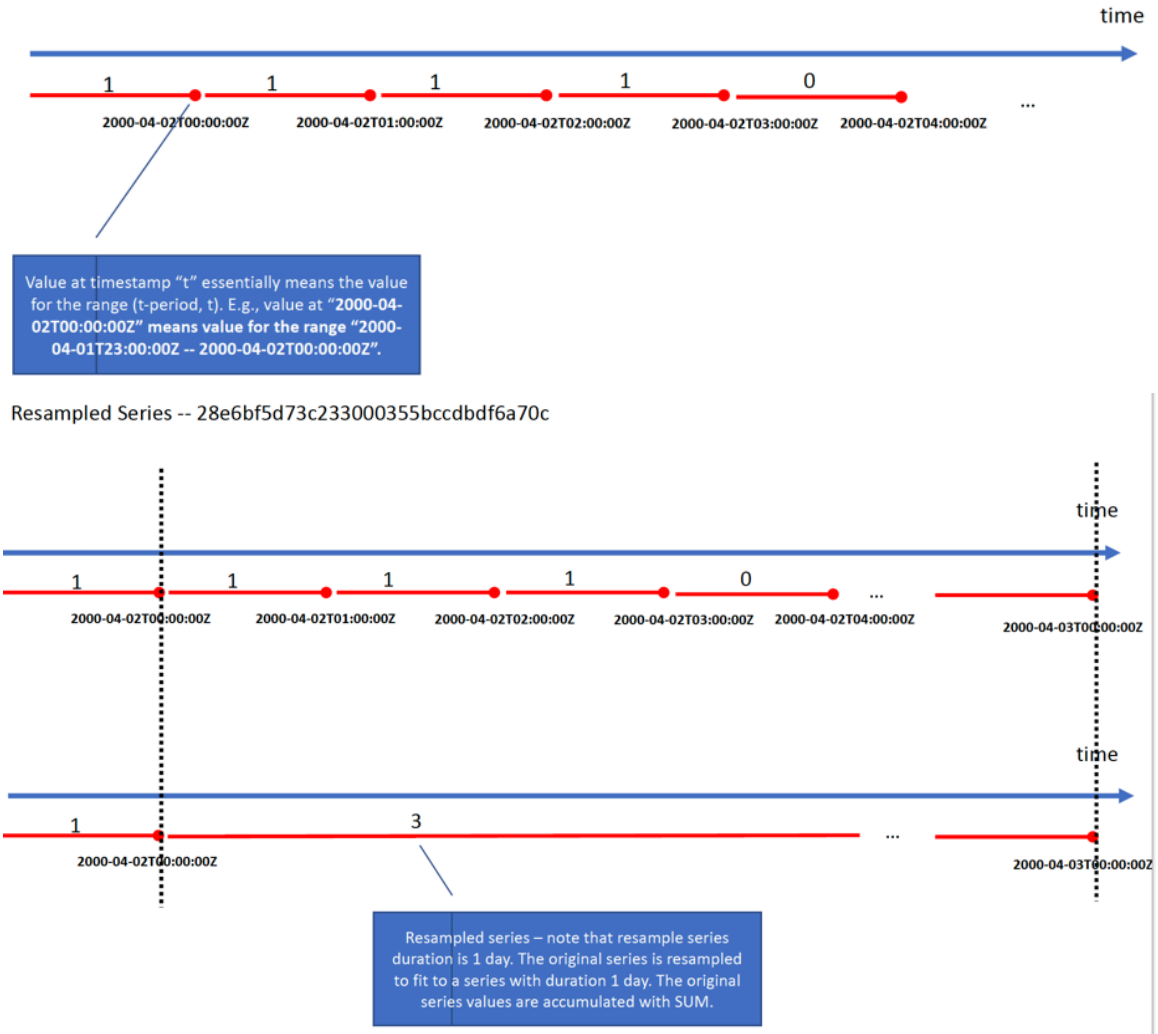
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Transform	Description
Min	Shows the smallest value at each point in time for the metric dataset.
Multiply	Calculates an outcome by multiplying the data points in the dataset by a specified value.
Partition	Produces a new series with values calculated using the given aggregation function over a fixed time frame of a given duration. Specify the **Base** (a timestamp) to align the partition window. Supported aggregation functions: • AVG • CHISQUARE • LAST • MAX • MEDIAN • MIN • STDDEV
Predict	Compares predicted time-series data generated by the prediction model selected in the MetricBase Models table (mb_model) to real data. The predicted and real data can be graphed. Prediction triggers are based on the predicted values as well as thresholds. Thresholds are values above and below the predicted value. Real data that falls outside of those thresholds execute prediction triggers.
Put	Copies a time-series metric into a different MetricBase time-series metric, for example, `copyData('targetMetric').put()`.
Resample	Expands or contracts the data to fit the given period. When you extend the period, the aggregation function is used to combine the data to fit the new period. When you shorten the period, the existing data is propagated to the underlying periods. Supported aggregation functions: • AVG • CHISQUARE • LAST • MAX • MEDIAN • MIN • STDDEV
Standard Deviation	Calculates the standard deviation across the underlying data. Used to quantify the variation or dispersion of a set of data values in the metric dataset.
Subtract	Calculates an outcome by subtracting the specified value from the data points in the dataset.
Sum	Calculates the sum of the data points within the metric dataset. See Sum transform for more information.
Top	Shows only the highest specified number of values of the metric dataset.

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Sum transform

A value at timestamp “T” denotes the value for the range (T-period, T). In your query, *sum()* gives the input series. You have one series and then you resample the original series into a new series with period = 1 day. When you resample the original series to a period, it creates two data points (2000-04-02T00:00:00Z and 2000-04-03T00:00:00Z). The value at 2000-04-02T00:00:00Z is 1 because there is one data point. The value at 2000-04-03T00:00:00Z is calculated by aggregating values in the range (2000-04-02T00:00:00Z, 2000-04-03T00:00:00Z]. The value is equals 3.



In this example, the result of

```
var startTime = new GlideDateTime('2000-04-02 00:00:00');
var endTime = new GlideDateTime('2000-04-02 23:00:00');
transformer.metric('u_cost').sum().resample('SUM',
 GlideDuration('1 00:00:00'))
```

is [1, 3] rather than [4].

```
====== rest api result for GET ======
{
  "seriesRef": {
    "subject": "28e6bf5d73c233000355bccdbdf6a70c",
    "table": "sn_cld_intg_aws_cost_usage",
    "metric": "u_cost"
  },
```

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```
  "label":
 "28e6bf5d73c233000355bccdbdf6a70c:sn_cld_intg_aws_cost_usage|u_
cost",
  "values": [
    {
      "timestamp": "2000-04-02T00:00:00Z",
      "value": 1
    },
    {
      "timestamp": "2000-04-02T01:00:00Z",
      "value": 1
    },
    {
      "timestamp": "2000-04-02T02:00:00Z",
      "value": 1
    },
    {
      "timestamp": "2000-04-02T03:00:00Z",
      "value": 1
    },
    {
      "timestamp": "2000-04-02T04:00:00Z",
      "value": 0
    },
    {
      "timestamp": "2000-04-02T05:00:00Z",
      "value": 0
    },
    ...
    {
      "timestamp": "2000-04-02T23:00:00Z",
      "value": 0
    },
    {
      "timestamp": "2000-04-03T00:00:00Z",
      "value": 0
    }
  ]
}
```


Configure charts on forms

You can add reports to forms such as change requests, and configure the report visualizations to display information relevant to the user of the form. The configuration is specific to the current view.

Before you begin

Role required: admin

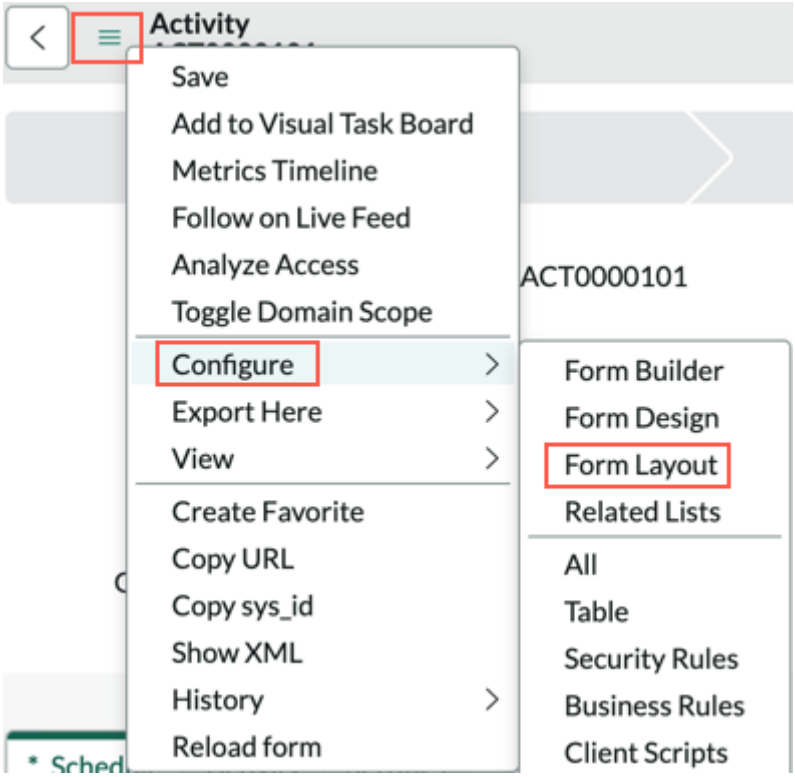
The following report types are not supported on forms: List, Pivot, Multilevel Pivot, Calendar, and Single Score.

Procedure

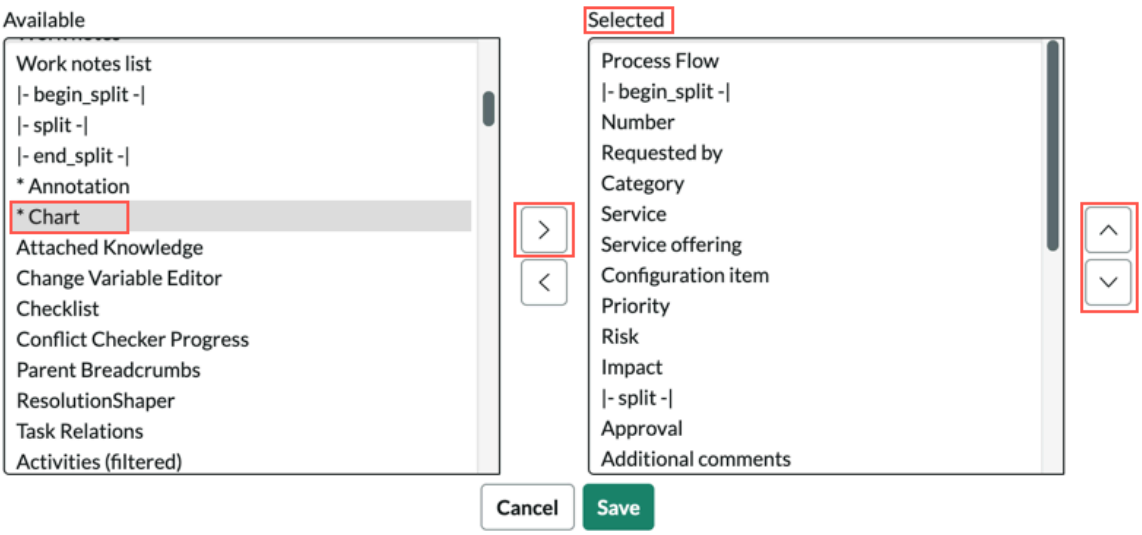
1. Select the table on which you want to configure a form with a report in the **Filter navigator** and select a record.
   For example, select a record from `task.list`.

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2. From the context menu ( ), select **Configure** > **Form Layout**.



3. From the **Available** list, add `*Chart` to the **Selected** column.
Use the up and down arrows to position the report on the



form.

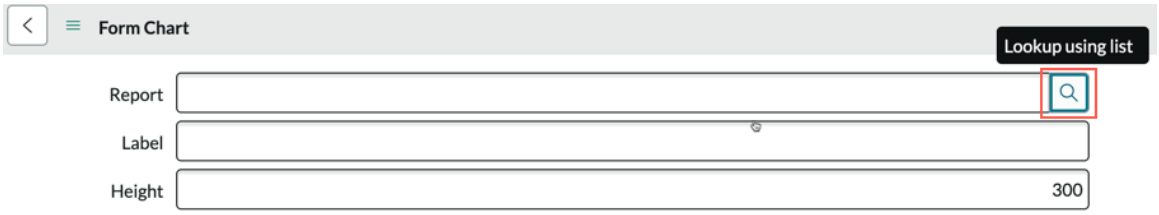
4. **Optional:** Specify a label for the chart.
This option appears when you select the up or down arrow to specify the report's place on the form. The label appears next to the report in the form. If you do not specify a label, the label New Chart is used.

5. Select **Save**.
The text **Configure chart** appears on the form in the specified position.

6. Select **Configure chart**.

7. Select the search icon ( ) to select a report.

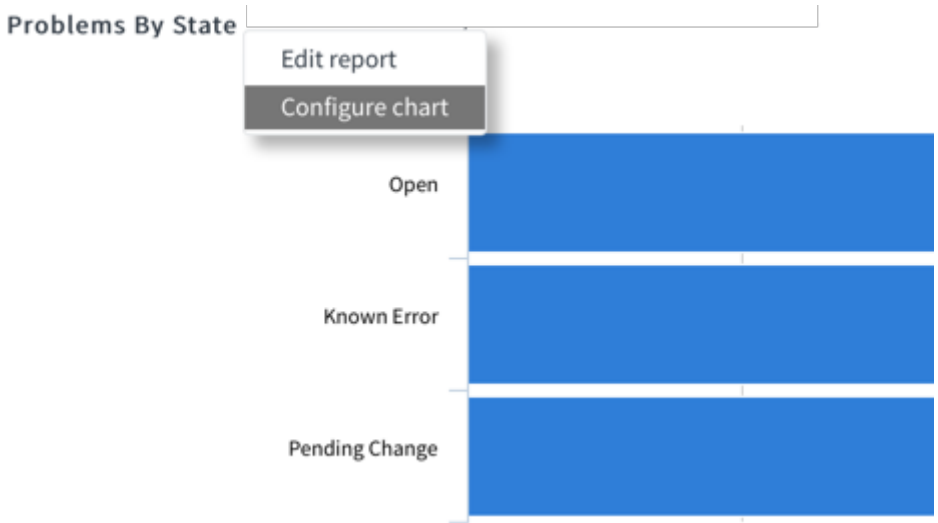
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8. **Optional:** Specify the height of the chart.
   The default value is 300 pixels.
9. **Optional:** You can filter the data in the report based on selected fields or based on a scripted filter or an encoded query.
   The first field must be visible on the form. To add fields to the form, select **Configure** > **Form Layout** move the field from the **Available** column to **Selected**.

   On the **Report condition extension** tab, select the form field on which the report is updated and the field on the report source table to which the form field is compared.

   To specify a scripted filter or an encoded query, select **Advanced condition Extension** and paste the script in the **Report Qual** text box. Advanced condition extensions, if present, override report condition extensions.
10. Select **Update**.
11. To change the configuration, right click on the label and select **Configure chart**.



Result
The selected report appears on all forms which are of the same type as the one selected. These reports are filtered based on the report condition extensions.

Embedding reports in Jelly

You can embed reports in any Jelly-based element, such as a UI page.

Enabling Embedding

To enable embedding reports in Jelly, add the following element to your Jelly code.

```
<g:inline template="reporting_includes.xml" />
```

After adding this code, you can embed an existing report, or generate a report within the Jelly code.

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Embedding an existing report

You can embed an existing report by calling the `embedReportById(targetSpan, reportId)` function.

For example, add the following to the HTML/XML block in the UI page record:

```
<xml version="1.0" encoding="utf-8">
    <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
    <g:inline template="reporting_includes.xml" />
    <div id="report_stuff" />
    </j:jelly>
```

And add the following to the Client script block in the UI page record. Replace <report sys_id> with the report's actual sys_id:

```
var div = $j("#report_stuff");
embedReportById(div, <"report sys_id">);
```

Alternatively, you can embed the JavaScript in the jelly code entirely in the HTML/XML block. Add the code from the client script block between <script> tags:

```
<xml version="1.0" encoding="utf-8">
    <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
    <g:inline template="reporting_includes.xml" />
    <div id="report_stuff" />
    <script>
        var div = $j("#report_stuff");
        embedReportById(div, <"report sys_id">);
    </script>
    </j:jelly>
```

Parameters

Parameter	Description
targetSpan	The jQuery element to embed the chart in. The chart uses the size of this element.
reportId	The sys_id of the report you want to embed.

Generate and embed a report

You can embed a report within the UI by calling the `embedReportByParams(targetSpan, parms)` function. When embedding a report in this way, you can generate a new report using parameters, or specify a report sys_id to display that report.

For example, add the following to the HTML/XML block in the UI page record:

```
<xml version="1.0" encoding="utf-8">
    <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
    <g:inline template="reporting_includes.xml" />
    <div id="report_stuff" />
    </j:jelly>
```

And add the following to the Client script block in the UI page record:

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```
var params = {sysparm_title: "Average for all ratings",
 sysparm_field: "category", sysparm_type: "bar", sysparm_table:
 "asmt_category_result", sysparm_aggregate: "AVG",
 sysparm_sumfield: "rating"};
var div = $j("#report_stuff");
embedReportByParams(div, params);
```

Alternatively, you can embed the JavaScript inside the jelly code. Add the code from the client script block between <script> tags:

```
<xml version="1.0" encoding="utf-8">
    <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
    <g:inline template="reporting_includes.xml" />
    <div id="report_stuff" />
    <script>
        var params = {sysparm_title: "Average for all
 ratings", sysparm_field: "category", sysparm_type: "bar",
 sysparm_table: "asmt_category_result", sysparm_aggregate:
 "AVG", sysparm_sumfield: "rating"};
        var div = $j("#report_stuff");
        embedReportByParams(div, params);
    </script>
    </j:jelly>
```

Parameters

Parameter	Description
targetSpan	The jQuery element to embed the chart in.
parms	A JSON object defining the report. Available parameters depend on the report type.

Generating and embedding a list report

When you embed an existing list report or generate a list report and embed it, you must enter one more line of code.

Add the following to the HTML/XML block in the UI page record:

```
<xml version="1.0" encoding="utf-8">
    <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
    <g:inline template="reporting_includes.xml" />
    <g:inline template="list2_js_includes.xml" />
    <div id="report_stuff" />
    </j:jelly>
```

Add the following to the Client script block in the UI page record. Replace <report sys_id> with the report's actual sys_id:

```
var div = $j("#report_stuff");
embedReportById(div, <"report sys_id">);
```

Or embed the JavaScript in the jelly code entirely in the HTML/XML block. Add the code from the client script block between <script> tags:

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```
<xml version="1.0" encoding="utf-8">
     <j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
     <g:inline template="reporting_includes.xml" />
     <g:inline template="list2_js_includes.xml" />
     <div id="report_stuff" />
     <script>
          var div = $j("#report_stuff");
          embedReportById(div, <"report sys_id">);
     </script>
     </j:jelly>
```

Parameters

Parameter	Description
targetSpan	The jQuery element to embed the chart in. The chart uses the size of this element.
reportId	The sys_id of the report you want to embed.

Embedded report parameters

When embedding a report in a Jelly element, you can define a report at any time by passing parameters.

Common parameters

Certain parameters are used by multiple report types.

Common parameters

Parameter	Description	Default value
jvar_report_id	The sys_id of a report record. If you pass this parameter, do not specify any other parameters. All values are taken from the report record.	
sysparm_report_id	Use this parameter instead of jvar_report_id when you want to override any of the other sysparm parameters that exist in the report.	
sysparm_title	The title of the report.	
sysparm_table	The table to report on. Specify this value or sysparm_report_source_id, but not both.	
sysparm_report_source_id	The sys_id of a report source. Specify this value or sysparm_table, but not both. This value is used instead of sysparm_table if you pass both.	
sysparm_type	The type of report to create. Possible values: list, line, line_bar, area, spline, bar, horizontal_bar, pareto, hist, pie, donut, semi_donut, speedometer, dial, pivot, pivot_v2, funnel, calendar, pyramid, box, trend, control, trendbox, and heat map.	line

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Common parameters (continued)

Parameter	Description	Default value
sysparm_field	The field from the specified table to group data by. Required for time series, column, bar, pie, donut, funnel, pyramid, box, trend, and trendbox reports. Optional for list reports.	
sysparm_query	The filter to apply to the data before generating the report. Specify a query string for this value. To sort your query results by a specific field, add `^ORDERBY<field_name>` or `^ORDERBYDES<field_name>` to the end of the query string. ORDERBY sorts the query by ascending order. ORDERBYDES sorts the query by descending order.	
sysparm_aggregate	The aggregation type. Possible values: AVG, COUNT, SUM, and COUNT_DISTINCT	COUNT
sysparm_sumfield	The field to aggregate data on. This parameter does not apply when using a COUNT aggregation type.	
sysparm_display_grid	A true/false value that controls whether the report displays a data grid.	false
sysparm_show_other	A true/false value that controls whether the Other group appears on the report. This group appears only if the number of groups exceeds the number specified in the sysparm_others parameter. This parameter applies to bar, pie, funnel, pyramid, pivot, and heat map reports.	true
sysparm_others	The maximum number of individual groups of data to display. Any additional data groups are combined into the Other group. This parameter applies to bar, pie, funnel, pyramid, pivot, and heat map reports.	
sysparm_source_type	The source of the embedded report. Optional. Possible values: table, metricbase, source, import	table
sysparm_set_color	The color setting for the report. Possible values: one_color, color_palette, several_colors	color_palette
sysparm_color_palette	The color palette that the report uses. This parameter is used when sysparm_set_color="color_palette". Possible value: The sys_id of a color palette	Default UI14

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Common parameters (continued)

Parameter	Description	Default value
sysparm_color	The color that the report uses. This parameter is used when sysparm_set_color="one_color". Possible value: The sys_id of a color	
sysparm_chart_colors	The set of chart colors that the report uses. This parameter is used when sysparm_set_color="several_colors". Possible value: A comma-separated list of color hex codes	
sysparm_show_marker	A marker is the value represented by a dot in a line or another graphic element in a chart. This parameter is a true/false value that controls whether the marker appears.	true
sysparm_show_empty	A true/false value that controls if records with empty grouping or trend values appear on the report.	false
sysparm_stack_field	The field used to control stacking on bar and column reports.	
sysparm_bar_unstack	A true/false value that controls if stacked data is presented as a single bar or column, or as multiple bars.	false
sysparm_box_field	The numeric field used to measure the data. This parameter is required for box and histogram reports.	
sysparm_trend_field	The date-time field used to organize trend data. This parameter is required for time series, trend, and box reports.	
sysparm_trend_interval	The interval to measure trend values by. Possible values: year, quarter, month, week, dayofweek, hour, and date.	year
sysparm_compute_percent	The value to use when displaying report percentages. You can display percentages based on the total record count, or by the specified aggregate. Possible values: aggregate and count	count
sysparm_funnel_neck_percent	A number 1–100 that defines the percentage of a funnel report that is the neck of the funnel.	30
sysparm_show_chart_data_label	A true/false value that controls if data labels appear on the report.	false
sysparm_show_zero	A true/false value that controls if zeroes appear on multilevel pivot and heat map reports.	

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Common parameters (continued)

Parameter	Description	Default value
sysparm_ct_row	The field used to define the rows in heat map and bubble reports.	
sysparm_ct_column	The field used to define the columns in heat map and bubble reports.	
sysparm_y_axis_category_fields	The field used to define the rows in multilevel pivot reports. Specify up to five comma-separated field names.	
sysparm_x_axis_category_fields	The field used to define the columns in multilevel pivot reports. Specify up to three comma-separated field names.	
sysparm_list_ui_view	The sys_id of a list view to use when a user drills into the report.	
sysparm_show_marker	A true/false value that controls if markers appear at every plotted point on a report.	true
sysparm_apply_alias	A true/false value that controls if configured aliases appear in embedded reports.	

Service catalog parameters

Certain parameters apply only to reports created on service catalog tables, such as the Requested Item [sc_req_item] table. These parameters are not available on list or calendar type reports.

Service catalog report parameters

Parameter	Description
sysparm_sc_groupby_item_id	The sys_id of a catalog item. Use this parameter with the *sysparm_sc_groupby_variable_id* parameter to group a service catalog report based on a catalog variable value. These parameters replace the *sysparm_field* parameter when grouping on service catalog variables.
sysparm_sc_groupby_variable_id	The sys_id of the catalog item variable used to determine how data is grouped on the report. This variable must belong to the catalog item specified in the *sysparm_sc_groupby_item_id* parameter.
sysparm_sc_stackby_item_id	The sys_id of a catalog item. Use this parameter with the *sysparm_sc_stackby_variable_id* parameter to stack a service catalog report based on a catalog variable value. These parameters replace the *sysparm_stack_field* parameter when grouping on service catalog variables. Only reports that support stacking, such as bar reports, support these parameters.
sysparm_sc_stackby_variable_id	The sys_id of the catalog item variable used to determine how data is grouped on the report. This

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Service catalog report parameters (continued)

Parameter	Description
	variable must belong to the catalog item specified in the *sysparm_sc_stackby_item_id* parameter.

MetricBase parameters

To use MetricBase in an embedded report, the sysparm_source_type parameter must be set to "metricbase".

MetricBase also requires the sysparm_custom_configuration parameter, which has the following syntax:

```
sysparm_custom_config:
 "{query_condition:\"\",transforms:[{transform:{transform:\"Refe
rence\",name:\"chart-subjects\"},metric:\"mb_metricname\"}],
 group_by:\"\", table:\"mb_tablename\"}";
```

In this syntax:

- A `transform` is a chain of nested transform functions. The last transform of every chain must always be the Reference transform:

  ```
  {transform:\"Reference\",name:\"chart-subjects\"}
  ```

- A `metric` is a metric field of a metric table.
- The `group-by` field is the field on the selected metric table by which the time series is grouped.
- `table` refers to the metric table
- `mb_...` are placeholder names

All attributes are required except for `group-by`.

Chart-specific parameters

Certain parameters are available only for specific report types.

Donut report parameters

Parameter	Description	Default value
sysparm_show_chart_total	A true/false value that controls if the total score of the grouped donut appears in the center of the report.	false
sysparm_donut_width_percent	A number 1–100 that controls the thickness of the donut report.	50

Heatmap parameters

Parameter	Description	Default value
sysparm_use_color_heatmap	A true/false value that controls if the heatmap uses a gradient to color the report. When true, the	true

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Heatmap parameters (continued)

Parameter	Description	Default value
	sysparm_axis_max_color and sysparm_axis_min_color values are used.	
sysparm_axis_max_color	The color used in the heatmap gradient to indicate a high value. This value must be the sys_id of a Color Definition [sys_report_color] record.	UI14 blue
sysparm_axis_min_color	The color used in the heatmap gradient to indicate a low value. This value must be the sys_id of a Color Definition [sys_report_color] record.	white

Dial parameters

Parameter	Description	Default value
sysparm_gauge_autoscale	A true/false value that controls if the dial automatically calculates the minimum and maximum scale on the report. If you set this value to false, you must specify a sysparm_from and sysparm_to value.	true
sysparm_from	A number that defines the minimum value for the axis scale.	
sysparm_to	A number that defines the maximum value for the axis scale.	
sysparm_upper_limit	A number that defines the upper threshold for the dial. If you do not specify a value, the dial has no upper threshold.	
sysparm_lower_limit	A number that defines the lower threshold for the dial. If you do not specify a value, the dial has no lower threshold.	
sysparm_direction	A value that controls which values are considered positive on the report, lower values or higher values. Possible values: minimize and maximize.	minimize

Chart size parameters

Certain parameters control the width and height of the report.

Size parameters

Parameter	Description	Default value
sysparm_chart_size	The size of the chart in the report. Valid values are small, medium, and large.	large
sysparm_custom_chart_size	Enable this parameter to specify custom chart height and width values instead of using a size	false

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Size parameters (continued)

Parameter	Description	Default value
	option from the *sysparm_chart_size* parameter.	
sysparm_custom_chart_height	The height of the chart in the report, in pixels.	
sysparm_custom_chart_width	The width of the chart in the report, in pixels.	

Chart title parameters

Certain parameters are available only for reports that display a title. These report types include time series, bar, column, pie, donut, dials, trend, box, trend box, histogram, pyramid, heat map, funnel, and control reports.

Title parameters

Parameter	Description	Default value
sysparm_report_title_size	A number that defines the font size of the title.	16
sysparm_report_title_color	The title text color. This value must be the sys_id of a Color Definition [sys_report_color] record.	black
sysparm_title_horizontal_alignment	Where the title is placed horizontally relative to the report. This value is used only if sysparm_custom_report_title_position is false. Possible values are: left, center, and right.	center
sysparm_title_vertical_alignment	Where the title is placed vertically relative to the report. This value is used only if sysparm_custom_report_title_position is false. Possible values: top, middle, and bottom.	top
sysparm_custom_report_title_position	A true/false value that controls whether the x and y coordinates define the report title position instead of relative alignment.	false
sysparm_report_title_x_position	A number that defines the x position of the title on the report. This value is used only if sysparm_custom_report_title_position is true.	0
sysparm_report_title_y_position	A number that defines the y position of the title on the report. This value is used only if sysparm_custom_report_title_position is true.	0

Chart border parameters

Certain parameters are available only for reports that display a border. These report types include: time series, bar, column, pies, donuts, dials, trend, box, trend box, histogram, pyramid, heat map, funnel, and control reports.

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Border parameters

Parameter	Description	Default value
sysparm_show_report_border	A true/false value that controls whether the report displays a border.	false
sysparm_report_border_width	A number that defines the width of the border, in pixels.	1
sysparm_report_border_radius	A number that defines the radius size of the corners of the border, in pixels.	0

Legend parameters

Certain parameters are available only for reports that display a legend. These report types include pie, donut, stacked bar, stacked column, time series, trend, box, histogram, pyramid, control, and heat map reports.

Legend parameters

Parameter	Description	Default value
sysparm_show_legend	A true/false value that controls whether the report displays a legend.	true
sysparm_legend_horizontal_alignment	Where the legend is placed horizontally relative to the report. Possible values: left, center, and right.	center
sysparm_legend_vertical_alignment	Where the legend is placed vertically relative to the report. Possible values: top, middle, and bottom.	bottom
sysparm_show_legend_border	A true/false value that controls whether the legend displays a border.	true
sysparm_legend_border_width	A number that defines the width of the legend border, in pixels.	1
sysparm_legend_border_radius	A number that defines the radius size of the corners of the legend border, in pixels.	0

X-axis parameters

Certain parameters are available only for reports that use an X axis. These report types include bar, horizontal bar, pareto, column, line area, spline, box, trendbox, control, and trend reports.

X-axis parameters

Parameter	Description	Default value
sysparm_x_axis_title	The name to display on the x axis.	
sysparm_x_axis_title_size	A number that defines the font size of the x-axis title.	

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X-axis parameters (continued)

Parameter	Description	Default value
sysparm_x_axis_title_bold	A true/false value that controls whether the x-axis title text is bold.	true
sysparm_x_axis_opposite	A true/false value that controls if the x axis appears at the top of the report.	false
sysparm_x_axis_display_grid	A true/false value that controls if vertical grid lines appear from the x axis.	false
sysparm_x_axis_grid_dotted	A true/false value that controls whether the vertical grid lines are dotted.	false
sysparm_x_axis_label_size	A number that defines the font size for increment labels on the x axis.	11
sysparm_x_axis_label_bold	A true/false value that controls whether the x-axis increment labels are bold.	false

Y-axis parameters

Certain parameters are available only for reports that use a Y axis. These report types include bar, horizontal bar, Pareto, column, line area, spline, box, trendbox, control, and trend reports.

Y-axis parameters

Parameter	Description	Default value
sysparm_y_axis_title	The name to display on the y axis.	An automatically generated description of the report aggregation
sysparm_y_axis_title_size	A number that defines the font size of the y-axis title.	
sysparm_y_axis_title_bold	A true/false value that controls whether the y-axis title text is bold.	true
sysparm_y_axis_opposite	A true/false value that controls if the y axis appears on the left of the report.	false
sysparm_y_axis_display_grid	A true/false value that controls if horizontal grid lines appear from the y axis.	true
sysparm_y_axis_grid_dotted	A true/false value that controls whether the horizontal grid lines are dotted.	false
sysparm_y_axis_label_size	A number that defines the font size for increment labels on the y axis.	12

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Y-axis parameters (continued)

Parameter	Description	Default value
sysparm_y_axis_label_bold	A true/false value that controls whether the y-axis increment labels are bold.	false
sysparm_y_axis_from	A number defining the lowest value displayed on the y axis.	
sysparm_y_axis_to	A number defining the highest value displayed on the y axis.	

Report on extended tables

Learn how to include fields from tables that extend the Task table in a single report. For example, you could include both incidents and problems in a single report.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To include the columns in the report that are unique to the extended tables, a user with the admin role must enable a system property [glide.ui.list.allow_extended_fields]:

1. Navigate to **System Properties** > **UI Properties**.
2. Enable the property **Allow base table lists (task, cmdb_ci, and so on) to include extended table fields (incident_state, os_version, and the like), and allow filtering on extended table fields** (glide.ui.list.allow_extended_fields).
3. Click **Save** at the bottom of the page.

Role required: report_admin.

About this task

Watch this six-minute video to learn how to include fields on extended tables in reports by starting with the parent table.

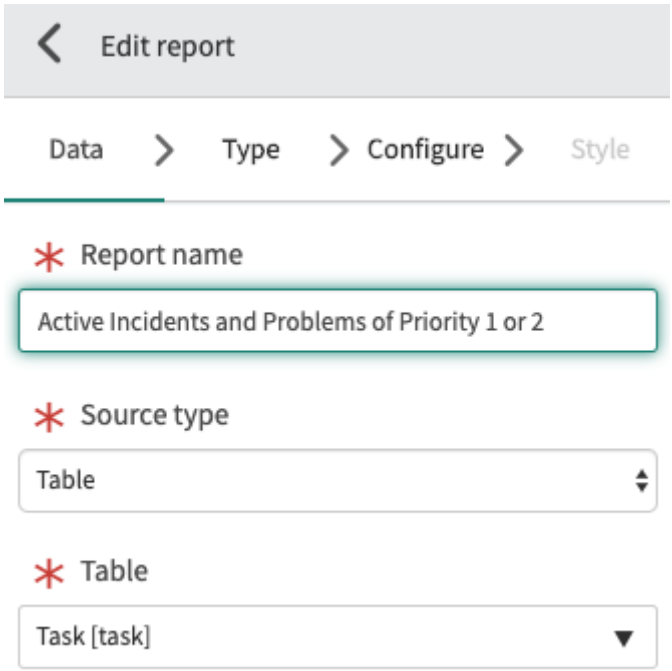
How to include fields on extended tables, those not available through dot-walking

The video shows how to create a report with data from multiple tables using the Report Designer. The report contains both incidents and problems, which are child tables of the Task table. Here's how to create the report, Active Incidents and Problems of Priority 1 or 2.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the Data tab, name the report `Active Incidents and Problems of Priority 1 or 2`, select the Source type Table, and select the table Task [task].

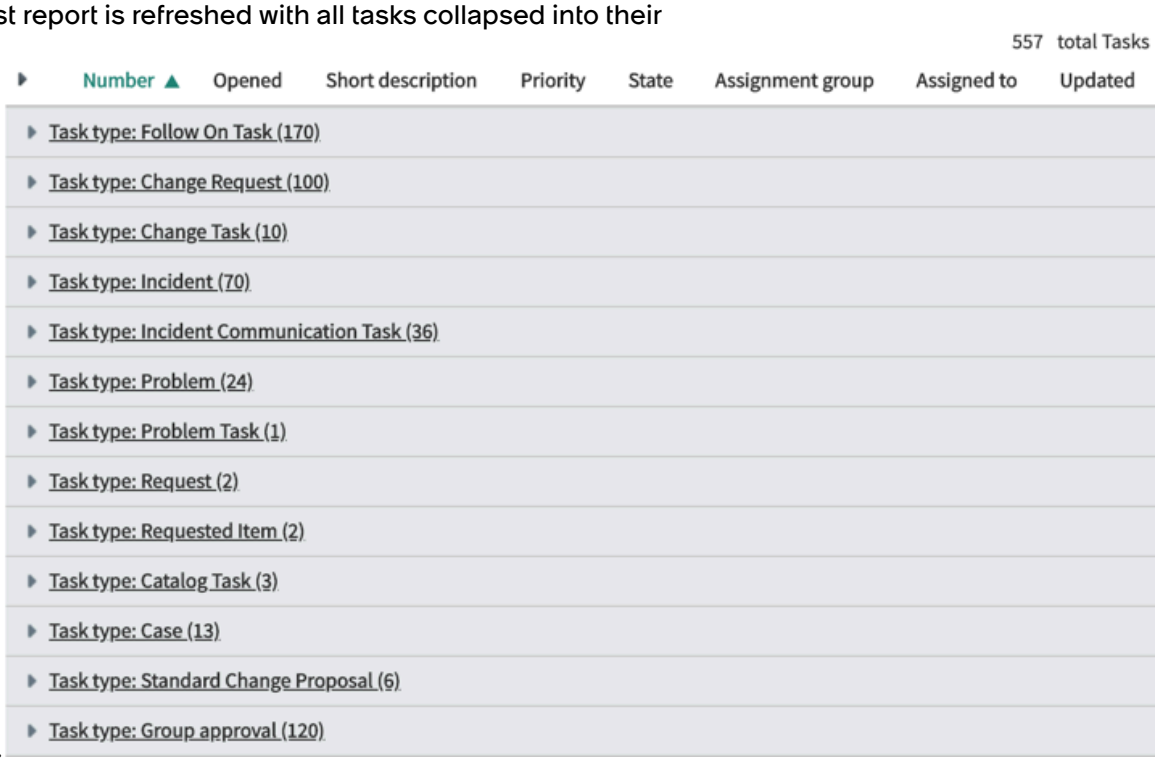
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3. On the **Type** tab, enter **List** in the filter, select the report type, and click **Next**.

   The application shows a preliminary version of the report. To view the updated report at any time, select **Run**.

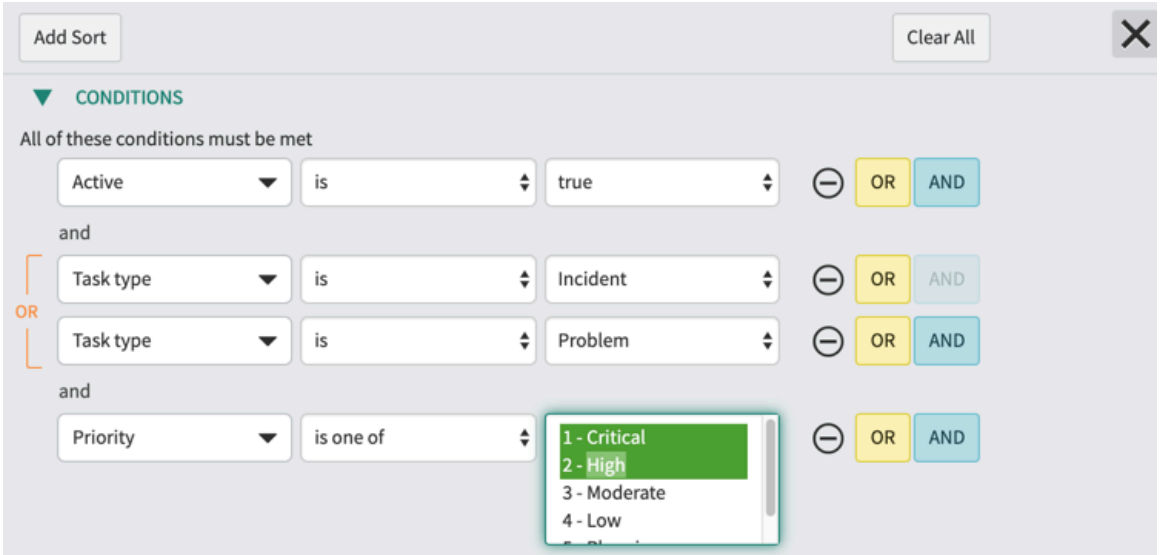
4. On the **Configure** tab, Group by Task type and click **Save**.
   The list report is refreshed with all tasks collapsed into their types.



5. Click the filter icon ( ) to open the Condition Builder.
   Use the Condition Builder to limit what the report displays to only the information you want.
6. To show only active incidents and problems of priority 1 or 2, set these conditions, and click **Save**.

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- Active is true.
- Task type is Incident OR Task type is Problem.
- Priority is one of 1 - Critical or 2 - High.

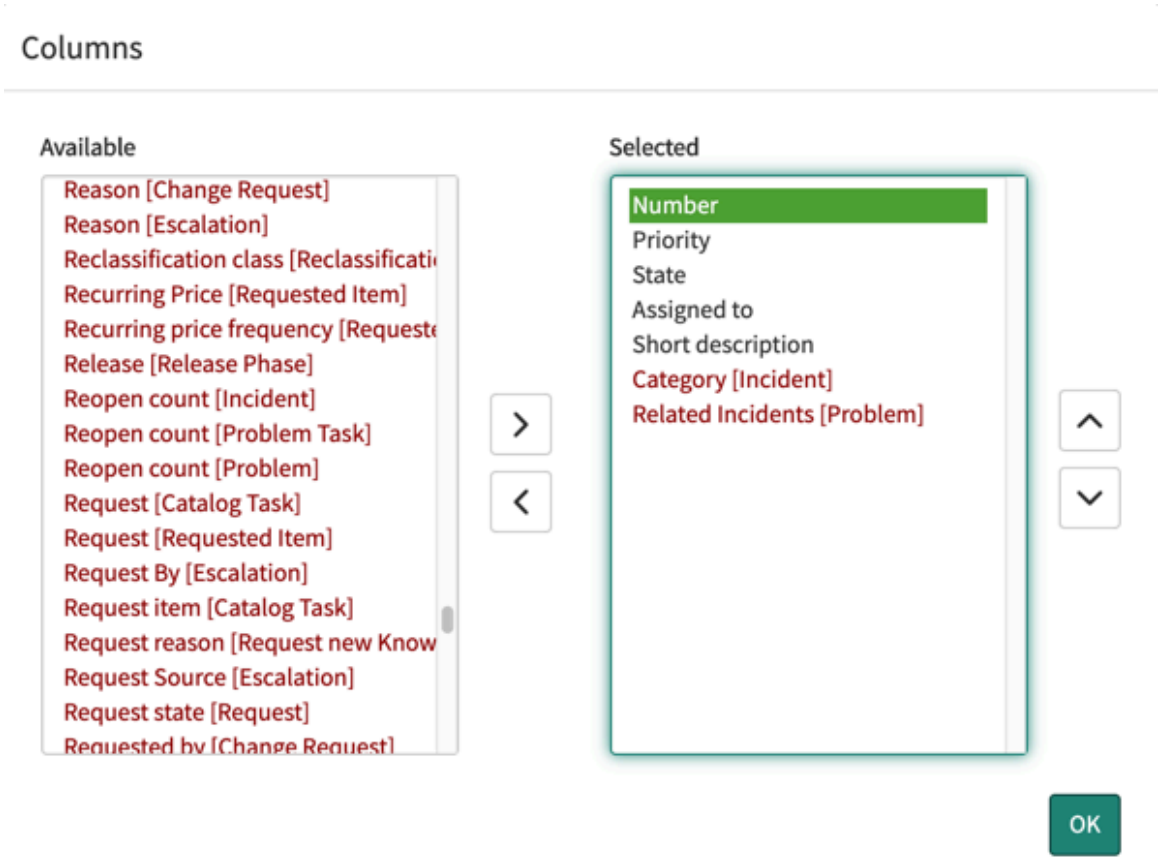


The new report only has the two task types. Because you selected only Active tasks, there are fewer tasks in each category as well.



7. Select the columns to display in the report, including the extended table fields Category [Incident] and Related Incidents [Problem] and click **Save**.

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The Category [Incident] and Related Incidents [Problem] fields are unique to the extended tables (Incident and Problem). They appear at the bottom of the list of columns that are available from the Task table. These two fields are available because you enabled the property **Allow base table lists to include extended table fields, and allow filtering on extended table fields** (glide.ui.list.allow_extended_fields).
The report shows the open incidents and their categories and the open problems with the number of their related incidents.

Related tables in reporting

Watch the video to learn how to use dot-walking, dynamic filters, and database views to access data on extended, or related, tables.

Watch this five-minute video to learn how to use dot walking to include data from extended or related tables in reports. The video also discusses using dynamic filters in reports and reporting on database views. How to use dot-walking and database views to include data from extended, or related, tables in reports.

Reporting on extended table fields using dot-walking

Dot-walking provides access to fields on extended, or related, tables, enabling you to report on fields from those tables.

When creating or editing a report, you can access references on extended tables from the Group by/Stack by, column/row, or Trend by fields on the Configure tab. The Add Sort option also enables you to configure the sort order of applicable reference fields on extended tables. Tables that reference other tables are denoted with an arrow ( ) icon.

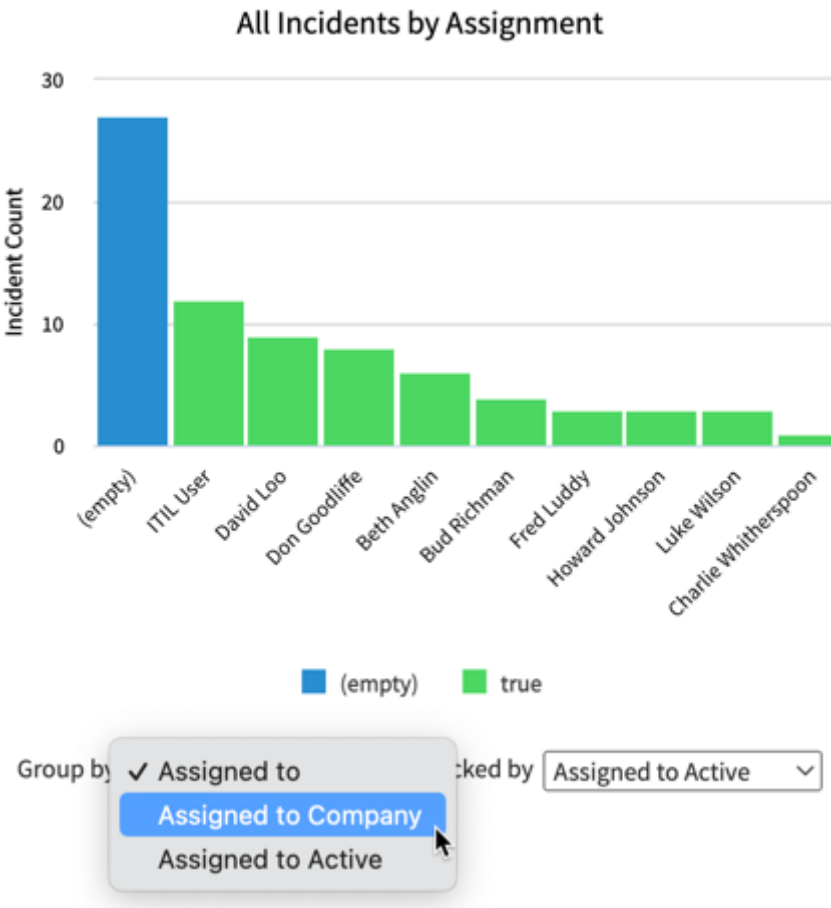
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Dot-walking references a field by building a chain of field names separated by dots (periods). For example, *incident.assigned_to.company* references the company of the user assigned to an incident. The recommended limit for chain length is three levels.

1. In a report on the incident table, select **Additional Group By** on the Configure tab.
2. Select Assigned to [+] and then the structure icon ( ).

   You now see the related fields in the user table.
3. Move Company [+] to the **Selected** column and select **OK**.
4. Save the report.

   Assigned to Company is an option in the report's Group by list. In this example, you see Assigned to Active because the Active field is a configured Stack by option.



Related topics

Dot-walking examples

FX Currency values in reporting

Manage projects in multiple currencies with FX (Foreign Exchange) Currency. You can report on the projects in currency values entered by the user, a reference currency, or both.

Note:
You don't have to install a plugin to use FX Currency functionality. It's activated by default.

FX Currency functionality is described in detail in . In the context of reporting, it is important to aggregate on the reference currency which the other currencies are converted to.

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Note:
When there are multiple currencies, calculations may not be possible. Change your aggregation source or filter conditions to show the report.

When you aggregate by **Average** or **Sum** on an FX currency field, you choose the **Aggregation Source**.

Use FX currency configuration

Calculates the values based on the FX Currency Configuration table. For more information, see Setting up and operating FX Currency fields.

As entered values

Calculate values based on currency values entered by the user.

Note:
If you select this option, you may experience situations where amounts entered in different currencies can't be properly aggregated. For example, if there are currency amounts in US Dollars, Yen, and Euros. It is only possible to aggregate values on one currency at a time. If you aggregate records in different currencies, this error displays: 'Cannot generate the report. There are mismatched currency codes.' See Mismatched currency example.

Reference values

Calculates the values based on the reference currency.

Report on FX currency fields

When you report on FX Currency fields, there are certain limitations that may generate errors. These errors are associated with aggregation.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

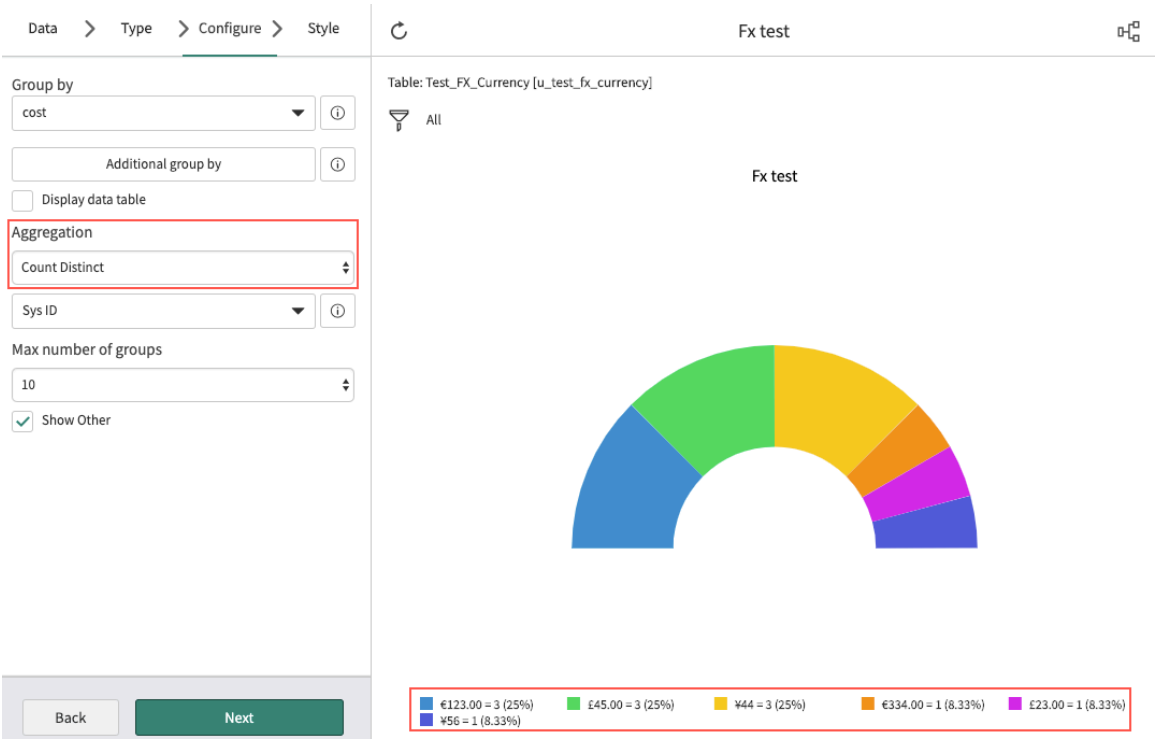
1. Navigate to **All** > **Reports** > **Create New**.
2. On the **Data** tab, name the report, choose the source table with FX currency fields, and then click **Next**.
   The source must have FX Currency fields. See Setting up and operating FX Currency fields.
3. On the **Type** tab, choose the visualization type that you want to use.
   See Report types.
4. On the **Configure** tab, choose how you want to group, stack, and aggregate the report.
   It is only possible to aggregate values on one currency at a time. If you aggregate records in different currencies on an FX Currency field, this error displays: "Cannot generate the report. There are mismatched currency codes."

Mismatched currency example

When you report on FX Currency tables, some combinations of group and aggregation type are not possible to calculate. These combinations return the message 'Cannot generate the report. There are mismatched currency codes. Change your aggregation source or filter conditions.'

The source of this report has costs in euros, Japanese yen, and British pounds. This visualization aggregates costs by count distinct, meaning that each individual value gets its own segment.

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When you try to aggregate costs in multiple currencies by sum or average, there are several possible outcomes.

Aggregation Source is Use FX Currency configuration

It is not possible to perform the calculation, because the currencies are mismatched.

Aggregation Source is As entered values

Usually the entered values are in multiple currencies as well and it is not possible to perform the calculation.

Aggregation Source is Reference values

In this case, the values are converted to the reference value before calculation and the report is generated. For more information, see Understanding FX Currency values in forms.

Report on service catalog variables

Create reports grouped by a variable on a selected service catalog item. You can also create filters on the same variable.

Reporting on variables can be helpful in determining if certain catalog items are useful on an instance, for example.

Additionally, you can create filters on the same variable. For example, if a specific mobile phone item has a storage variable, you can create a report that only shows those phones with 32 GB of storage.

See an overview video on dot-walking to, filtering, and using catalog variables in a database view at: Reporting on Catalog Variables.

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- To group by variables, see Group a report by service catalog variables.
- To group a report on a field and also group by a variable, see Add additional group by variables to a service catalog report.
- To add a variable field to a list report, see Create a list report with variable columns.

For reporting on variable questions, see: Report on questions

Use service catalog variables in a report

In reports on service catalog data, stack and group by variables, use variables as columns in list reports, and as columns and rows in multilevel pivot tables.

Before you begin

Role required: itil, report_user, report_global for global reports, or report_group for group reports.

Users with the report_admin role can report on service catalog variables. Add the report_admin role to the ACLs for the Options [sc_item_option], Variable Ownership [sc_item_option_mtom], and Variables [item_option_new] tables.

Note:

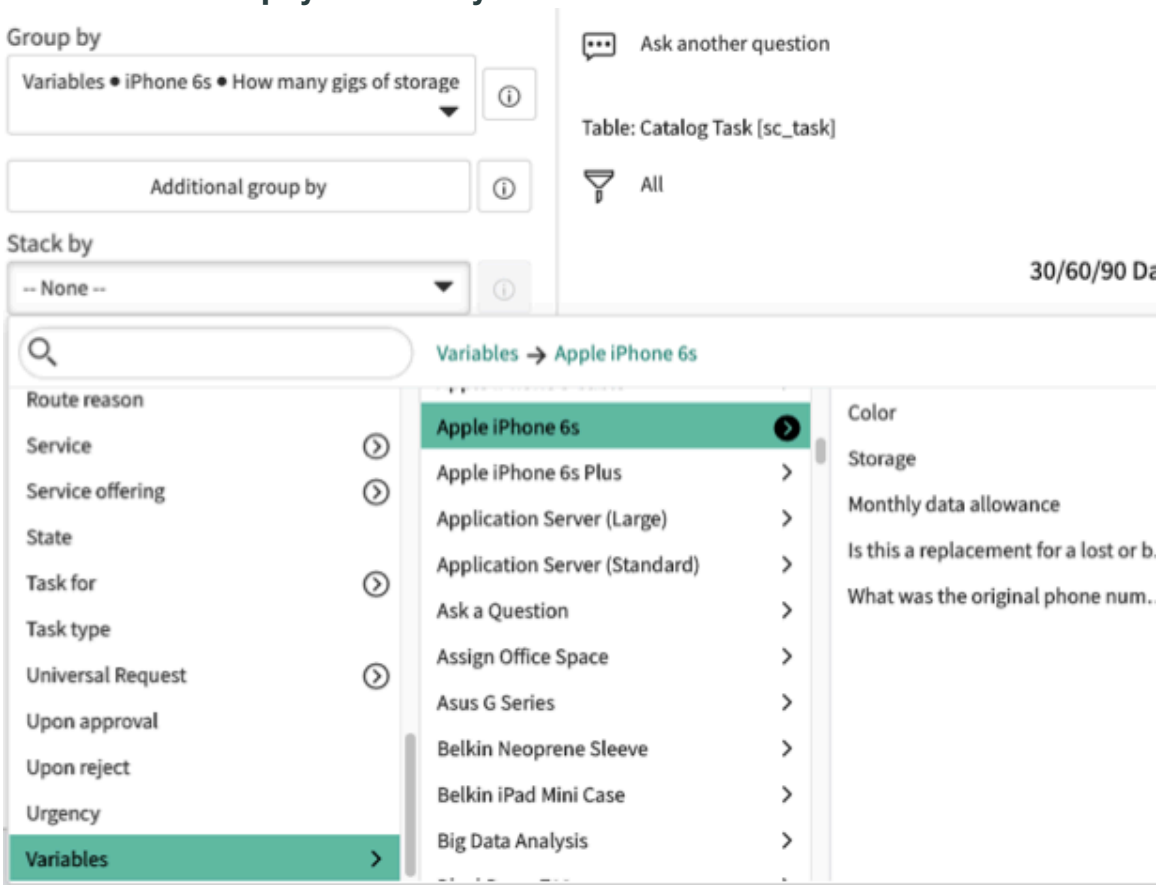
- The report you want to use the variable for must be based on the Requested Items table [sc_req_item] or the Catalog Task table [sc_task]. Using other types of variables causes an error when generating the report.
- The Oracle Database CLOB field does not have the functionality to retrieve the variables data in reports. For a column string field of less than 4000 bytes, you can change the column type to varchar2. To compare the CLOB columns of a smaller size, use the to_char() function. For a larger size CLOB, you must get a substring for comparison using the dbms_lob.substr functions.

About this task

For primary **Group by** and **Stack by**, these steps are intuitive.

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Variable use in Group by and Stack by fields



Note:
List, Box, Trendbox, and Pivot reports cannot use service catalog variables as a primary or secondary **Group by**. Single Score, Calendar, Control, and Map reports do not support **Group by** on any fields. List reports can use service catalog variables as columns.

Use a variable as an extra **Group by**, as a column in a list report, or as a column or row in a multilevel pivot table.

Procedure

1. Navigate to **All** > **Reports** > **View / Create** and open the report to add the variable to.
2. Do one of the following.

Option	Description
Add as a column in a list report	On the **Configure** tab, move **Variables+** to the **Selected** column.
Add as an extra Group by	On the **Configure** tab, click **Additional group by**, then move **Variables+** at the bottom of the **Selected** of the **Additional group by** list.
Add as a column or row in a multilevel pivot table	Click **Select columns** or **Select rows**, then se lect **Variables+** at the bottom of the list.

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Option	Description
	Note: ○ If you first create the report with the variable as the main Group By first, it will always behave as an inner join. ○ If you first create the report with a reg ular field for primary grouping, and a secondary grouping on the variable, it will work as an outer join.

3. Click the structure icon ( ) and then the plus sign that appears.
   A list of service catalog items appears.
4. Select a catalog item with the variable.
   The variables for that item appear in the **Available** list.
5. Move the variable that you want to use to the **Selected** column.
6. **Save** the report.

Group a report by service catalog variables

You can create reports grouped by variable on a selected service catalog item. In addition, you can create filters on the same variable. For example, if a mobile phone item has a storage variable, you can create a report that only shows those phones with 32 GB of storage.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

You can apply these steps to any report type as long as the report source has variables associated with it. If the report source doesn't have variables, the **Variables** option doesn't display in the **Group by** and **Stack by** fields.

Note:
List, Box, Trendbox, and Pivot reports can't use service catalog variables as a primary or secondary **Group by**. Single Score, Calendar, Control, and Map reports don't support **Group by** on any fields. List reports can use service catalog variables as columns.

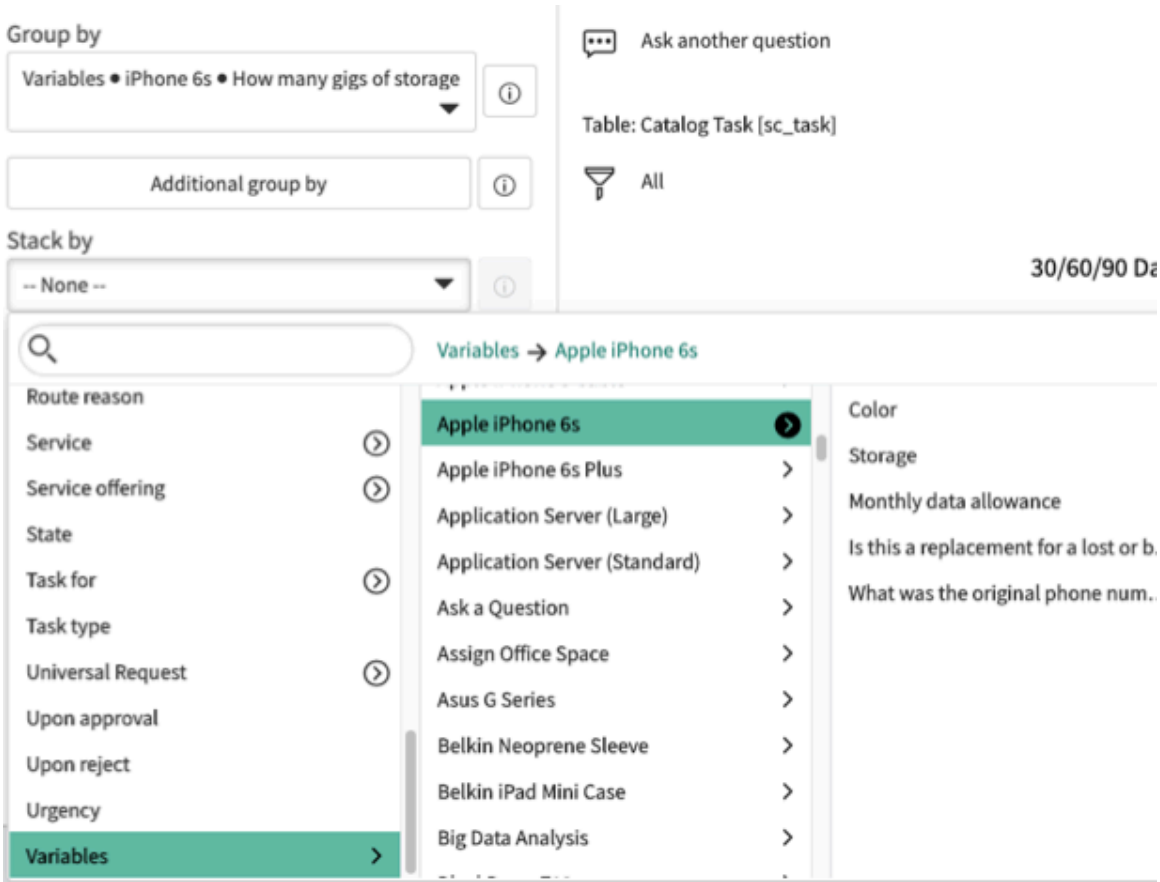
Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select a report source that has variables associated with it.
   There are two kinds of report sources.

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Report source	Description
Data source	A table with filters applied to provide a single source of information for all users.
Table	The raw data from a table with no filters applied.

4. Select **Next**.
5. On the **Type** tab, select the report type and select **Next**.
6. On the **Configure** tab, select **Variables** from the **Group by** or **Stack by** filters.



7. Search for and select the variable associated with the item to group or stack by.
8. Continue to configure and style the report according to its report type.
   See Report types.

Add additional group by variables to a service catalog report

You can create reports grouped by any field with an additional group by variable on a selected service catalog item. In addition, you can create filters on the same variable. For example, if a mobile phone item has a storage variable, you can create a report that only shows those phones with 32 GB of storage.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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About this task

You can apply these steps to any report type as long as the report source has variables associated with it. If the report source doesn't have variables, the **Variables** option doesn't display in the **Additional group by** filter.

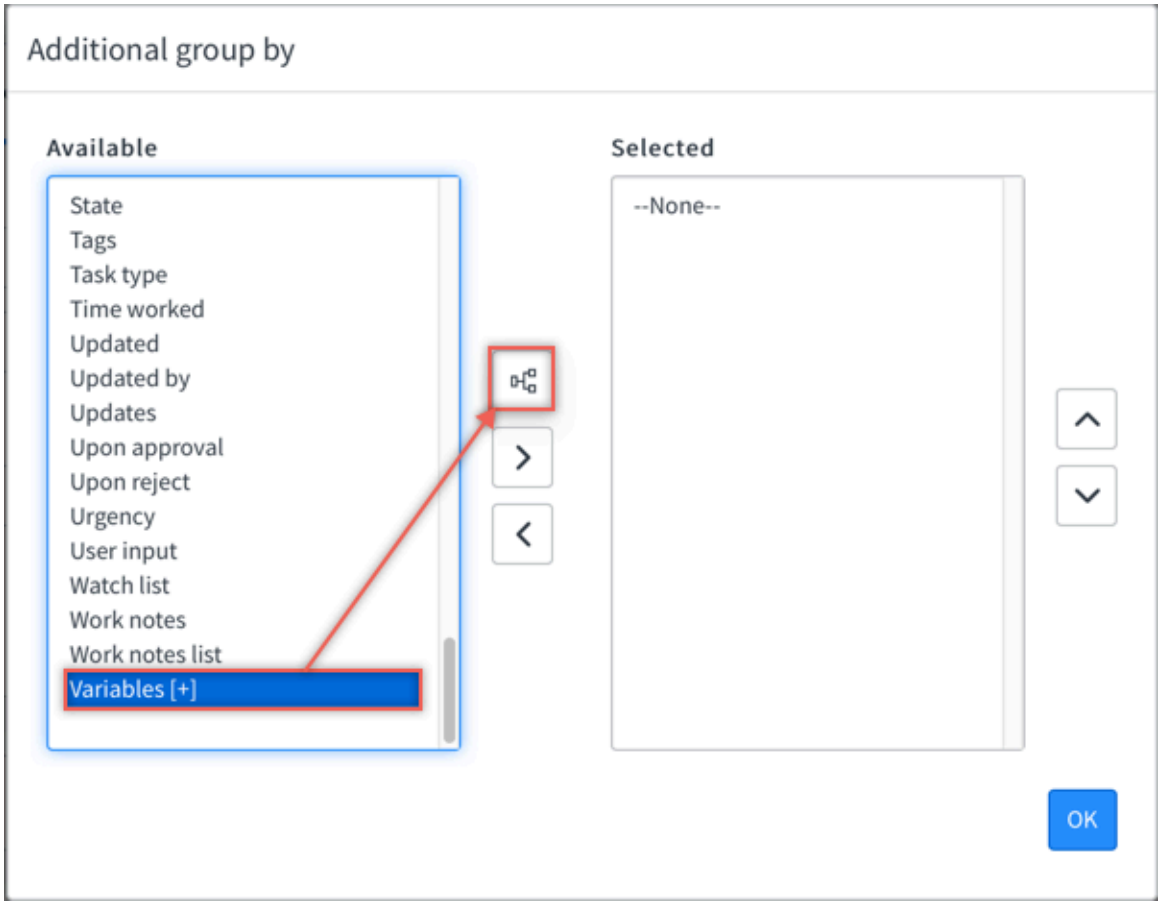
Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
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   There are two kinds of report sources.

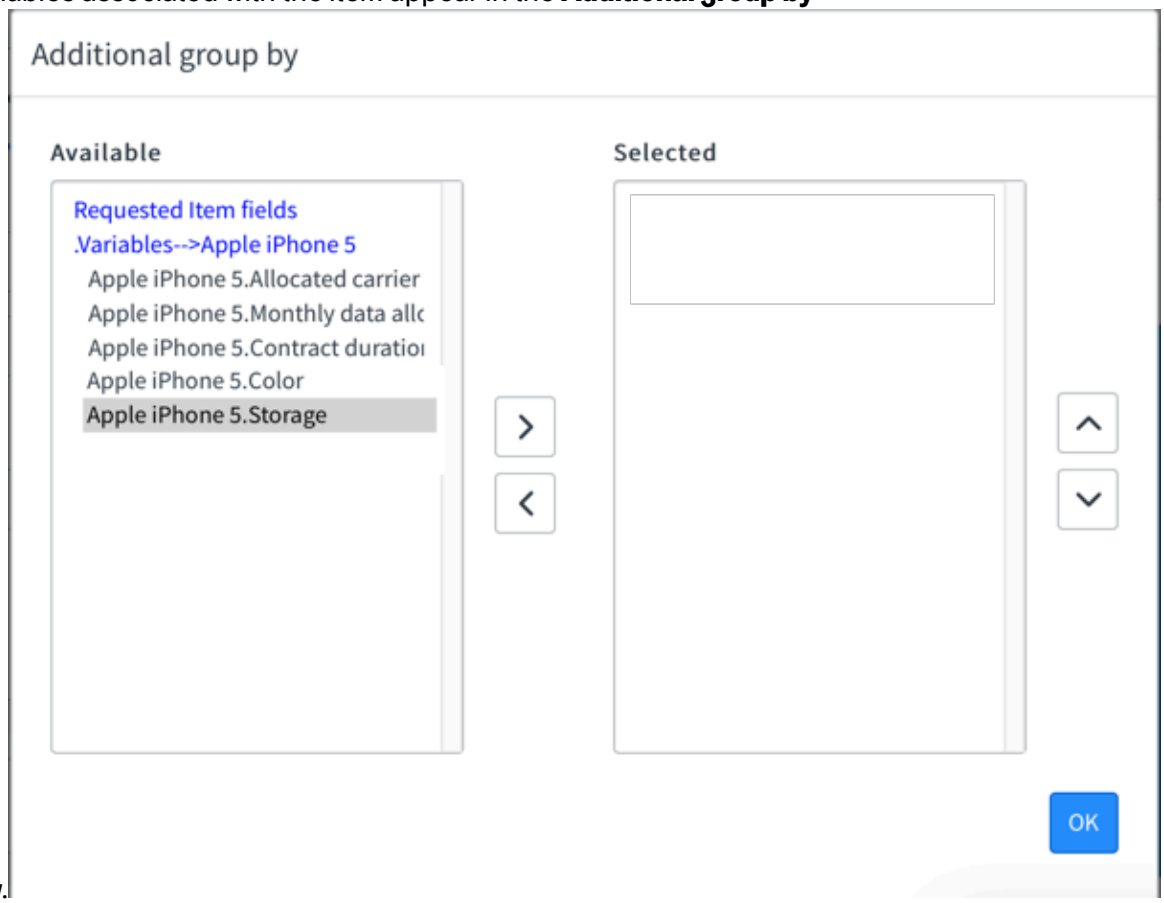
Report source	Description
Data source	A table with filters applied to provide a single source of information for all users.
Table	The raw data from a table with no filters applied.

4. Select **Next**.
5. On the **Type** tab, select the report type and select **Next**.
6. On the **Configure** tab, select a **Group by** filter.
7. Select **Additional group by**.
8. Select **Variables [+]** and select the structure icon ( ) to choose an item.

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9. Select a **Catalog item**.
   The variables associated with the item appear in the **Additional group by** window.



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10. Add the desired variables to the **Selected** column and select **OK**.
11. Continue to configure and style the report according to its report type.
    See Report types.

Report on function fields

While regular fields store a value in the database, a function field displays the results of a database query. The function field generates the value based on computations of other fields and constants. You can use these fields in reports and data visualizations as you would other fields.

The responsibility for creating, editing, and deactivating function fields belongs to the user with the role function_field_admin. On upgrade, no user has this role. An admin must give this role to a non-admin user. See Create a role.

Learn about function fields here: Function field.

Function field operations

Function fields can perform the following operations using the `glidefunction:<operation>` syntax.

Note:
Specify constants in single or double quotes. The examples for the `concat()`, `dayofweek()`, `position()`, and `substring()` operations show the use of constants in function fields.

Function field operations

the Function field operations table contains columns for the names of function field operations, a detailed description of what the operation does, and an example that includes both code and what the code returns.

Operation	Description	Example
`add()`	Takes two number fields as input, adds them, and returns the results as a field value. This function also takes numerical values for either input. Place numerical values in single or double quotation marks.	`glidefunction:add(child_incident parent_incident)` Returns 6 if the incident has five child incidents and one parent incident. Possible return types: Decimal, Floating Point Number, Large Whole Number, Whole Number
`subtract()`	Takes two number fields as input, subtracts the second from the first, and returns the result as a field value. This function also takes numerical values for either input. Place numerical values in single or double quotation marks.	`glidefunction:subtract(u_num1, u_num2)` Returns 2 if num1 = 8 and num_2 = 6. Possible return types: Decimal, Floating Point

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Function field operations

the Function field operations table contains columns for the names of function field operations, a detailed description of what the operation does, and an example that includes both code and what the code returns.

(continued)

Operation	Description	Example
		Number, Large Whole Number, Whole Number
`multiply()`	Takes two number fields as input, performs the multiplication, and returns the results as a field value. This function also takes numerical values for either input. Place numerical values in single or double quotation marks.	`glidefunction:multiply(u_num1, u_num2)` Returns 48 if num1 = 8 and num_2 = 6. Possible return types: Decimal, Floating Point Number, Large Whole Number, Whole Number
`divide()`	Takes two number fields as input, divides the first by the second, and returns the result as a field value. This function also takes numerical values for either input. Place numerical values in single or double quotation marks.	`glidefunction:divide(u_num2,u_nu` Returns 5 if num2 = 10 and num1 = 2. Possible return types: Decimal, Floating Point Number, Large Whole Number, Whole Number
`concat()`	Takes any number of comma-separated fields and constants as input, concatenates the input, and returns a single string as a field value.	`glidefunction:concat(incident_nu '/', short_description)` Returns "INC0001 / My client needs a new laptop." if the value of the number field is 'INC0001' and the short_description is 'My client needs a new laptop'. Return type: Text
`datediff()`	Takes two date/time fields as input, calculates the difference between the dates in days, minutes, and seconds, and returns the results as a duration field value.	`glidefunction:datediff(closed_at sys_created_on)` Returns the duration of an incident from the creation date to the close date. Example result: 10 days, 8 hours 23 minutes 11 seconds Return type: Duration
`dayofweek()`	Takes two arguments: A date field and a constant of either `'1'` (week starts on	`glidefunction:dayofweek(resolved '1')`.

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(continued)

Operation	Description	Example
	Sunday) or `'2'` (week starts on Monday). Returns the results as an integer value that represents the day of the week. The `dayofweek()` function uses UTC dates, but adjusts comparison values based on the instance's time zone.	If resolved_at occurs on a Wednesday, returns 4 if the integer is 1 and returns 3 if the integer is 2. Return type: Whole number
`length()`	Takes a string field as input, calculates the field length in characters, and returns the results as a field value.	*`glidefunction:length(short_descr`* Returns 37 if short_description = "This application is performing a test". Return type: Whole number
`coalesce()`	Takes any number of comma-separated fields as input and returns the first non-empty value.	*`glidefunction:coalesce(closed_at resolved_at, sys_updated_on)`* If the value of closed_at is empty, the function returns the value of resolved_at. If the value of resolved_at is also empty, the function returns the value of sys_updated_on. Return type: Text
`position()`	Takes two text fields or two text fields and a whole number as input. One or both of the text fields can also be strings. **1.** Returns the position of the first occurrence of the string of the first text field in the second. **2.** If a whole number is specified, this function returns the position of the second text field after the position of the whole number. Returns 0 if the first text field is not present in the second (after the position of the whole number if specified).	• *`glidefunction:position('e',shor`* If the value of the short_description field is "This computer is performing an upgrade", returns 12. • *`glidefunction:position('e',shor`* If the value of the short_description field is "This computer is performing an upgrade", returns 19. Return type: Whole number
`substring()`	Takes a text field and two whole numbers as input. Returns the first instance of a	*`glidefunction:substring(short_de '7', '2')`*

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Function field operations

the Function field operations table contains columns for the names of function field operations, a detailed description of what the operation does, and an example that includes both code and what the code returns.

(continued)

Operation	Description	Example
	string that starts at the position of the first whole number and is the length of the second.	If the value of the short_description field is 'We're going to the store', returns 'go'. Return type: Text

Configuring function fields

You can configure up to 20 active function fields per table using the Report Designer. When you configure a function field on a table, you can group or stack by the results of the function calculation.

Role required: admin, function_field_admin.

While regular fields store a value in the database, a function field displays the results of a database query. The function field generates the value based on computations of other fields and constants. You can use these fields in reports and data visualizations as you would other fields.

Limitations:

- Function fields in reporting do not support dot walking.
- Security is evaluated on the components of the function and on the calculated value of the field. When used in visualizations, sections that contain information that the user is not allowed to see are hidden from the user.
- Only the creator of a function field or a platform admin can edit or deactivate that field. Platform admins can deactivate any function field.
- Field function names must be unique.
- Only 20 function fields can be active on a table at any one time. To add function fields, you must deactivate others. See Deactivate a function field.

Create a function field

Create a function field to be able to group and stack a report by the results of the field's calculation.

Before you begin

Role required: admin, function_field_admin

Each function field requires a label, a return type, and a definition. The definition consists of the operation and one or more fields that the operation is performed on.

Note:
It isn't possible to change the label or the return type after you save a function field. If necessary, deactivate the function field and start again.

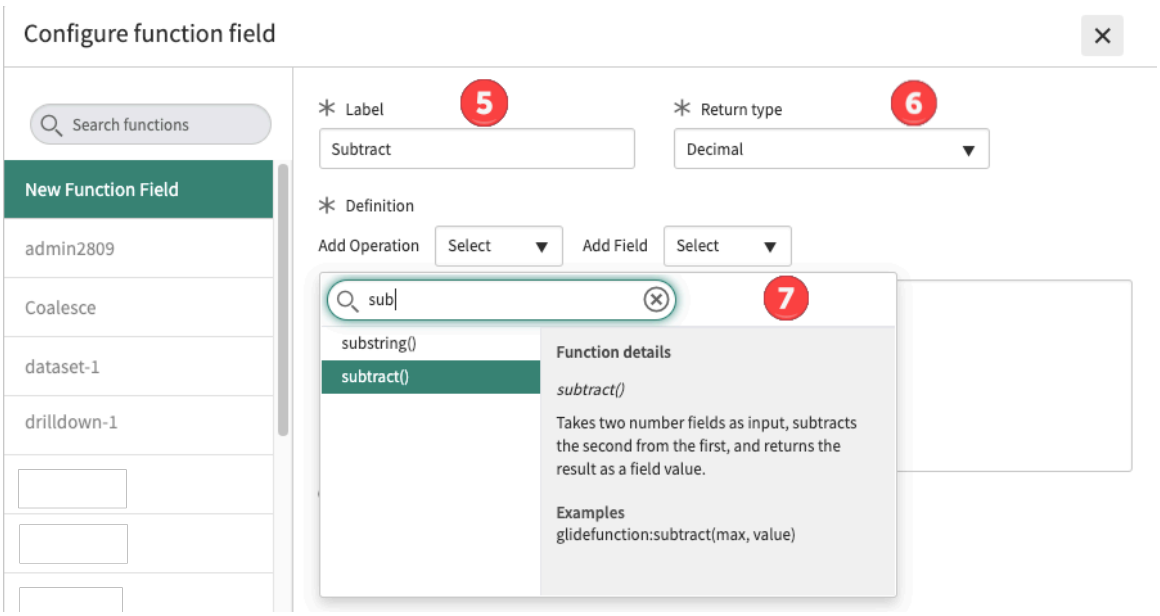
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Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. Select the report that you want to add a function field to.
   When you configure a function field on a table, it is available anywhere you use the table on the ServiceNow AI Platform, including any report on the same table. For example, a function field that calculates the age of open incidents is available for all reports on the incident table.
3. Open the **Configure** tab and select **Configure function field**.
4. **Optional:** Enter the field name in the search bar to see if someone has already created the function field.
   Hover over the search results to see the function definition.
5. Select **Create**.
   There can be a maximum of 20 active function fields on the table the report is based on. If the table already has 20 function fields, a creator of one of the fields or a user with the admin role must deactivate or delete one.
6. Specify the **Label**.
   The label is the name users can see when they group or stack data in a report.
7. Select the **Return type**.
   The return type is the kind of information the function produces. For example, the `datediff()` function returns a Duration type because it calculates the duration between two dates.

   Note:
   You do not see a message if your return type is not a logical result of the function.

8. Select the Operation.
   The **Syntax** text box shows the name of the function preceded by `glidefunction:`.

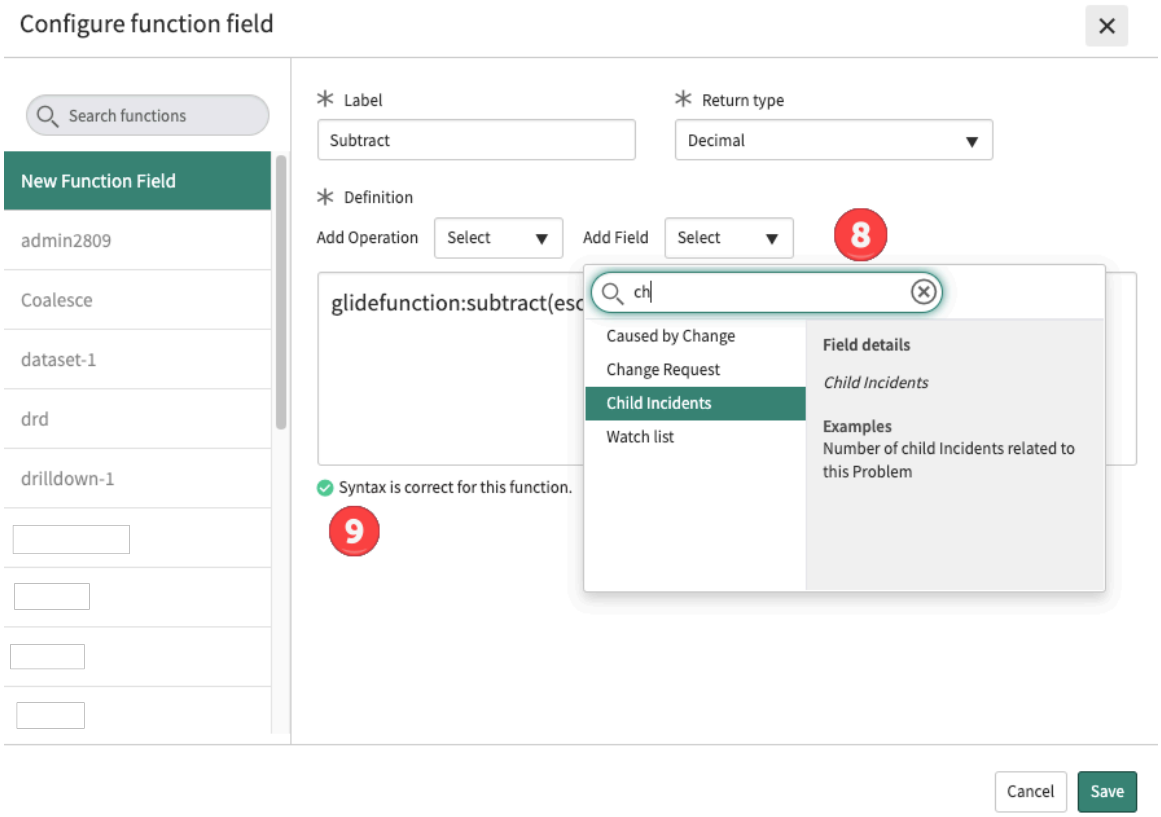


9. Select the fields that the function operates on.

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Some functions require only one field; some require two or three fields. See Report on function fields. Make sure that you separate the fields with commas.

10. When the syntax is correct, you can save the function field.
When the syntax is incorrect, you see the message: `Syntax error: Invalid expression`. You may also see other messages.



Result

Configured function fields appear in the **Group by** and **Additional group by** lists after you save the report.

Use the created function field it in your report or data visualization configuration. For information on using function fields elsewhere on the ServiceNow AI Platform, see Function field.

Edit a function field

The user who created a function field or a user with the admin or function_field_admin role can edit the definition of a saved function field. It isn't possible to edit the label or the return type of a saved function field.

Before you begin

Role required: admin, function_field_admin

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. Select a report based on the table that you want to add a function field to.

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When you configure a function field, it is available in any report on the same table. For example, a function field that calculates how long incidents have been open is available for all reports on the incident table.

3. Open the **Configure** tab and select **Configure function field**.
4. **Optional:** Enter text in the **Search functions** box to find the function field you want to edit. Search functionality searches on the Label of the field, the name of the field, and the function definition.
5. Select a new operation, new fields the function operates on, or both.
   Validation of the edited function may indicate that it returns an invalid result.
6. Select **Save**.
   If one or more reports use the function field, you see a link to a list of those reports. You can review the list, select **Save anyway**, or select **Cancel**.

Result

The results of the edited function field replace the old results in all reports in which the function field is used.

Deactivate a function field

The user who created a function field or a user with the admin role can deactivate it. If there are more than 20 function fields on a table, you can't create a new function field without deactivating one or more existing ones.

Before you begin

Role required: admin

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. Select the report with the function field to deactivate.
3. Open the **Configure** tab and select **Configure function field**.
4. **Optional:** Enter text in the **Search functions** box to find the function field you want to deactivate.
5. Select the function field and choose **Deactivate**.
   If one or more reports use the function field, you see a link to a list of those reports. You can review the list, choose **Deactivate anyway**, or select **Cancel**.
6. Confirm the deactivation or cancel.

Result

The deactivated function field is no longer available for use in the reports on the table that it was based on.

Note:
When you deactivate a field, the user list preference is deleted.

Delete a function field

A user with the admin role can delete a function field from its table. Deleting a function field is useful if you want to create a function field with the same name as one that exists on that table.

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Before you begin
Role required: admin

Function fields are stored as columns on the table that you create them on. To delete a function field, you delete the associated column.

> **Important:**
> >No check is made on a where a function field is used when you delete. In addition, deleting a function field is not reversible.

Procedure

1. Navigate to **All** > **System Definition** > **Tables**.
2. Select the table with the function field that you want to delete.
3. Select the column to open its form.
4. Select **Delete Column**.
   You can only delete the column if the **Column name** begins with `u_` or `x_`. If the **Column name** begins with something else, it was created by *ServiceNow* support. Contact support to delete it.

Result
The function field is deleted and can no longer be used in data visualizations.

Disable function field creation

Configure a system property to remove the ability to create function fields in the Report Designer.

Before you begin
Role required: admin.

Procedure

1. Navigate to **All** > **sys_properties.list**.
2. Search for the property *glide.report.enable_function_field_ui*.
3. Select the property's name to open its form.
4. Set the property's value to `false`.
5. Select **Update**.

Result
The option to configure function fields does not appear in the Report Designer for any user.

Report on questions

Report on selected questions by grouping or filtering on them.

Creating reports grouped by questions is helpful to:

- Determine whether questions that customers ask are getting answered.
- Gain more information from customers during the request process.

To use questions in a report, the data source or non-service catalog table must have questions associated with it. You can group or filter by questions from a table extended from the Task [task] table, for example the [incident] or [problem] tables.

You can use questions in conditions you apply to the data source. You can also use questions in the following fields:

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- Group by
- Stack by
- Additional group by
- Select columns
- Select rows

Note:

If there is a Record Producer associated with the table, variables defined in that Record Producer are available as Questions in the condition builder for filtering the data source, except for the following question types:

- Label
- Rich text label
- Macro
- Container

You cannot group by Record Producer variables. For more information, see Record Producer.

Group or stack a report by questions

You can create reports grouped or stacked by questions, as well as create filters on the same questions. For example, you can create a report that shows customer responses of their reasons for requesting help, or descriptions of their issues.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

You can apply these steps to any report type as long as the report source has questions associated with it. If the report source does not have questions, the **Questions** option does not display in the **Group by** and **Stack by** fields.

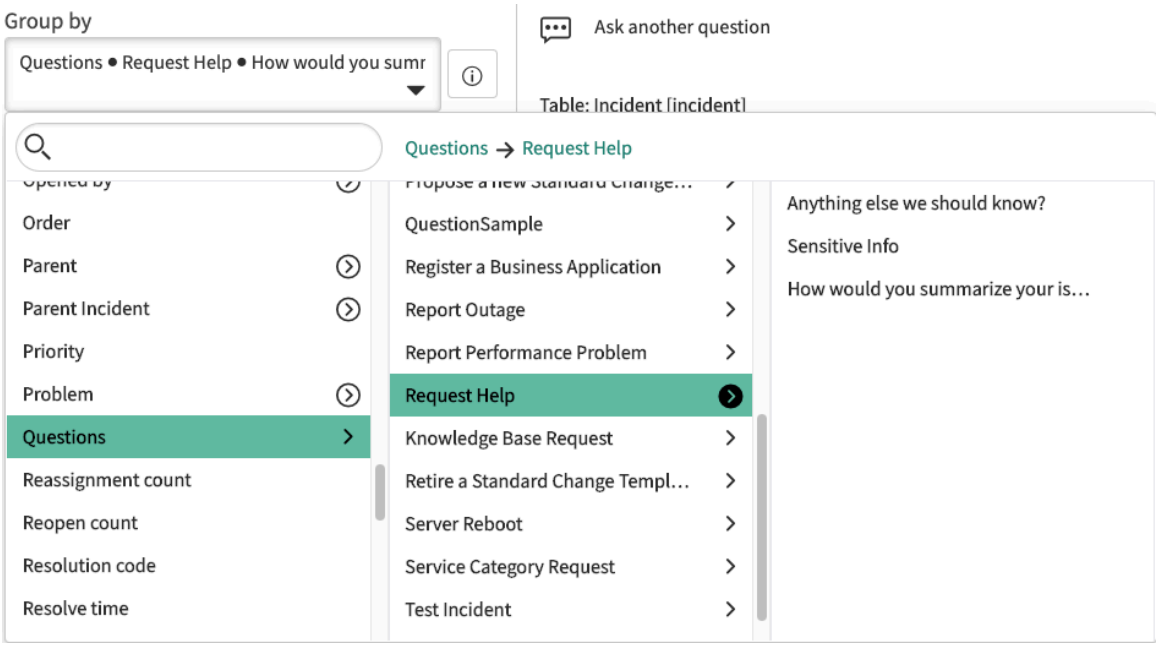
Note:

List, Box, Trendbox, and Pivot reports cannot use questions as a primary or secondary **Group by**. Single Score, Calendar, Control, Histogram, and Map reports do not support **Group by** on any fields. List reports can use questions as columns. Multilevel Pivot reports can use questions as columns and rows.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select a report source that has questions associated with it and click **Next**.
4. On the **Type** tab, select the report type and click **Next**.
5. On the **Configure** tab, select **Questions** from the **Group by** or **Stack by** filters.

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6. Search for and select questions associated with the category to group or stack by.
7. Continue to configure and style the report according to its report type.
   See Report types.

Add additional group by questions to a report

Create reports additionally grouped by selected questions. You can also create filters on the same questions. For example, you can create a report that shows customer responses of their reasons for requesting help, or descriptions of their issues.

Before you begin

Roles required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

About this task

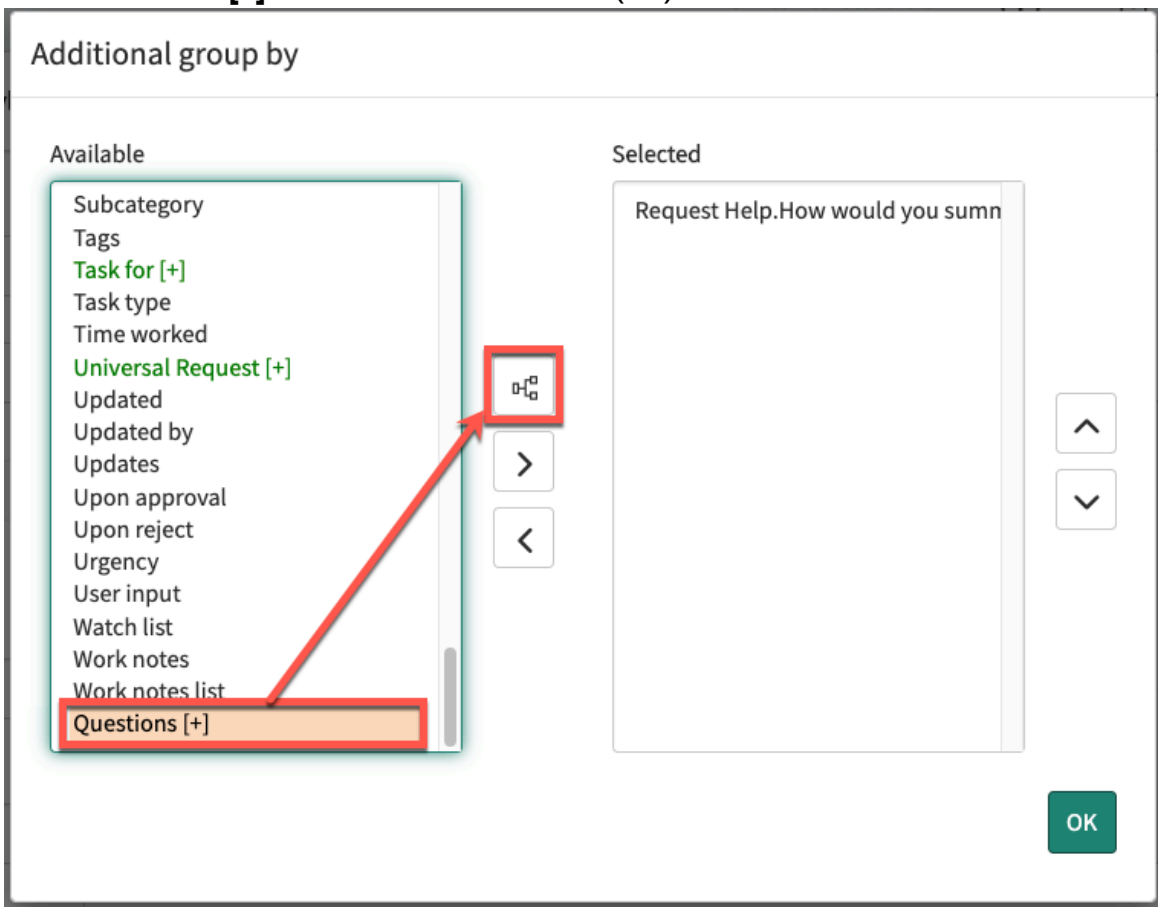
You can apply these steps to any report type as long as the report source has questions associated with it. If the report source does not have questions, the **Questions** option does not display in the **Additional group by** filter.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **Create New**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports** and select **New**.
2. On the **Data** tab, give the report a name that reflects the information being grouped.
3. Select a report source that has questions associated with it and click **Next**.
4. On the **Type** tab, select the report type and click **Next**.
5. On the **Configure** tab, select a **Group by** filter.
6. Click **Additional group by**.

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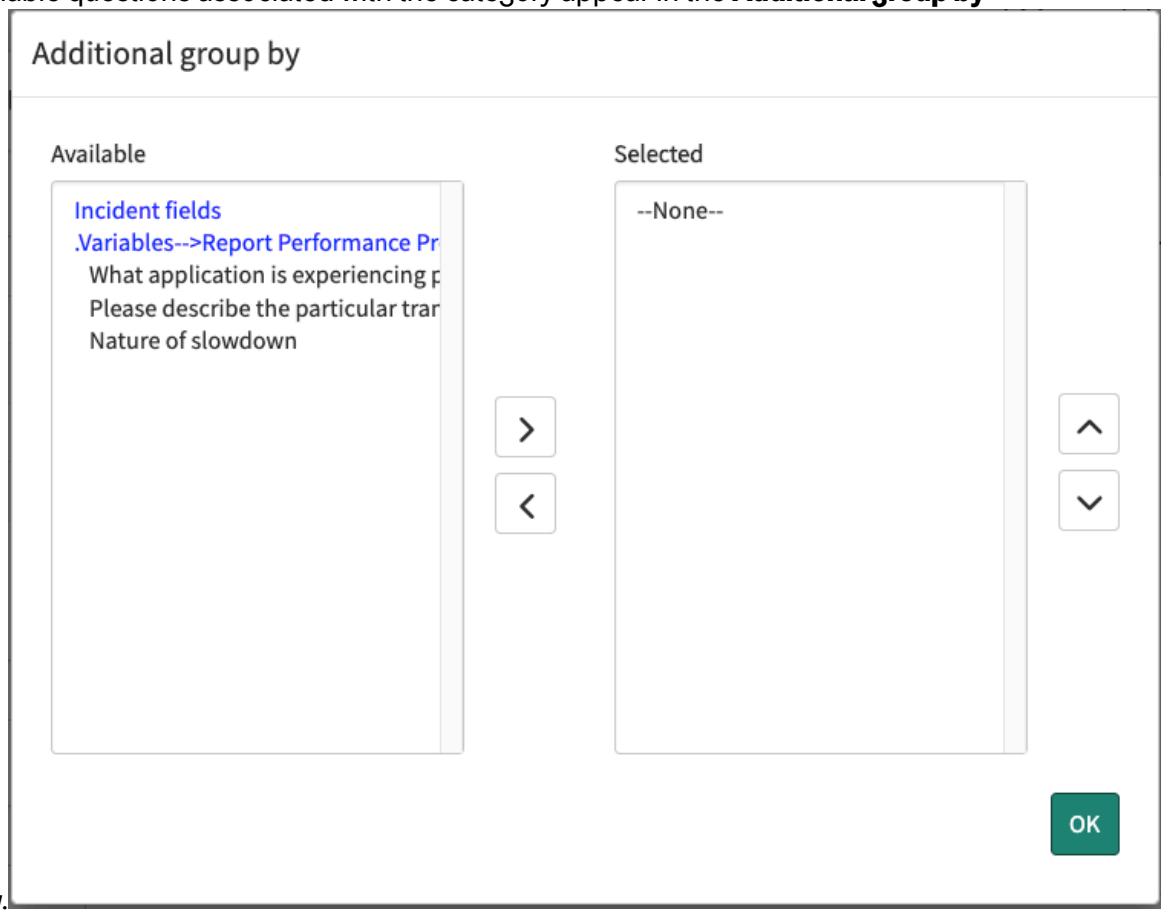
7. Select **Questions [+]** and click the structure icon ( ) to choose an item.



8. Select a question category.

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The variable questions associated with the category appear in the **Additional group by** window.



9. Add the desired questions to the **Selected** column and click **OK**.
10. Continue to configure and style the report according to its report type.
See Creating reports.

Predefined colors in reports

Depending on the type and configuration of the report, you can select one color, a predefined color palette, or predefined chart colors. All three options are built on a customizable set of individual colors.

If you aren't grouping or stacking the data in a report, you select one color. If you stack or group data, you have two main choices for colors:

Color palette

A sequence of colors applied to the elements in a chart. The colors repeat in order from highest value to lowest. Use color palettes in reports when you want the colors of the reports to denote order. Reports using the same palette use the same colors regardless of what data they're showing.

In the following example, you see two reports on incidents that are grouped by different fields, Priority and Category. Both reports use the default color palette, and both show the same colors.

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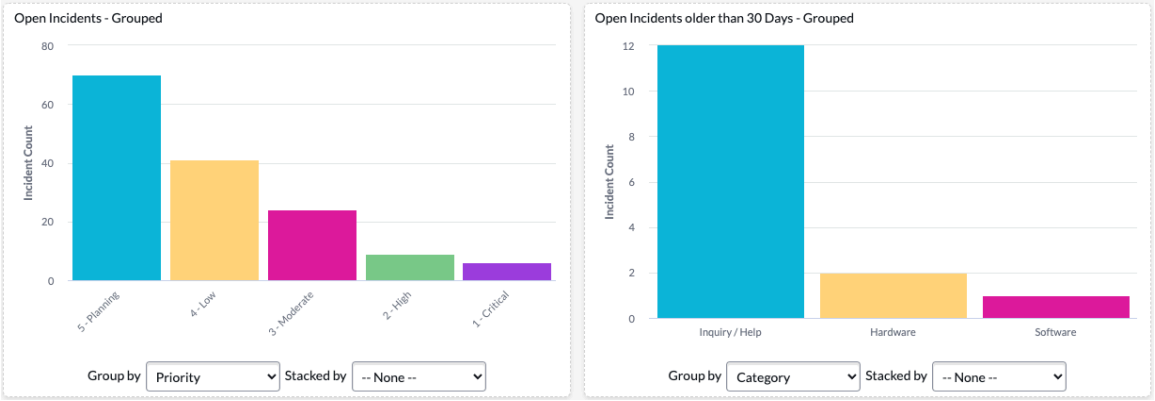
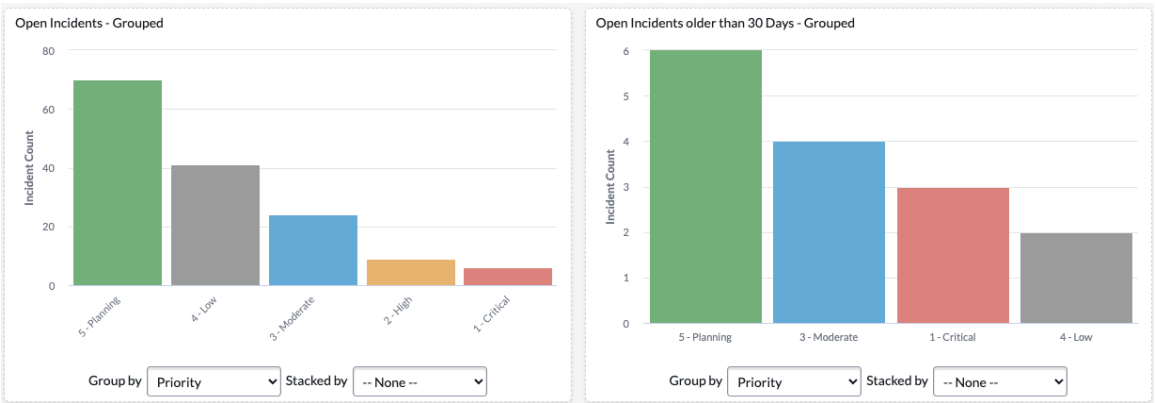


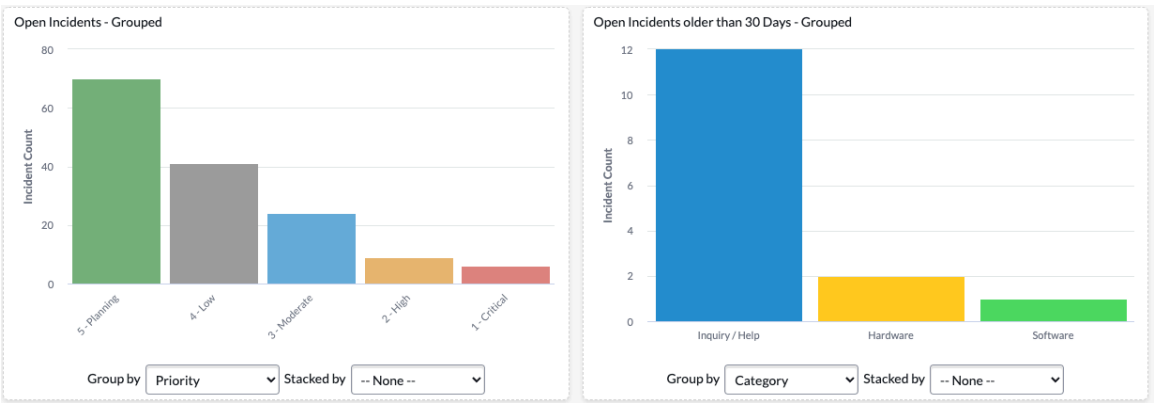
Chart colors

Chart colors always apply the same color to the same grouping or stacking value. Different grouping and stacking values in different reports have different colors. Use chart colors if, for example, you always want an element like Priority > 1 - Critical to have the same color.

In the following example, you see two reports on incidents that are grouped by the same field, Priority. Both reports use the chart colors. The same values of Priority have the same color despite being in a different order.



In the following example, the reports are grouped by different fields and use the chart colors. The bars are in different colors, as each element has a unique color.



Both the color palettes and the chart colors use the colors defined in the Color Definition [sys_report_color] table. A report admin can add more colors.

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Note:
If neither a color palette nor the chart colors are suitable for your report, you can enter a set of hexadecimal color codes. These codes are independent of the defined colors.

Color palettes

A color palette is a sequence of colors that apply to the elements in a chart, in order from highest value to lowest. All reports that use the same palette use the same colors.

The following reports can use a color palette. Select a color palette on the **Style** tab of the Report Designer:

- Pie charts
- Bar and column charts that have a **Stack by** or **Group by** value
- Line and trend reports that have a **Stack by** or **Group by** value

Color palettes are defined in the Chart color scheme [pa_chart_color_schemes] table. Report admins have read access to this table. Navigate to **All** > **Platform Analytics Administration** > **Color Settings** > **Chart Color Schemes**.

Tip:
A ServiceNow AI Platform or Performance Analytics admin can create custom Core UI color palettes. For more information, see Create a color scheme.

The default color schemes use color definitions with the Qualitative themeable colors from the UX Theme Properties [sys_ux_theme_property] table. When Next Experience is activated, these colors are used rather than the Core UI color palette.

Example: Color palette

In the following example, you see two reports on incidents that are grouped by different fields, Priority and Category. Both reports use the default color palette, and both show the same colors.

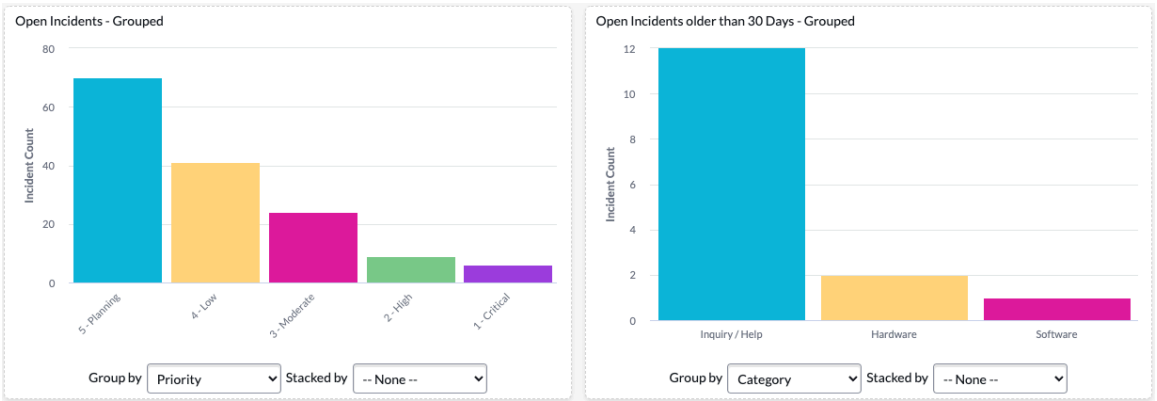


Chart colors

Chart colors assign a consistent color to a grouping or stacking value in reports. The color stays the same across reports regardless of the order of the values.

Note:
This topic refers to Reporting in the Core UI. If your instance is migrated to Platform Analytics experience, see Colors in data visualizations.

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Using chart colors in a report

Chart colors, if defined, are available in the **Chart colors** menu in the Style tab of the Report Designer.

How chart colors work

When a data category appears for the first time in a report that uses chart colors, a record is added automatically to the Chart Colors [sys_report_chart_color] table. The following fields define the data category on the Chart Colors record:

- Data source
- Stacking or grouping element
- Element value
- Application scope

The Chart Colors record also specifies a color. When a Chart Colors record is created automatically, the color is assigned from the UI 14 Color Definition [sys_report_color] records. You can edit the chart color to use a different color definition or a hexadecimal color code. For more information about editing chart colors, see the section "Define colors for data categories".

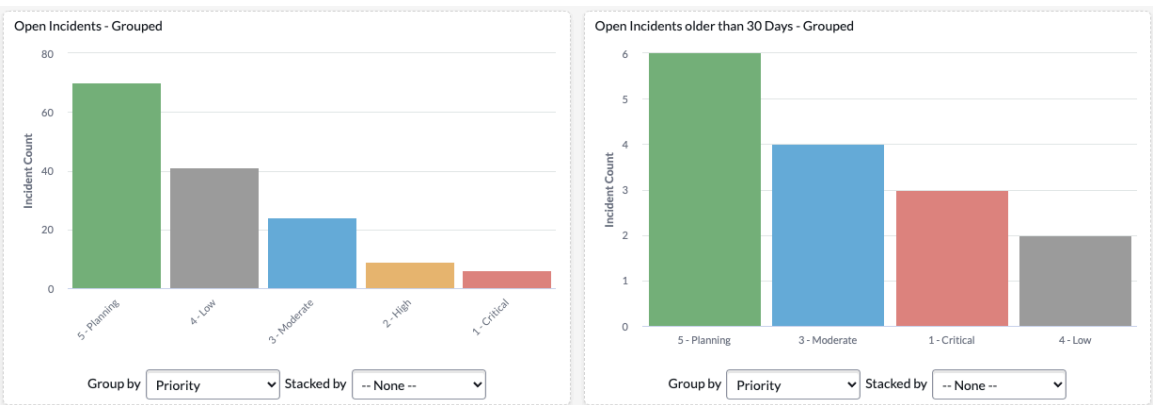
Note:

- The base system includes several predefined chart colors. Platform Analytics Solutions can provide more chart colors.
- The UI 14 color definitions use the Datavis - Qualitative themeable colors from the UX Theme Properties [sys_ux_theme_property] table. Next Experience must be activated for these colors to be used. Otherwise, the fallback colors from the color definitions are used.

Any other report that uses chart colors and that shows the same data category references the same Chart Colors record. Because the reports reference the same record, they show the same data category in the same color. For example, you create the first report that uses chart colors and shows priority 1 incidents in the Global scope. A Chart Colors record is created automatically to associate such incidents with a color. All other reports that use chart colors and show priority 1 incidents in the Global scope show them in the same color.

Example: Chart colors

In the following example, you see two reports on incidents that are grouped by the same field, Priority. Both reports use the chart colors, as set in the Style tab of the Report Designer. The same values of Priority have the same color despite being in a different order.



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Define colors for data categories

You can define a chart color for a data category in reports, such as critical priority incidents. You can select a predefined color or specify a hexadecimal code.

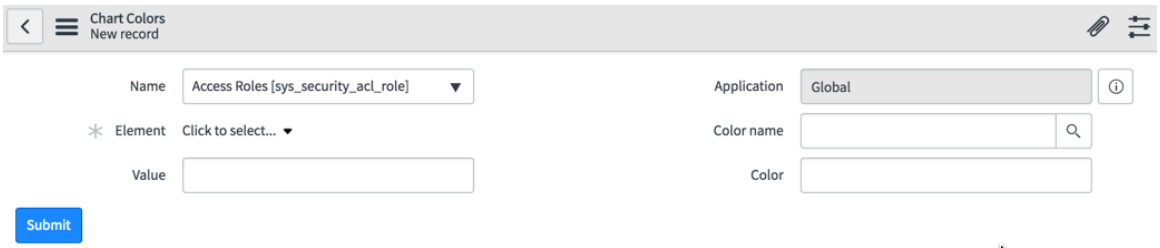
Before you begin

Role required: report_admin.

Procedure

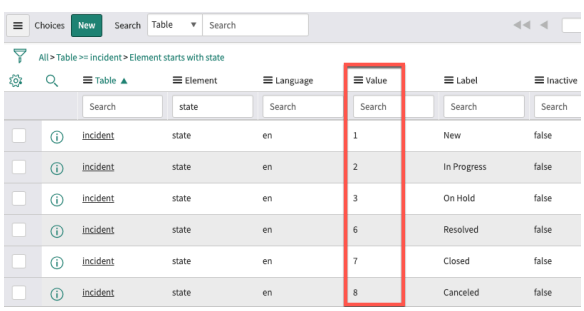
1. Navigate to **All** > **Reports** > **Administration** > **Chart Colors**.
2. Click **New**.

New Chart Colors form

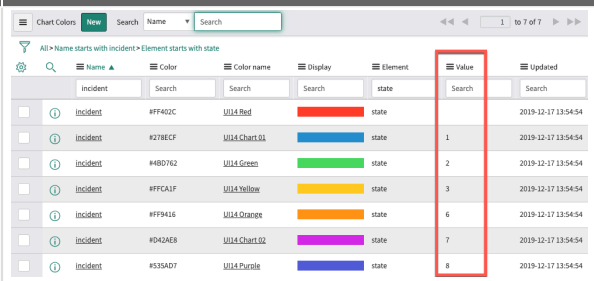


3. Fill in the fields, as appropriate.

New Chart Colors form

Name	Description
Name	Table used for the report. **Note:** The list shows only tables and database views that are in the same scope as the chart colors record.
Element	Column name specific to the selected table.
Value	The value of the element for which the specified color applies. The value is case-sensitive. For elements that are reference type fields, Value is the sys_id of the value for which the specified color applies. The following example shows how the values of the state element on Choice [sys_choice] records match the values of the state element on Chart Color [sys_report_chart_color] records. 

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Name	Description
	 To understand the various ways to get a record's sys_id, see The unique record identifier (sys_id).
Color name	Color selected from the Color Definitions [sys_report_color] table. If you select a color definition, it overrides the color specified in the **Color** field. For more information about color definitions, see Define system colors for analytics.
Color	Hexadecimal value used to specify a color that is not defined in the Color Definition table. **Note:** If the **Color name** field contains a value, the **Color** field is ignored.

4. Click **Submit**.

Result

The value selected in the **Element** field for the table in the **Name** field is displayed with the specified color.

The chart color is now available for reports on the table, in the Style tab of the Report Designer.

Define system colors for analytics

Create color definitions for use in reports and Performance Analytics widgets.

Before you begin

Role required: report_admin.

About this task

The following visualizations use the colors that you define in the Color Definitions [sys_report_color] table:

- Reports with one color
- Reports with a color palette
- Reports using chart colors
- Performance Analytics breakdown widgets
- Performance Analytics time series widgets with widget indicators
- Data Visualization Next Experience Components that use a single color, a color palette, or fixed element colors (chart colors)
- Performance Analytics target color schemes

For reports and visualizations with a color palette and for Performance Analytics widgets, these colors are used via chart color schemes. Chart colors reference color definitions directly.

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Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Color Definition**.
2. Click **New**.
3. Fill in these fields.

New color definition form

Name	Description
Name	Enter a unique name for the new color.
Color	Enter a hexadecimal value, for example #003366.
Themeable color	Applies an alternate color from the UX Theme Properties [sys_ux_theme_property] table to use when a theme is applied. Colors in the UX Theme Properties table may have different values depending on which theme variant in the UX Themes [sys_ux_theme] table is applied to your instance. To learn more about theming, see Themes in Next Experience. When a theme is turned on, the system applies this color to classic reports and visualizations created by the data visualization component. If no themeable color is defined, the system uses the color defined in the **Color** field. When themes are turned off, the system applies this color to visualizations created by the data visualization component only. The system applies the color defined in the **Color** field to classic reports and ignores the **Themeable color** field.

4. Click **Submit**.

Scoped reports

When editing a report from a different application scope than the current scope, actions modifying the original report are unavailable.

To modify the original report, change the current application scope to the report's scope and make any changes.

The following actions are available from the **Save** menu after opening a report from a different application scope in the Report Designer. Other actions, such as **Update** are not available.

- Insert
- Insert and Stay
- Schedule
- Add to Dashboard
- Export to PDF
- Report History

You can create a new report based on an existing report, but within the current application scope using the **Insert** or **Insert and Stay** options.

Related topics

Application scope

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Value formatting in reports

In most reports, you can configure how numerical values look when you publish the report.

Supported value formats

A limited number of visualization types support value formatting.

Visualization type	Supported value formats
Single score	Both number and duration formatting
Multilevel pivot	Both number and duration formatting
Horizontal and vertical bar	Only duration formatting
Pie	Only duration formatting
Time series visualizations (Area, column, line, spline, and step line)	Only duration formatting
Geomap	Only duration formatting

Formatting applies for aggregate values.

Types of value formatting

Unit format

Show the format of time fields as d/h/m/s or day/hour/minute/second.

Maximum/Minimum duration unit

Select the largest or smallest unit to be shown: Day, Hour, Minute, or Second.

Hide seconds when unit is greater than one minute

Removes seconds display when a duration value is greater than one minute. Only available if you choose **Second** as the minimum duration unit.

Decimal precision

Number of decimal places to show, from zero to four decimal places.

Note:
Decimal precision is not supported on currency fields.

Rounding

For values greater than one minute, simplifies a number by rounding, while keeping it close to its value. See Rounding options.

Use the thousands group separator

Separate a value of thousands or higher with a comma or period.

Enable abbreviation

Show a value of thousands or higher with a single character.

Note:
Abbreviation for Currency, Price, or FX Currency values is not supported.

Hide value in tooltip

Do not show the unrounded, unabbreviated value in the tooltip.

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Rounding options

For values greater than one minute, rounding options simplify a number, but keep it close to its value. Select from these rounding options:

- Up - to the next larger whole number if positive and to the next smaller whole number if negative. Example: For original values of:
  - 1.1 returns a value of 2
  - 1.6 returns a value of 2
  - -1.6 returns a value of -2
- Down - to the next smaller whole number if positive and to the next larger whole number if negative. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 1
  - -1.6 returns a value of -1
- Ceiling - to the next larger whole number, toward the positive. Example: For original values of:
  - 1.1 returns a value of 2
  - 1.6 returns a value of 2
  - -1.6 returns a value of -1
- Floor - to the next smaller whole number, toward the negative. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 1
  - -1.6 returns a value of -2
- Half up - to the nearest neighboring whole number. If both neighbors are equidistant, rounds to the next larger whole number. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 2
  - 2.5 returns a value of 3
- Half down - to the nearest neighboring whole number. If both neighbors are equidistant, rounds to the next smaller whole number. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 2
  - 2.5 returns a value of 2
- Half even - to the nearest whole number. If both neighbors are equidistant, rounds to the closest even number. Example: For original values of:
  - 1.1 returns a value of 1
  - 1.6 returns a value of 2
  - -2.5 returns a value of -2

Summary of rounding options:

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Result of rounding input to one digit with the given rounding mode

Input number	Up	Down	Ceiling	Floor	Half up	Half down	Half even
5.5	6	5	6	5	6	5	6
2.5	3	2	3	2	3	2	2
1.6	2	1	2	1	2	2	2
1.1	2	1	2	1	1	1	1
1.0	1	1	1	1	1	1	1
-1.0	-1	-1	-1	-1	-1	-1	-1
-1.1	-2	-1	-1	-2	-1	-1	-1
-1.6	-2	-1	-1	-2	-2	-2	-2
-2.5	-3	-2	-2	-3	-3	-2	-2
-5.5	-6	-5	-5	-6	-6	-5	-6

Configure formatted values in reports

In existing reports, you can configure formatted values on the **Configure** tab of the Report Designer.

Before you begin

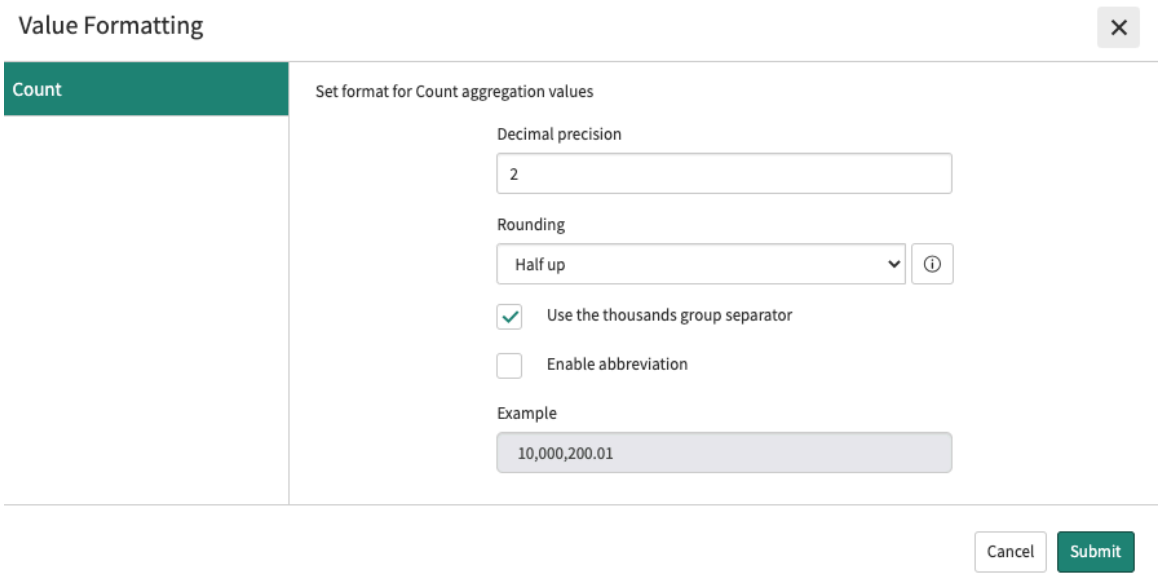
Role required: itil, report_user, report_group, report_global, report_admin, or admin

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report with the values you want to format.
3. Select the **Configure** tab.
4. Click Set Value Formatting.
5. In the Value Formatting window, configure duration, decimal precision, rounding options, unit separators, and abbreviations.

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Value formatting options for a single score report with Count aggregation:



Administering reports

Learn about the tasks report administrators typically perform, the objects that they work with, and the roles and rules that apply.

To administer reports, reporting roles, and report sources, navigate to **Reports** > **Administration** and select the area to administer.

Provides management practices for reports to ensure that they deliver the intended value without impacting system performance.

Reporting roles

Note:

- Users must have the report_user role to see the **Reports** module on the application navigator (left navigation pane).
- Users with any reporting role or the itil role can access the following report options for all reports that are visible to them: **Insert**, **Insert and Stay**, **Add to Dashboard**, and **Export to PDF**.
- In the table below, the term manage indicates access to the following report options: **Update** (edit), **Delete**, and **Export settings**.

Report roles

Role title[name]	Description
No role	Can view reports that are shared with them.
ACL-based	The report_view access controls on tables and fields limits the ability to read, edit and create reports. Administrators can create other ACL rules. You need a role that gives you access to the data that is the subject of the report. For more information, see Restrict report creation with an ACL rule and Report_view access control.

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Report roles (continued)

Role title[name]	Description
report user [report_user], itil	Can create reports and view reports that have been shared with them. Cannot share, edit, or delete reports that have been shared with them.
report scheduler [report_scheduler]	Can **Schedule** emailing of all reports that they can see, including reports they cannot manage. Users with this role must also have another role that grants permission to create, edit, and share reports.
group report user [report_group]	Can manage and share reports that are shared with the groups they are members of (listed in **Group**).
global report user [report_global]	Can manage reports that are shared with everyone (listed in **Global**).
report administrator [report_admin]	Can manage, share, publish, and schedule all reports. Can access **Reports** > **Administration** and manage all report-related objects. The report_admin role inherits all other report roles.
report description administrator [report_description_admin]	Can read and update table and field descriptions for reports.

Related topics

Performance Analytics roles

Dashboard permissions

Restrict report creation with an ACL rule

Create an access control list rule to restrict who can create a report on a table, data source, or database view.

Before you begin

Role required: security_admin.

Note:
In addition to report_on ACLs for specific tables, a write ACL on the [sys_report] table controls write access for all reports. If this ACL prevents you from saving the current report, the **Save** button in the Report Designer is disabled. For example, when you view a report that another user shared with you. If you have the correct security settings, click **Save** > **Insert** to save an editable copy of the report.

Procedure

1. Navigate to **System Security** > **Access Control (ACL)**.
2. Add an access control record with the following information.

Option	Description
Type	`record`
Operation	`report_on`
Name **(table)**	<select the table name>

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3. Define the rules that determine whether a user can report on a table.
   If a user does not have `report_on` access for a table, the table does not appear in the **Table** field when the user creates a report. Data sources based on tables for which a user does not pass the `report_on` ACL do not appear in the **Data Source** list in the Report Designer. To restrict one or more users from seeing a data source in the **Report Source** list, create a new read ACL on the [sys_report_source] table that excludes those users.

   Note:

   - Users can view and run reports on tables even if they cannot create reports due to report_on ACL restrictions.
   - System tables are not reportable by default. To allow reporting against system tables, administrators can configure the *`glide.ui.permitted_tables`* property. To learn more, see Reporting on system tables.
   - The ACL `report_on` operation grants the right to report on the target table.
   - Database views have their own ACLs. If a user has `report_on` rights to all the tables in a database view, they still require report_on rights on the database view to create reports on it. See Database views.

Related topics

Create an ACL rule

Access control rules

Report_view access control

The report_view operation is a record type access control list (ACL) that restricts access to reports. Only users who have one of the required roles can view reports that contain the restricted resource.

To create a report_view ACL, follow the general procedure for creating an ACL rule, but bearing the following points in mind:

There are two kinds of report_view access control lists (ACLs): report_view table ACLs and report_view field ACLs. Report_view table ACLs prevent users from viewing report or data visualization content based on the table specified in the ACL. Report_view field ACLs prevent users from viewing reports or data visualizations that use the field specified in the ACL in the group by, row, column or aggregation settings.

For example, a report_view field ACL grants the report_admin role viewing access to the salary field in an HR table. When users with the itil or report_user role access a report grouped on the salary field, they see: Access to this content denied based on report_view field ACLs.

Report_view operation design considerations

Use these guidelines when creating your own report_view operation access controls.

Restrict access to reports by a required role

The report_view operation only supports access restrictions based on a required role. A report_view access control does not support scripts or advanced conditions.

Restrict access to list reports with a read operation

A list report uses regular record access controls to determine who can access data in a table or field. A report_view access control cannot prevent users from viewing lists to which they have read access. To restrict access to record data in lists and forms, create a read operation access control. For more information about record access controls, see Access control list rules.

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Related topics

ACL rule types

Create an ACL Rule

Report execution security

When a report is run, report_view access control lists (ACLs) are evaluated on the table and table fields that the report is based on. If no report_view ACL exists, there is a fallback check on table-level read ACL roles.

The fallback read ACL is controlled by the system property *`glide.report.report_view.read_acl`*.

This property has three possible values. The default value is `enforce`.

ignore

No evaluation is conducted against the read ACL and all users can see the report.

enforce

If no report_view ACL for that table or table field exists, evaluation is conducted against the read ACL. Users can only view the report if they pass the read ACL.

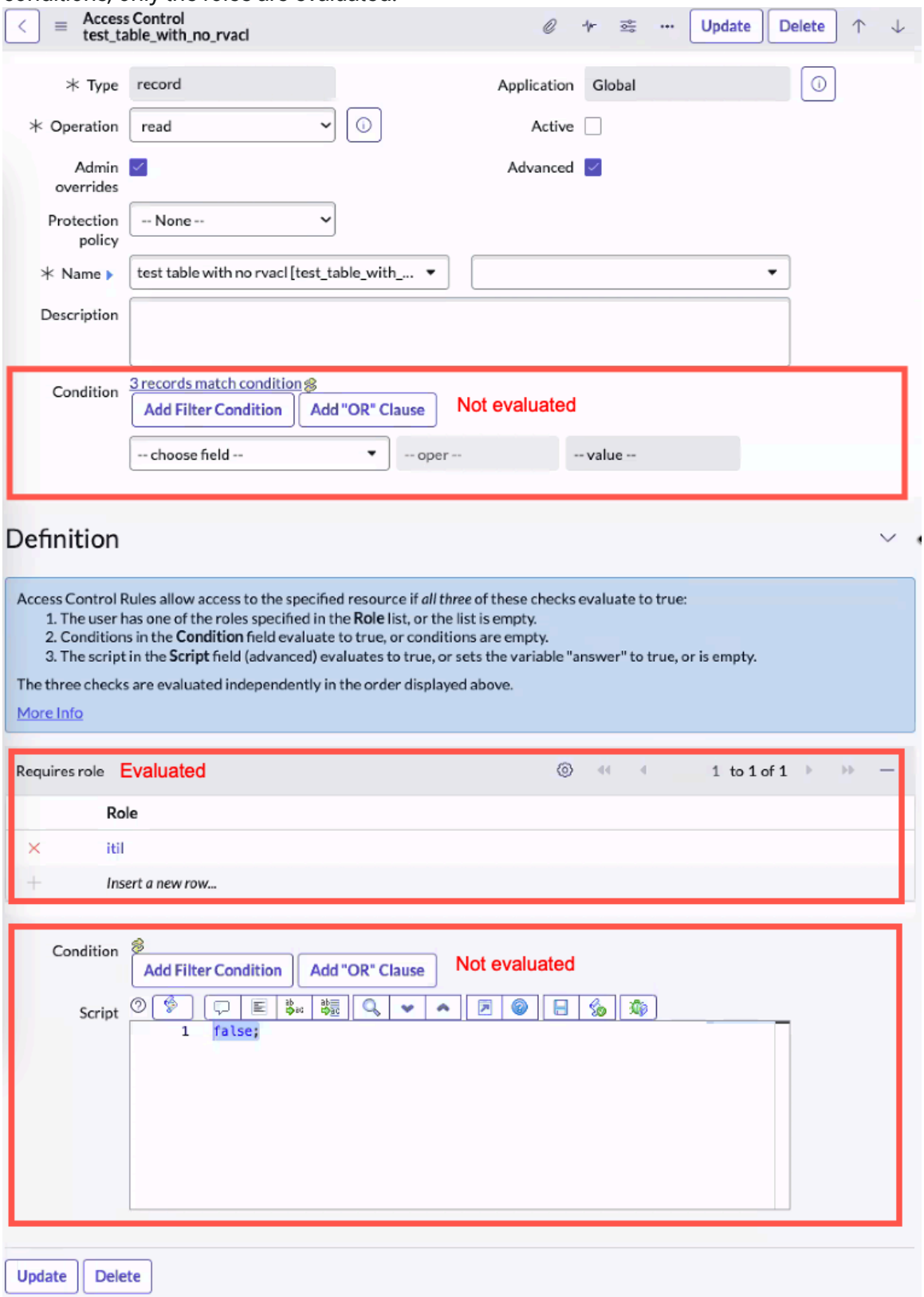
log

The read ACL check isn't enforced if there is no report_view ACL for that table or table field, but the administrator can see in the logs which users would have been blocked if the security check was enforced.

it isn't recommended to change the system property to ignore or log as the read ACL fallback provides an extra level of protection when viewing a report.

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Note:
The fallback table-level read ACL check applies only to roles, not to scripts or conditions. If a table-level read ACL has roles and scripts or roles and conditions, or roles, scripts, and conditions, only the roles are evaluated.



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ACL Assessment for Reports

Use the ServiceNow® ACL Assessment for Reports to identify reports that are blocked by report_view ACLs (access control lists).

Application components

Use the Report ACL dashboard to identify reports that users aren't able to see. If the owner doesn't meet ACL constraints, ACLs can even block report creators from their own reports. Consider a report shared with all ITIL users. A table or table column the report is based on limits access to those users with an admin role. In this case, most users with the itil role aren’t able to view the report. The application identifies both the users and the reports. Using the information from the assessment, you can ignore users and reports and address them later.

The scan evaluates all reports against the report_view ACLs on the instance. It also identifies tables without report_view ACLs and evaluates which users won’t pass the READ ACLs on a table. The ACL assessment then allows you to address users in both categories - those who don't pass report_view ACLs and those who don't pass READ ACLs on reports without report_view ACLs.

Outside of the application, you can change sharing in the report or visualization designer, or change the access of users, groups, and roles.

The application has three components:

Report ACL Dashboard

Run the scan from within the dashboard.

Affected Reports List

View all affected reports in a platform list. You can remediate reports here using platform filtering capabilities.

Ignored Reports and Users List

Remove users and reports from this list so that they appear the next time you scan your reports.

Note:
Some tables in the ServiceNow platform have access control lists created on them by default.

Install the ACL Assessment for Reports

The ACL Assessment for Reports enables you to identify users that don't have access to reports and to enable access where appropriate.

Before you begin
Roles required: admin and security_admin.

About this task
The ACL Assessment for Reports is a store app. For more information about installing store apps, see Install a ServiceNow Store application.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Enter `ACL assessment` in the search bar.
   You can search for the application by its name or ID. If you cannot find an application, you may have to request it from the ServiceNow Store.
3. Select a version from the list and select **Install**.

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In the Review Installation Details dialog box, any dependencies installed with your application are listed.

4. If you're prompted, follow the links to the ServiceNow Store to get any additional entitlements for dependencies.
5. Select a version from the list and select **Install**.

   In the Review Installation Details dialog box, any dependencies installed with your application are listed.

Perform the Report View assessment scan

Scan your instance for reports that users would be unable to view based on existing access control lists (ACLs).

Before you begin

Roles required: admin and security_admin.

About this task

The assessment scan returns a list of affected reports. A report is affected if a user has seen the report who would not be able to see it based on a report_view ACL or blocking READ ACL, in the case of reports based on tables without report_view ACLs.

The time the assessment scan takes can vary according to the number of records in the instance. Consider running the assessment over night. Also consider filtering the reports that the assessment applies to. For more information, see Filter report assessment scans.

Procedure

1. Elevate your role to security_admin.
   For more information, see Elevate to a privileged role.
2. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Report ACL Dashboard**.
3. Select **Run Assessment Scan**.
   The assessment scan can take a long time on instances with many reports. You can choose to view partial results while the scan is in progress, or select **View Result** when the scan is complete. When the scan is complete, a message shows who ran the assessment and the start and stop time of the assessment.

   Note:
   The scan calculates the number of executions of each affected report. If the property *sn_report_acl.run_scan_based_on_report_execution_only* is false, the **Total Executions** column in the Impacted Reports list is always empty, and *process_reports_executed_within_X_days_ago* is ignored.

   The initial scan shows:

   - The user who executed the scan and the scan's start and end times
   - The number of affected reports
   - The percent of reports on the instance that are affected
   - The number of tables with report_view access control lists
4. **Optional:** If the affected reports list is empty, navigate to **report_executions.list**.

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a. If this table is empty, there are no ACL issues.

b. If the **report_executions.list** has entries, change the system property *sn_report_acl.run_scan_based_on_report_execution_only* to false and run the scan again.
This time, the scan shows all the affected reports, not only those reports that have been executed. The second scan often takes longer to run.

5. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Affected Reports List** to view the list of impacted reports.
The Impacted Reports list shows the reports affected by ACLs.

View the list of affected reports

You can view a list of all impacted reports identified by the ACL assessment for reports. Use this list to remediate affected reports and users.

Before you begin
Roles required: admin and security_admin.

Procedure

1. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Affected Reports List**.
The list report shows the affected reports.

Column	Description
Report	The report name with a hyperlink to its form.
Table	The source table of the report.
DBView Referenced ACL Table	When this column is populated, the report is affected because of an ACL on one of the tables that the database view is based on. Sometimes an affected report is based on a database view with an ACL. In this case, the name of the database view appears below the name of the table in the Table column.
Dot Walk Fields	When this column is populated, the report is affected because of an ACL on an extended table. For more information, see Report on extended tables.
Total executions	The number of times a user has viewed the report. This column is empty if the property *run_scan_based_on_report_execution_only* is false.
Last execution	The timestamp of the most recent time execution of the report.

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Column	Description
	This column is populated if the property *run_scan_based_on_report_execution_only* is true.
is global	True / False. If true, the report owner has shared it with all users. If false, the report owner has shared it with specific users, groups, or roles.
Shared to roles	Roles the report owner has shared it with (regardless of access control list). This field is empty if the report is global.
Shared to users	Users the report owner has shared it with (regardless of access control list). This field is empty if the report is global.
Shared to groups	Groups the report owner has shared it with (regardless of access control list). This field is empty if the report is global.
Is blocked by read ACL	This column shows true if a read ACL blocks a user.
Read ACL table	Shows the name of the table checked if the user is blocked by a read ACL.
Is blocked without RVA or Read ACL	This column shows true if a report is blocked because the table the report is based on has neither a report_view ACL nor a read ACL.
Blocked by table ACLs	If a table ACL (or column ACL that applies to all columns in a table) blocks a user, this column shows the name of the ACL.
Blocked by table ACLs roles	The roles defined in the table ACL whose members can view reports based on the ACL. A user needs at least one of these roles to see the report.
Table ACLs link	Click the link to view a list of the table ACLs that apply to the impacted report. The **Role** field in the list shows the required roles. A user must have one of the roles to view reports based on the table.
Blocked by column ACLs	If a specific column ACL blocks a user, this column shows the name of the ACL.
Blocked by column ACLs roles	The roles defined in the column ACL whose members can view reports based on the column. A user needs at least one of these roles to see the report.
Column ACLs link	Click the link to view the column ACLs that apply to the impacted report. The **Role** field in the list shows the required roles. A user must

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Column	Description
	have one of the roles to view reports based on the column.

2. Address the affected reports and users as described in Manage Report ACL assessments.

Manage Report ACL assessments

When you run the Report ACL (access control list) assessment scan, the result is a list of affected reports. The assessment details the users who have seen a report including the report creator. The assessment also includes the roles that the report is limited to and the groups that contain those roles.

Before you begin

Roles required: admin and security_admin.

About this task

For reports that are blocked by a table-level read ACL, the assessment displays the table that contains the blocking ACL and which users are blocked. The assessment application does not provide further management tools. For reports that are blocked because they don't have either a report_view ACL or a read ACL, the report is marked as affected, but doesn't display the affected users.

Important:
The roles associated with blocking table access control lists (ACLs) and blocking column ACLs come from the sys_security_acl_role table. ACLs that don't have a role record in this table don't appear in the Report View ACL List or on lists of affected table, column, and read ACLs.

Procedure

1. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Affected Reports List**.
2. Select the info button (ⓘ) next to the report that you want to address and select **Open record** to see the options associated with the report.
   This result shows the following information.
   a. The users, roles, and groups that the report owner belongs to and has shared the report with. If the field **Is global** is checked, the report is shared with all users. Otherwise, **Shared to users**, **Shared to roles**, and/or **Shared to groups** are selected.
   b. The number of times users have viewed the report.

      This field is empty if the property *run_scan_based_on_report_execution_only* is false.

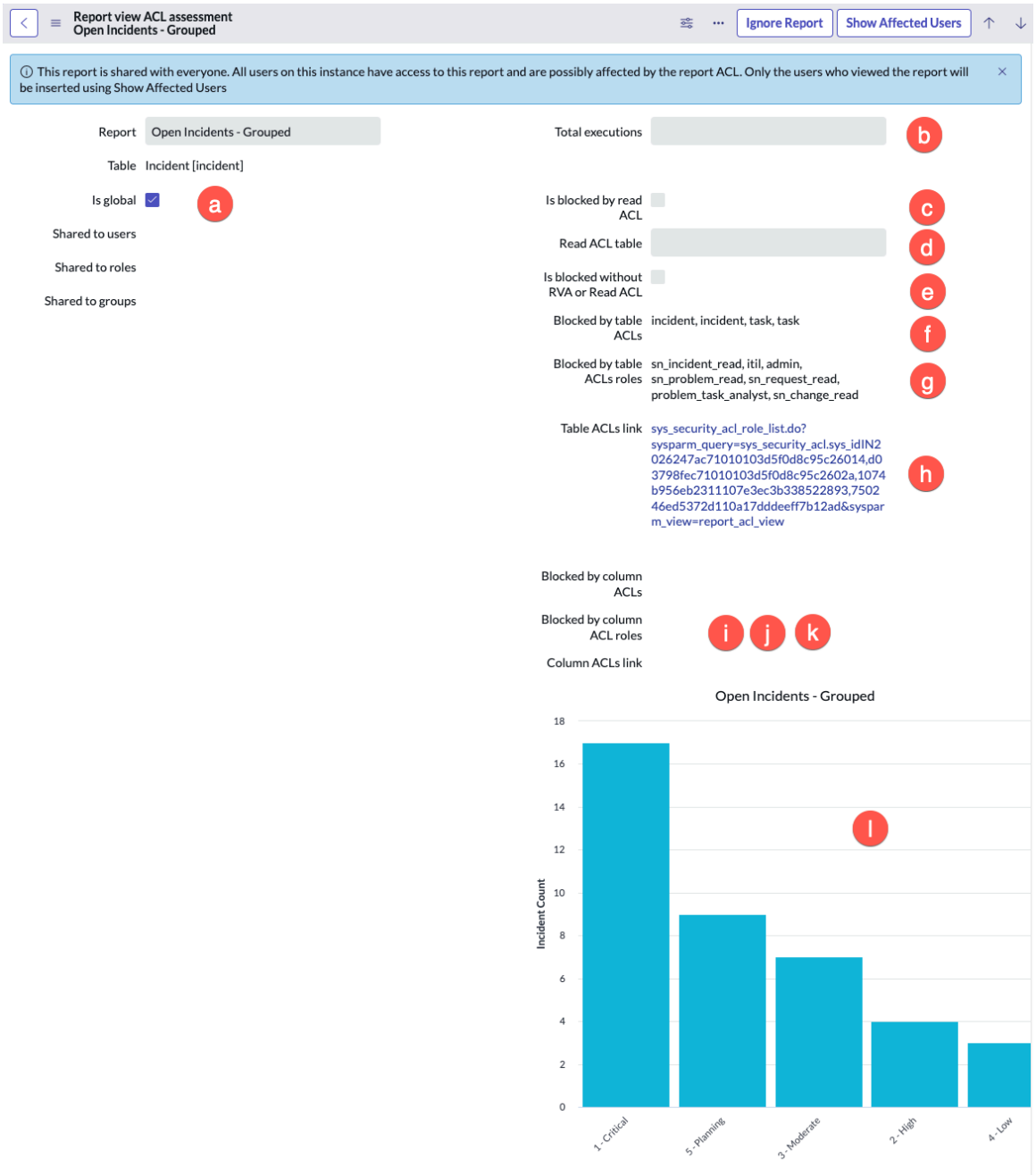
   c. The field **Is blocked by read ACL** is selected when there are no report_view ACLs on the table the report is based on, but Read ACLs do block access.
   d. The table with Read ACLs that apply to the report.
   e. The field **Is blocked without RVA or Read ACL** is selected when the report is blocked for a non-ACL reason.
   f. Table ACLs (and column ACLs that apply to all columns on the table) that apply to the report
   g. Roles associated with blocking table ACLs
   h. Links to associated blocking table ACLs
   i. Column ACLs that apply to the report

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j. Roles associated with blocking column ACLs

k. Links to the associated blocking column ACLs

l. A real-time rendition of the report

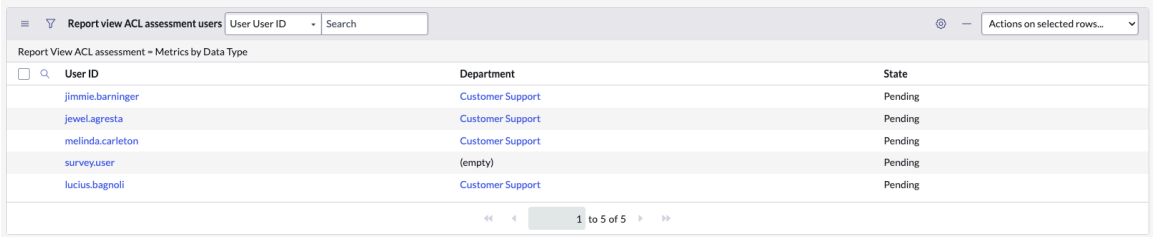


3. **Optional:** Select **Ignore Report** to remove this report from future assessments.
   To review these reports later, see Reassess ignored reports.

4. Select **Show Affected Users** and then **View Result**.
   The first several affected users appear in a related list below the report assessment. Affected users are users that the report owner has shared the report with but who can't see the report based on report_view ACLs.

   The default number of affected users shown is five. To show more, configure the property *`sn_report_acl.com.par_report_acl_assessment.max_affected_users`*. For more information, see Filter report assessment scans.

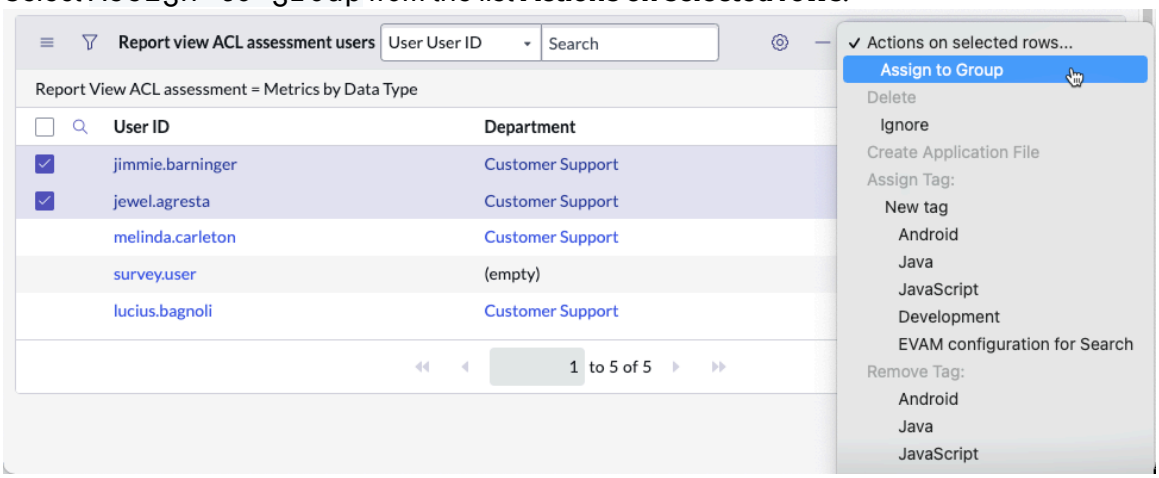
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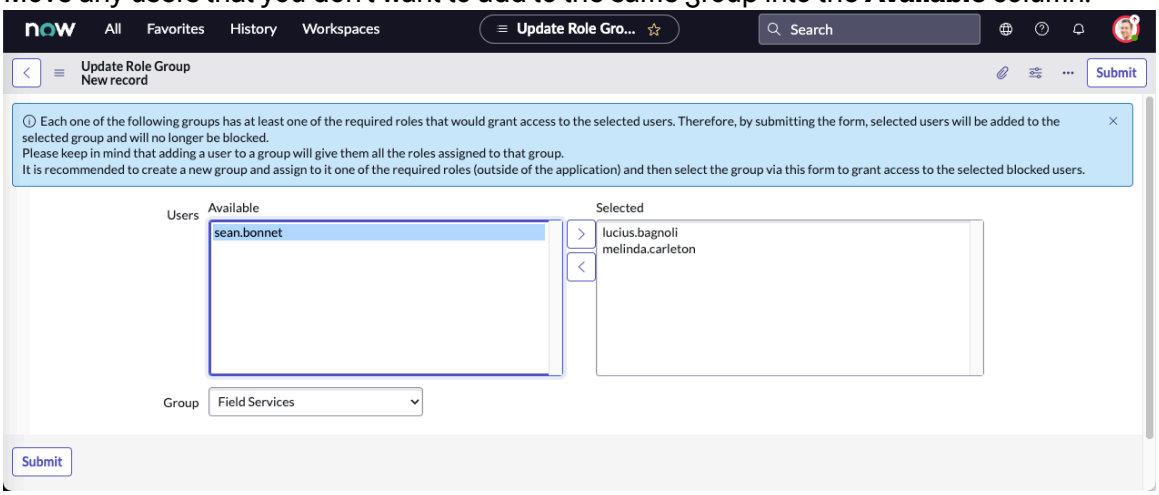
5. **Optional:** Select one or more of the affected users and choose **Action on selected rows** > **Ignore** to leave users' access to the report unchanged.
   Selected users are still unable to view the report but their names don't show up next time that you run the assessment scan.
6. Add users to a group.

   a. Choose one or more affected users.

   b. Select `Assign to group` from the list **Actions on selected rows**.



   c. Choose a group and a role (if available) to add the selected users to and select **Submit**.
   Move any users that you don't want to add to the same group into the **Available** column.



   d. If no groups have at least one blocking role, select an appropriate group and add one of the blocking roles.

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If no groups are appropriate for the users, create a group and assign one of the required roles to it outside of the application. Then within the application, grant access to the selected blocked users. For more information on creating groups, see Create a user group.

e. Select **Submit**.

Result
In the Affected Users list, the status of the assigned users changes to Processed. The next time you view this list, these assigned users no longer appear on it.

Related topics

Assign a role to a group

Manage reports with ACLs on extended fields

Add a system property to identify reports affected by report_view ACLs on dot-walked fields.

Before you begin
Role required: admin and security_admin.

Procedure

1. Create the system property *sn_report_acl.com.par_report_acl_assessment.collect_dotwalk* and set it to `true`.
   For more information on creating system properties, see Add a system property.
2. Perform the Report View assessment scan.

Result
The Impacted Reports list has a new column, **Dot walk fields**. This column is visible only when an affected report is identified based on an ACL on a field on an extended table.

Related topics

Report on extended tables

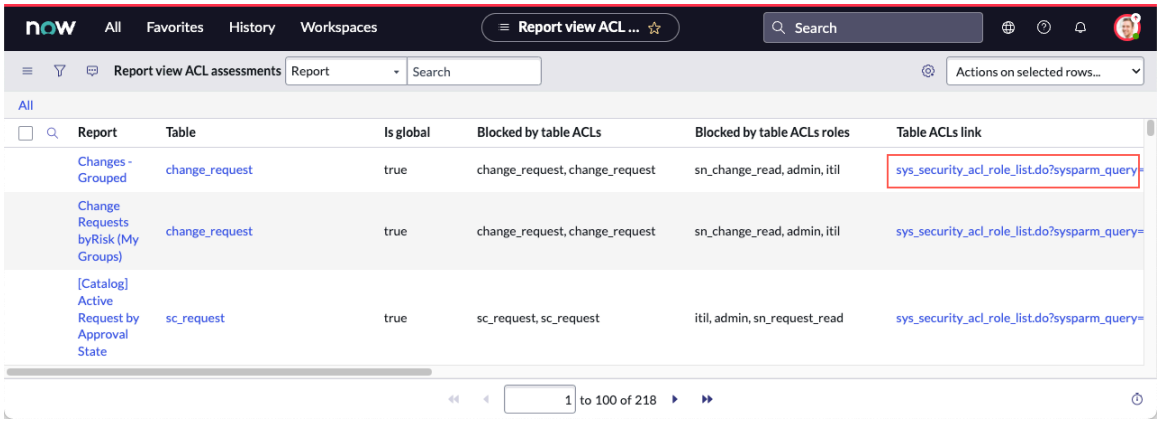
Other report remediation tasks

After you perform the report assessment, you can address affected users. You can change access control list (ACL) roles, change sharing options on reports, or add report users to a group to grant them blocking roles.

Edit ACL roles

Elevate your role to security_admin and add one or more roles to a blocking ACL. Select the **Table ACLs link**, **Column ACLs link**, or **Read ACLs link** in the Affected Reports form to open the related ACL role list.

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Edit the report sharing options

- For reports created in the Classic environment, open the report in the Report Designer and change who the report is shared with. For more information, see Share a report.
- For reports created in a configurable workspace open the report in the Visualization Designer and change who the report is shared with. For more information, see Share a data visualization in the Visualization Designer.

Filter report assessment scans

Especially on large instances, the ACL Assessment for Reports can take a long time. To reduce the assessment time, you can use system properties to filter the reports that the assessment applies to.

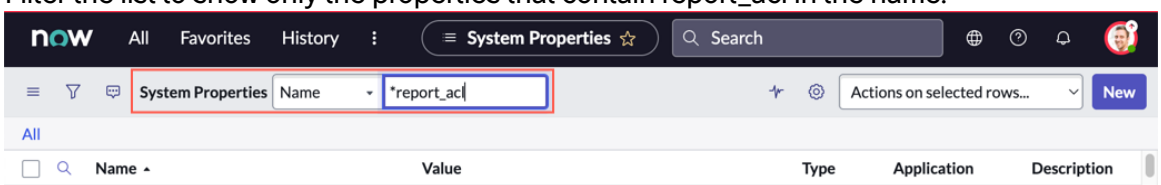
Before you begin
Roles required: admin and security_admin.

You can work with all the properties in the ACL Assessment for Reports except two:

- *sn_report_acl.com.par_report_acl_assessment.report_view.sys_ids*
- *sn_report_acl.glide.script.block.client.globals*

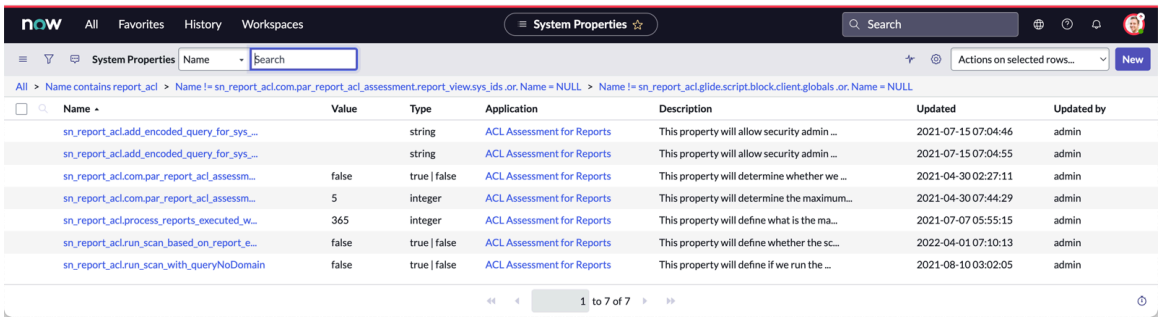
Procedure

1. Navigate to **All** > **System Properties** > **All Properties**.
2. Filter the list to show only the properties that contain report_acl in the name.



3. Filter out the properties *sn_report_acl.com.par_report_acl_assessment.report_view.sys_ids* and *sn_report_acl.glide.script.block.client.globals*.

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4. Use the remaining properties to configure the assessment scan.

Report assessment system properties

Use these properties to configure the ACL Assessment for Reports scan.

To configure system properties, navigate to `sys_properties.list` and filter on the property name.

Property	Description
sn_report_acl.run_scan_with_queryNoDomain	Only valid on domain-separated instances the app considers the user domain when y If false, the security_admin gets results onl they have visibility to. A global security_adm property to true and retrieve the results for on the instance. The individual security_ad view the collected results for their own dor information, see Report assessment and d If you set this property to true on an instan domain separated, then the assessment ru query. If you delete this property, the default value false. Type: true/false Default: false
sn_report_acl.add_encoded_query_for_sys_report_table	Allows security admin users to add an enc condition to the query that the assessmen on the sys_report table. For example, you c encoded query that evaluates reports only tables. The validity of the encoded query is the us For performance reasons, the app does no additional queries in code before executio If you delete this property or it has an empt assessment scan runs with the original co Type: string

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Property	Description
sn_report_acl.com.par_report_acl_assessment.collect_dotwalk	Determines whether the app checks dot-w affected reports. When false, the performance of the app im app gives only a subset of the total results. Type: true/false Default: false
sn_report_acl.add_encoded_query_for_sys_user_table	Allows security admin users to add an enc condition to the query that the assessmen on the sys_user table. For example, you ca query that evaluates only specified roles. The validity of the encoded query is the us For performance reasons, the app doesn't queries in the code before execution. If you delete this property, or it has an emp assessment scan runs with the original co Type: string
sn_report_acl.process_reports_executed_within_X_days_ago	Defines the maximum number of days sinc a report was viewed by any user that the a running the assessment scan. Type: Integer Default: 365
sn_report_acl.run_scan_based_on_report_execution_only	The scan calculates the number of executi affected report. If this property is false, the column in the Impacted Reports list is alwa *process_reports_executed_with* is ignored. Type: true/false Default: true
sn_report_acl.com.par_report_acl_assessment.max_affected_users	The maximum number of affected users re click **Show Affected Users**. Applies to repo users with specified roles or reports viewa For reports viewable by groups, this value number of affected users retrieved per gro Type: Integer Default: 5
sn_report_acl.com.par_report_acl_assessment.collect_dotwalk	Captures report fields on extended tables to be blocked. This property adds the colu **Fields** to the Impacted Reports table if tho

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Property	Description
	Type: true/false Default: true

The report_view ACLs list

View the entire list of report_view ACLs and their associated roles to have a higher-level view of the access control on your instance.

Each instance has a different number of report_view ACLs. The number depends on the plugins activated on the instance.

To view the report_view ACLs list, navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Report View ACLs List**.

report_view ACLs list columns

ACLs apply to only one role at a time. There can be multiple instances of an ACL if there are multiple roles that it applies to. For example, the same ACL grants greater report access to an admin than to an itil user.

Column	Description
ACL	The name of the report_view ACL.
Active	Indicates whether the ACL is active. True/False.
Application	The application the ACL applies to.
Package	The plugin associated with the ACL.
Description	What the ACL prevents or allows for the associated role.
Role	The name of the role the ACL applies to.
Description	Description of the role.

Reassess ignored reports

When you address the ACL Assessment for Reports, you can ignore any report. View these reports to consider their statuses again.

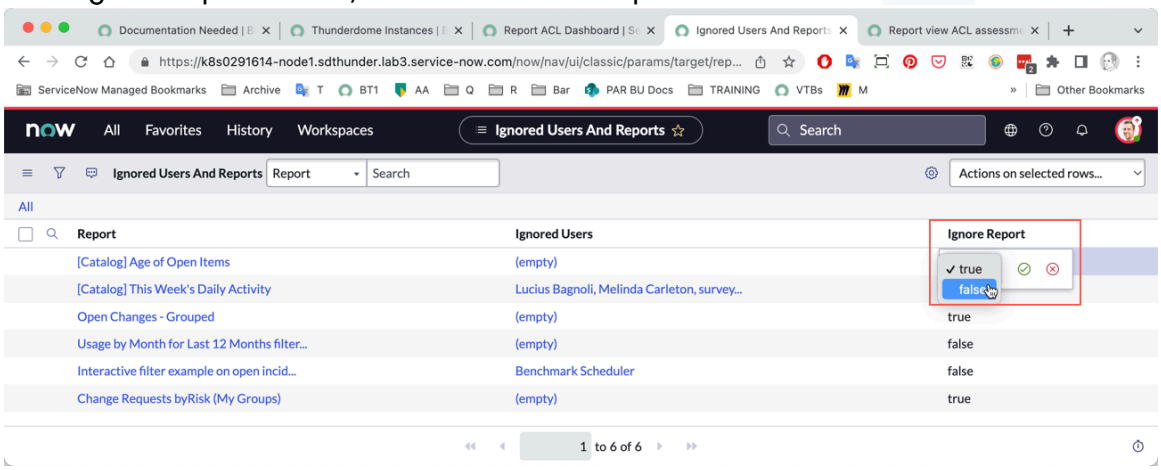
Before you begin

Roles required: admin and security_admin.

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Procedure

1. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Ignored Reports and Users List**.
2. In the Ignore Report column, set the value of the reports to reassess to `false`.



Result

The ACL Assessment for Reports assesses the `false` reports the next time you run the assessment.

Reassess ignored users

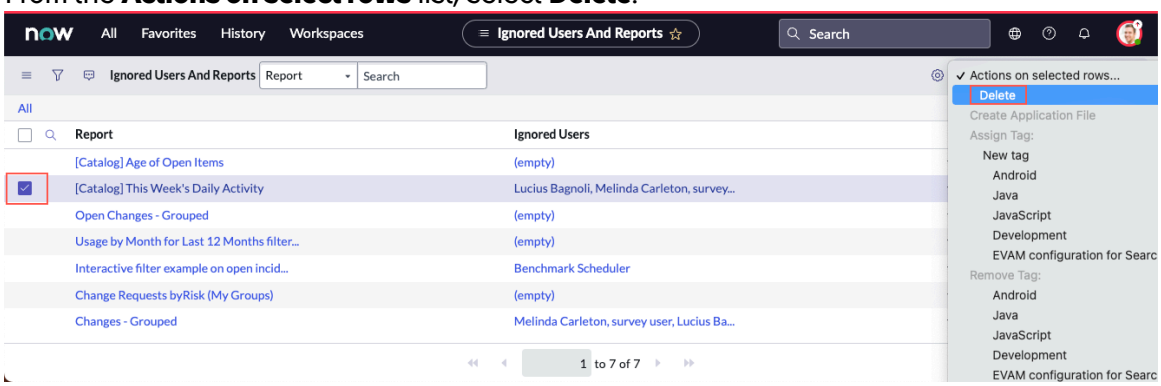
When you address the ACL Assessment for Reports, you can ignore any individual user. View these users to consider their statuses again.

Before you begin

Roles required: admin and security_admin.

Procedure

1. Navigate to **All** > **Reports** > **ACL Assessment for Reports** > **Ignored Reports and Users List**.
2. Select the row with the Ignored User.
3. From the **Actions on select rows** list, select **Delete**.



Result

The ACL Assessment for Reports application includes the users you deleted from this report the next time you run the assessment.

Report assessment and domain separation

In domain separated instances, the ACL Assessment for Reports has certain limitations.

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Domain separation property

Configure the true/false property *sn_report_acl.run_scan_with_queryNoDomain* to specify whether the assessment applies to the whole instance or to an individual domain.

This property is only valid on domain-separated instances. It defines whether the app considers the user domain when you run the query. If false, security_admins gets results only for the domains they have visibility to.

A global security_admin can set the property to true and view the results for all the domains on the instance. The individual security_admins can then retrieve the collected results for their own domains. For more information, see Filter report assessment scans.

The assessment runs as a normal query when this property is set to true on a single domain instance. The application treats the assessment as if the property is false if the property is deleted.

Note:
When you run the assessment as a global security_admin, be sure to set the property back to false. If true, any security_admin can query the entire instance. Other security_admins don't see data that they don't have the right to view, but collected data is overwritten.

Column view access control for list reports

For list reports, the **glide.report.add_to_list_supported** system property enables the add_to_list access control list. This access control list (ACL) prevents users from reporting on list report columns with sensitive data.

A manager can prevent users from reporting on the **Assigned to** column when creating a report, for example. If a table field is restricted for the user, it doesn't appear in the **Available** column. Users are therefore not able to select it in the reports they create.

Note:
When the property is enabled: A user who doesn't pass the add_to_list access control list for a column sees the restricted columns that are already included in the report in the **Selected** column. This user also sees those columns' data in the report. If the user removes the column from the **Selected** column, it's no longer listed in the **Available** column. The user isn't able to select it again to include in a report.

The add_to_list ACL only applies to the top-level table that the report is based on.

This property is inactive by default. To enable it, navigate to **sys_properties.list** (System Property table) and set **glide.report.add_to_list_supported** to **true**. Admin role required.

After you enable the property, existing reports aren't affected. Columns are only invisible on newly created list reports with fields that you specify as restricted.

Related topics

ACL rule types

Report permission issues

There are several reasons why a report is showing less information than expected or possibly no data at all. These include insufficient permissions on the report and the report not being shared.

Report not shared

A common reason that a report may not be viewable is that the report hasn't been shared with the users who are attempting to access it. By default, a newly created report won't be shared and

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therefore inaccessible to anyone except the report creator or users with the admin role. A report can be shared with an individual user, with one or more groups, or assigned to one or more roles.

Unshared reports don't appear in lists of reports a user has access to or in other options in which a report might be opened or selected. When users are able to see a dashboard the report has been added to, but not the report itself, a message indicates that the "Report is visible only to a specific user or group".

To correct this issue, the owner of the report (or an administrator) can share that report with the individuals who should have visibility and access to that report. You can share a report directly from the report's sharing icon. For more information, see Share a report.

List reports show fewer rows than expected

Another common issue is that fewer rows appear in list reports than the viewer expects. For example, one user sees 100 rows in a list report, but another user, viewing that same report may see fewer rows or even no rows at all. When one or more rows have been removed from the report, a message indicates the number rows removed due to security constraints.

The usual cause is that each row of a list report is first compared against any read access control lists (ACLs) defined on the report's source tables.

The ACL is considered for each list row that might be displayed in a report. For more information, see Report_view access control.

Non-list reports show incomplete data

Graphical reports (defined as any non-list type report) may show an incomplete set of data for one user, as compared to another user reviewing that same report.

This issue is caused by the fact that Before Query business rules are performed on the data from the source table before a report is generated and rendered. Business rules, found on a report's source tables, limit the data based on permissions or similar criteria. Any records that don't fulfill the rule's criteria aren't included in the report. Therefore, users with differing permission levels (due to group or role permissions mainly) see the same report showing different results. For more information, see Before Query business rules.

Report statistics

The **Report Stats** list enables you to view how often each of your Core UI reports is run and how long it takes for the reports to run.

To view report statistics, navigate to **All** > **Reports** > **Administration** > **Report Statistics**. The admin or report_admin role is required. By default, the Report Statistics list displays all reports that have been run. To view reports that haven't been run, select the context menu icon (☰) and choose **Add Unused Reports**.

Note:
Adding unused reports to this list takes some time, especially if your instance has many reports.

Overview and suggestions on how to manage reports within the ServiceNow environment.

The **Report Stats** list has the following columns:

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Column	Description
Report	The name of the report. Select the hyperlink to view the report properties.
Last run	The date and time the report was last run.
Runs	The number of times the report has ever been run.
Runs on page	The number of times the report has been run on a dashboard.
Recent run time	The average execution time of the report in milliseconds based on the 25 most recent runs. Edit the *glide.report.recent_executions_number* property to change the number of runs used to calculate this value.
Run time	The average execution time in milliseconds of all runs of the report.
Recent number executions	The number of time the report was recently loaded from the server. The maximum number of recent executions is determined by the property *glide.report.recent_executions_number*.

- To view the reports that take the most time to run, sort **Recent run time** from z-a.
- To view used reports, filter out the value 0 from the **Runs** column.
- To view the most used reports, sort the **Runs** column from z-a.

Reports Usage dashboard

The Reports Usage dashboard provides an overview of how reports are used in a ServiceNow instance or domain.

To view report statistics, navigate to **Performance Analytics** > **Admin Console** and select **Report Usage** on the Usage tile.

Note:
The report_admin role cannot view this console. The admin or pa_admin role is required.

The Reports Usage dashboard shows the following widgets:

Widget	Type	Description
Number of Reports	Single Score with percentage change month on month.	The number of reports in the instance. Click the score to view a dashboard with chart and lists of breakdowns, records, and scores.
% Reports not viewed in the last 6 months	Single Score with percentage change month on month.	The percentage of reports in the domain or instance that have not been viewed in the last six months. Click

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Widget	Type	Description
		the score to view a detailed dashboard with a chart on which you can adjust the period, the calculation used, and additional information on the report.
Top 10 Report Tables	List	A list of the top 10 tables used in reports. Point to the name of a table to read its description. Click the name of the table or the number of reports to show a dashboard with an enlarged chart, a list of the records in the table, the scores, and additional information on the report.
Reports by Visualization type	Bar chart (with option to change the visualization to one of several other report types)	The number of times the report has been run on dashboard. Click a report segment to show a dashboard with an enlarged chart, a list of the records in the table, the scores, and additional information on the report.

Report sources

Report sources are predefined data sets for creating reports.

Use report sources for reports containing the same conditions, so you do not have to define the conditions more than once. You can also use report sources to implement the same definitions across your organization.

In the Visualization Designer, your report sources are available when you filter a table on predefined conditions.

A report source always consists of a table and a number of conditions. When you create a new report, you can either use a report source or select a table. Some examples of report sources are open incidents, closed problems, and so on.

Creating report sources; using report data from fields in related tables; using related lists.

Use the option to create a report source based on the conditions of an existing report, or see the following steps for creating a source based on new conditions you add.

For more tips on using report sources, see How to save time with Report Sources.

Create a report source

Create a custom set of data that you can use to create reports. In the Report Designer, report sources are called Data Sources.

Before you begin

Role required: report_admin.

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About this task

If you update the conditions in a report source, these conditions are automatically propagated to all reports based on that report source.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Report Sources**.
   To create a report source from an existing report, open the report, and select `Save as data source` from the **Save** menu. The table and task conditions are populated in the report source record.
2. Select **New**.
3. Fill in the fields on the form, as appropriate.

Field	Description
Name	The name of the report source. For example, `Open incidents`
Table	The table on which the report source is based. For example, **Incident [incident]**.
Description	A more detailed description of what the report source does and its purpose.
Filter	Conditions for which table records to include in the report source. For example, to include open incidents, select **[State] [is] [Active]** for the Incident table. **Note:** Sorting on data fields is accessible from within reports for some report types. For information on how to access, search for the **Add Sort** field description in a Report types topic for the report type to sort the data on. ○ If the report source is used for a report that includes OR conditions, only records that match both the report and the report source conditions are included. ○ If a report source specifies a related list condition, a report that is based on the report source ignores any additional related list conditions specified from within the report. ○ A report generates errors if it's based on a report source that specifies a related list condition, and also includes additional related list conditions with dot-walk conditions.

4. To view reports based on a report source, select the **Reports using this report source** related link in the report source record.
5. Select **Submit**.

What to do next

Use the report source to create a report.

Note:
While a report source is used by active reports, you can't delete it.

Report ranges

Use a report range to define intervals that break up continuous timespan data in table fields. It is necessary to break this data into discreet chunks for presentation.

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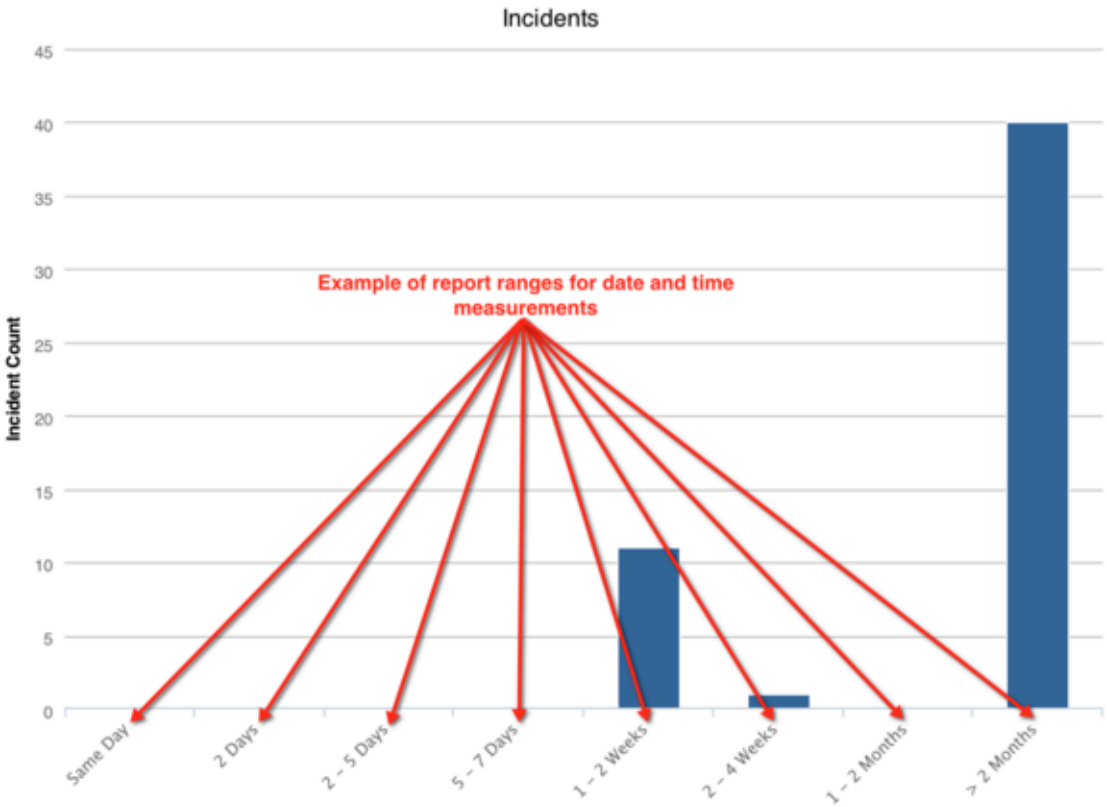
Sometimes it can be helpful to group results into ranges or buckets rather than viewing every result as an individual score. Think of a bar or pie chart which shows the business duration of incidents. By default each individual value would be a separate slice, creating an unnecessarily crowded-looking visual. However, segmenting the results into logical groups of scores can add context and help the audience understand which ranges are good, bad, or concerning. A report range is used to define data intervals for the following charts:

- Core UI: Bar, pie, and donut reports
- Platform Analytics: All relevant data visualization types including heatmap and time series, when the data source is a table.

Example use case: There is a significant cost involved to a business each time a SLA is breached at a company. A Service Manager can understand which SLAs are being easily met versus which ones are being breached, or are coming close to being breached by viewing how many tasks were completed well within the SLA versus how many elapsed during the SLA.. This information helps them identify which SLAs may need to be adjusted.

Note:
It is not possible to set report ranges for dates in the future.

Incidents created date with ranges



How report ranges work

Report ranges work with elements that hold only dates, lists, or integers.

Report range elements list

Type	Examples
Dates	Using the *Created* field in the Incident table: Same Day, 2 Days, 2–5 Days, 5–7 Days, 1–2 Weeks, 2–4 Weeks, 1–2 Months, > 2 Months

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Report range elements list (continued)

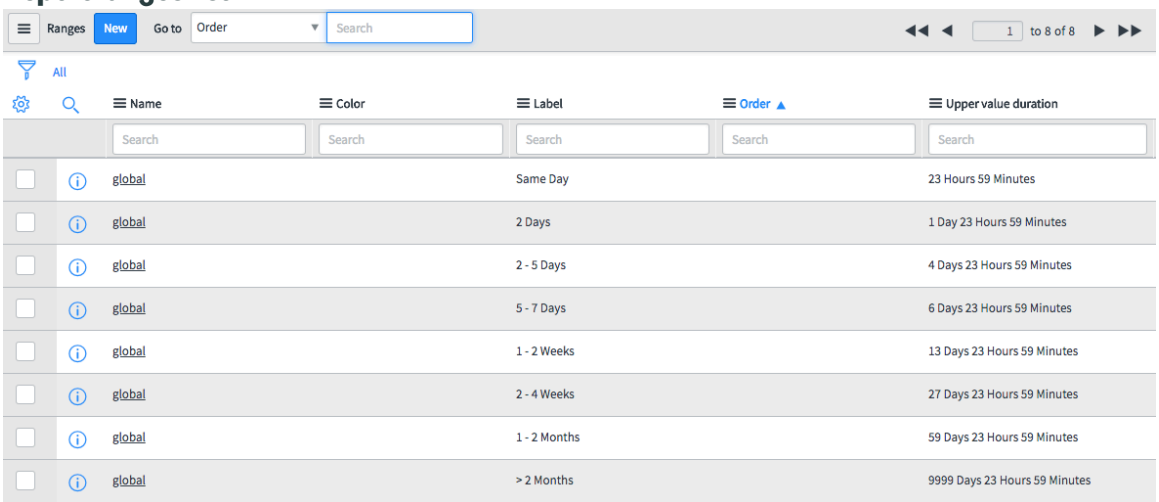
Type	Examples
Lists	Using the *Priority* field in the Incident table: Low, Moderate, High, Critical, Planning
Integers	Using the *Count* field in the Incident table: Overloaded, Optimized, Under Utilized

Report ranges can be globally applied to all date type fields (date, due date, duration, date/time, date time), or you can limit report ranges to a specific table.

View all report ranges

To view all currently configured report ranges, navigate to **All** > **Reports** > **Administration** > **Report Ranges**. If your instance is migrated to Platform Analytics experience, navigate instead to **All** > **Platform Analytics Administration** > **Color Settings** > **Report ranges**.

Report ranges list



The following are important columns and their associated data types:

Report range list field

Field	Corresponding data type
Upper value duration	Date - works with elements that store dates.
Upper value int	Integer - works with elements that store numbers.
Value list	List - works with elements that store a list item.

Create a report range

Create a report range to define data intervals that are used in bar and pie charts.

Before you begin

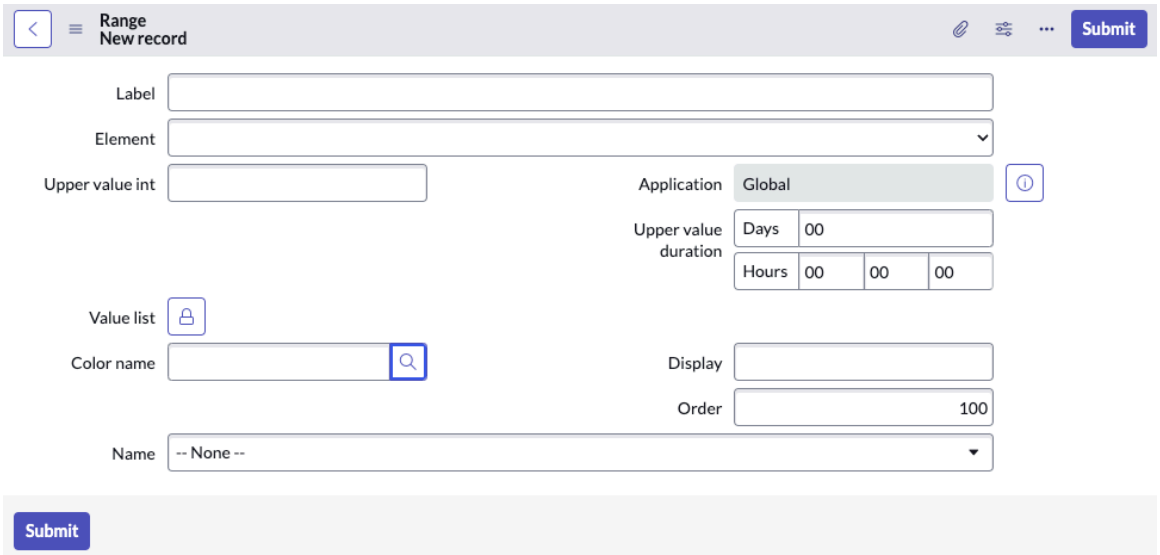
Role required: itil, report_user, report_group, report_global, report_admin, or admin.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Report Ranges**.
   If your instance is migrated to Platform Analytics experience, navigate to **All** > **Platform Analytics Administration** > **Color Settings** > **Report ranges**.
2. Select **New**.

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3. Fill in the form (see table):



Use the following fields to refine the data displayed in the report and to design the appearance of your report visualization:

Report range form fields

Field	Description
Name	The name of the table to draw the values from. **Note:** This field is required before you can select from the **Element** list.
Element	The table field to draw the values from.
Label	The name for the report range that is displayed in reports.
Value list	For list elements, this field defines which values are within the range. After the range is saved, the value list is populated with the choices of the element.
Color name	The color to display this report range in. The color appears in the **Display** field. If you enter a color name, you do not need to enter a color value. **Note:** When creating reports, colors may not display as specified for ranges on Group by report fields selected via dot-walking. For this feature to work appropriately, select applicable Group by fields from the base table only.
Color	The hexadecimal value for the color to report this report range in. The color appears in the **Display** field. If you enter a value for color, you do not need to enter a color name. **Note:** When creating reports, colors may not display as specified for ranges on Group by report fields selected via dot-walking. For this feature to work appropriately, select applicable Group by fields from the base table only.

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Field	Description
Upper value int	For integer-type elements, this field defines the upper limit of the range. The upper value of the report range with nearest lower **Order** defines the lower limit of this range. If no range with a lower **Order** exists, the lower limit is zero. Example: One report range has an upper limit of 10 and an **Order** of 20. A second report range has an upper limit of 5 and the **Order** of 19. The first report shows values from 6 to 10 in the formatting specified by this range. The second report shows values of 5 or less.
Upper value duration	For duration-type elements, this field defines the upper limit of the range. The upper value of the report range with nearest lower **Order** defines the lower limit of this range. If no range with a lower **Order** exists, the lower limit is zero. Example: One report range has an upper limit of 10 and an **Order** of 20. A second report range has an upper limit of 5 and the **Order** of 19. Values from 5 to 10 display the formatting specified by this range.
Display	Read-only. Shows the color that is used for the specific report range.
Order	The order in which the report ranges are used. If a value is defined within more than one label, it is reported under the report range with the lowest order.

Note:
Once configured, a report range will show as empty if there's no data available in your report. Context fields such as data labels or legend related to the configured report range will still show and be highlighted.

Enable the report range module

To use report ranges in your bar and pie charts, you must enable the report range module.

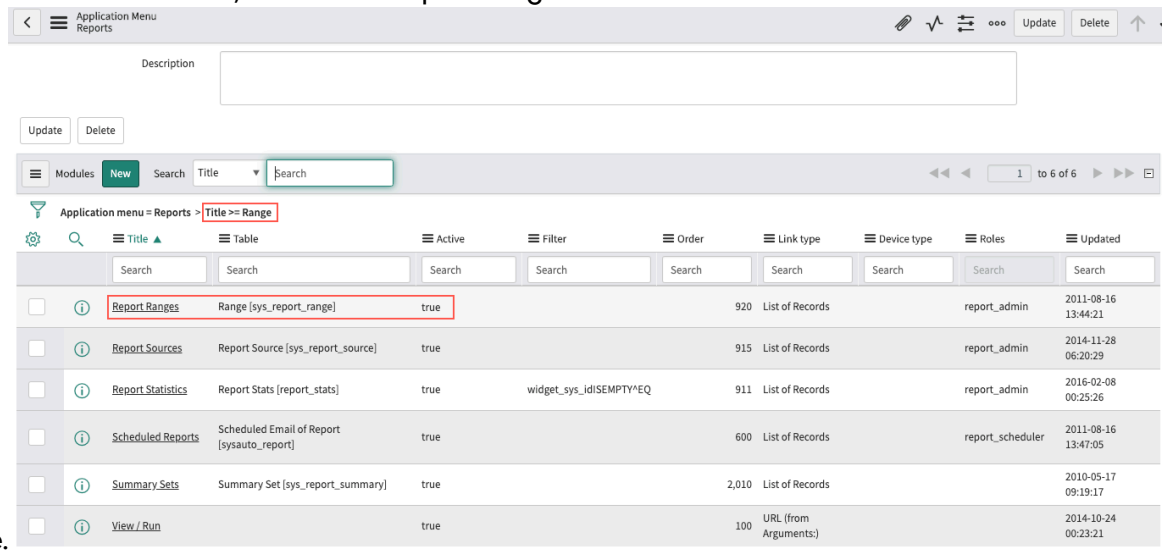
Before you begin
Role required: admin

Procedure

1. Navigate to **All** > **System Definition** > **Application Menus**.
2. Open the **Reports** application menu.

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3. In the **Modules** related list, enable the Report Ranges module.



The Modules related list may have over 100 entries. Filter it on the word range to shorten your search.

Result

You can define report ranges for your pie and bar charts.

Using imported report data

Imported Excel spreadsheets enable you to generate reports based on data maintained outside of your instance and to distribute those reports.

Users with admin, sys_admin, report_admin, pa_admin, and pa_power_user roles are able to upload .xlsx files. Uploaded data is temporary and has a specified expiration date, after which reports based on those files are no longer available.

You must have the subscription version of Performance Analytics to create reports with imported data. See Activate your Performance Analytics subscription.

Note:
Importing report data in this way is useful when you have information that is maintained outside of your instance. To import an external data set into your instance permanently, see Easy import.

Reporting on system tables

System tables are excluded from reporting by default. However, you can exempt system tables from the prohibition. Some system tables are exempt from the restriction by default. Be very careful when creating reports on these system tables.

Prohibited system tables include, but are not limited to:

- Log [`syslog`]
- Transaction Log [`syslog_transaction`]
- Attachment [`sys_attachment`]
- Email [`sys_email`]

If you must report on a system table, you can add it to the *`glide.ui.permitted_tables`* system property. Several system tables are listed in this property by default. Only admin users can create reports on the tables permitted in this property.

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Use extreme caution when creating a report or a data visualization on any system table. Consider the Audit [sys_audit] table, which is allowed in reports and data visualizations by default. Typically, this table is the largest table in any instance. It is not unusual for the Audit table, in even a mid-sized instance, to be several gigabytes. In a large installation, this table can be 50GB or more.

When you access a table like Audit programmatically, you know what your query pattern is going to look like, so you can add appropriate data indexes to match your queries. This means that when you bring up, for example, the history of an incident, the database can use an index to efficiently pull back the few dozen rows it needs for that query.

With reports and data visualizations, however, you cannot predict what your query pattern is going to look like. Maybe you want to group by `fieldname` or sort by `oldvalue`. Thus, your queries might not be indexed queries. You can end up asking the database to table scan a multiple gigabyte file, which is bad for these reasons:

- It is slow, so your report or data visualization will take an unacceptably long time to run.
- While the database is scanning your table, your instance will slow down or even become unavailable because other queries cannot get the resources they need.

Map report administration

Learn how about the different objects that are used in map reports, and how to create and modify them.

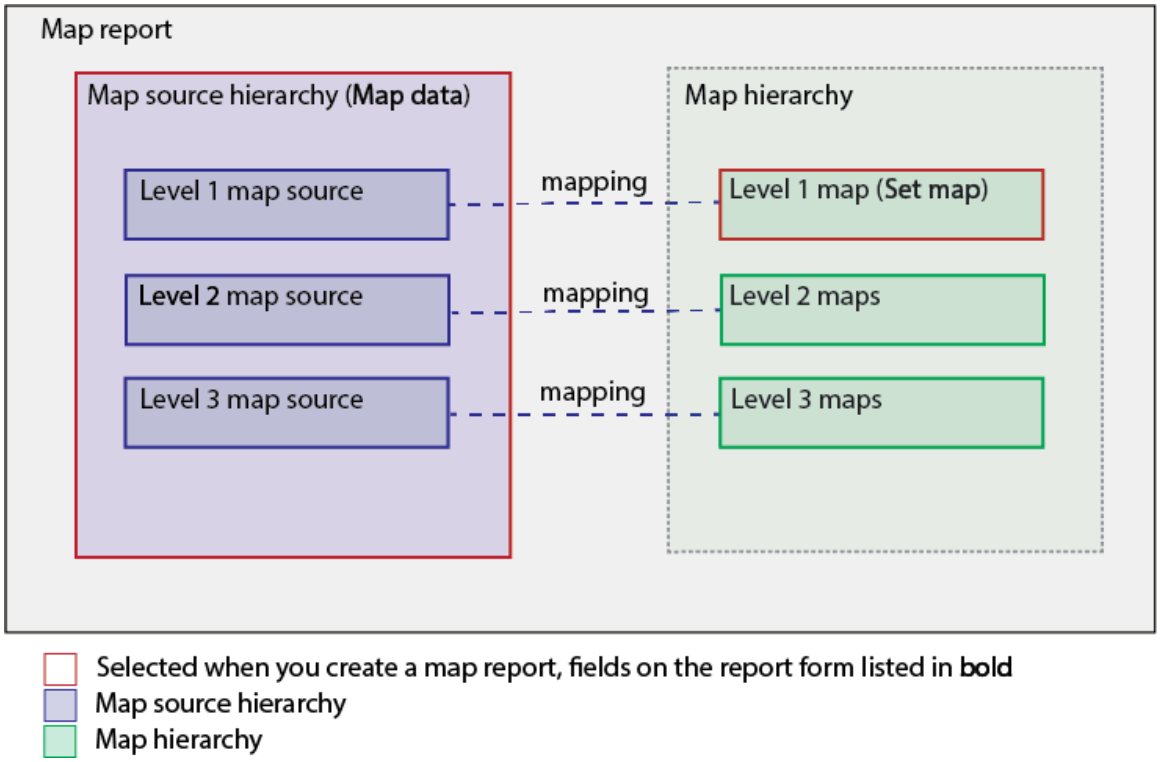
Map report objects

Map objects define the different levels that users can drill down into on a map report and the data displayed on these levels. Admins can create and manage these objects.

Each map report contains a map source hierarchy, which configures the data for a map level. The report also contains a map hierarchy, which defines the map drill levels. The **Level** field connects levels for these hierarchies. For example, the data in the Level 1 map is displayed on the Level 1 map object.

Note:
A set of predefined map sources and maps are available by default. Use these predefined objects whenever possible. If you need a map source that does not exist, generate it automatically using **Generate map source levels** link on the map source form, then customize it. You can automatically generate map source levels only for map sources that reference the location table. These map sources have a field that ends in `.location`.

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Map objects

Object	Description
Map source	Defines a set of data to display on a map report. The map source that a user selects in the **Map data** field when creating a map report is actually a map source hierarchy. There is one map source level for each drill level on the map. The top map source in the hierarchy is not a level, but rather a wrapper for other hierarchy levels. Each map source contains the data for a single map hierarchy drill level, with both having the same **Level**. Because they both specify the data that is used for a report, a map source is similar to a report source. However, in a map source you select a field to report on instead of a table.
Map	The map that data is displayed on. Maps are set up in a hierarchy defined by parent-child relationships. Each hierarchy level is a drill level on the map report. A JSON definition (geoJSON definition for geographical maps) defines the actual map layout. Select an existing map or create a new one. You can optionally define conditions for a map, which further filters the data it displays.
Mappings	Transform the data in a map source to a value that can be displayed on a map. Mappings are organized into the **Countries** and **State / Province** mapping groups. During map source configuration, you select the mapping group to transform the data in that source. The mapping group that you select must match the **Field** that you have selected.

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Map objects (continued)

Object	Description
	For example, a map source that has a **Field** value of **Locations Country** would use the **Country mappings** group. A map source that has a **Field** value of **Locations State / Province** would use the **Region and state mappings** mapping group.

Automatically generate a map source hierarchy

A map source hierarchy is a data source that is used to create a map report. Except for the top-level wrapper, each map source level in the hierarchy defines the data for one map drill level.

Before you begin

Role required: report_admin or admin

About this task

Note:

A set of predefined map sources and maps are available by default. Use these predefined objects whenever possible. If you need a map source that does not exist, generate it automatically using **Generate map source levels** link on the map source form, then customize it. You can automatically generate map source levels only for map sources that reference the location table. These map sources have a field that ends in `.location`.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Map Sources**.
2. Click **New**.
3. Fill in these fields.

Map Source fields

Field	Description
Name	Enter a descriptive name. For example, Incident by location. Users select the map source by this name in the **Map data** field when they create a map report.
Table	Select the table that contains the field that you want to map. All map source levels in the hierarchy use this table.
Field	Select the field with the data that you want to display on the map report. This field must reference the location table. For example, **incident.caller.location** or **incident.location**. You can dot walk to this field.
Active	Select this check box to make the map source available when creating map reports.

4. Right-click the form header and select **Save**.
5. Click **Generate map source levels**.

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Three map source levels are created. Only the level 1 map source is visible in the **Map Sources** related list.

Note:
A map source can have up to four levels, but only three are automatically generated. If the map hierarchy you are using requires an extra drill level, you can create a fourth level map source.

What to do next
The map source is ready to use in a map report.

Customize a map source level

A map source configures data to be displayed in a map report. Customize existing map sources according to your needs.

Before you begin
Role required: report_admin or admin

About this task
Note:
A set of predefined map sources and maps are available by default. Use these predefined objects whenever possible. If you need a map source that does not exist, generate it automatically using **Generate map source levels** link on the map source form, then customize it. You can automatically generate map source levels only for map sources that reference the location table. These map sources have a field that ends in `.location`.

Procedure
1. Navigate to **All** > **Reports** > **Administration** > **Map Sources**.
2. Open the map source whose level you want to customize, then navigate down to the appropriate level using the **Map Sources** related lists.
   For example, click the level 1 map source name to reopen the Map Source form with the level 2 map source in the related list, and so on.
3. Modify these fields as appropriate.

Map source fields

Field	Description
Name	Enter a name for the map source. Include the level in the names of map source levels. For example, Incident by location - level 2.
Table	The same table is used throughout a map source hierarchy, and is specified in the top-level map source.
Field	Select the field whose data you want to display on the map. You can dot walk to other fields. Select a field that is one level more granular than the map you want to display the data on. For example, imagine you are configuring data for a level 1 map source that is displayed on the world map. Because the data for countries are displayed on the world map, select **Location Country**. Similarly, if you are configuring data to display on a map of Germany or the United States, select **Location State / Province**.

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Field	Description
	Note: The city label is the most granular level able to be displayed when drilling down into a map report. For example: If you want to report on various site locations within a city, and define the bottom-level map source field to include location.name, the map report displays the multiple locations as the corresponding city labels. As a result, reporting on multiple locations which have the same location.city value results in displaying multiple map dots with the same label, but with different aggregated values, and which drill down to different locations. Most map sources use a field on the Location table.
Level	Select a hierarchy level for this map source. You can have a maximum of four levels. Each map source level corresponds to a drill level on the map hierarchy, and these levels much match. Each level must exist in a hierarchy only once.
Active	Clear this check box to make this map source unavailable when creating map reports.

4. In the **Data transformation** section, modify these fields as appropriate.

Field	Description
Data	Select how to use data in this map source. ○ **Use data on table**: Use the data in the ServiceNow platform without transforming it. Select this option when the data already matches the JSON key values that you are mapping to. ○ **Use mapping**: Transform that data so it matches the JSON key values that you are mapping to. For geographical map sources that use the hc-key geoJSON key, always select this option. ○ **Use longitude and latitude**: Use latitude and longitude coordinates to plot your data. Always select this option for the bottom map level, such as level 3. Ensure that your data has latitude and longitude values. **Warning:** Because the **Use longitude and latitude** option disables heatmap and drilling for maps using this map source, select this option only on map source levels that are the bottom level in a hierarchy.
Use these mappings	If you selected **Use mapping**, select a mapping group to use. A mapping group is a collection of key-value pair mappings that transform data. To review the mappings in a mapping group, go to the Locations Mappings [sys_report_map_source_mapping] table. For example, if you are transforming field value **USA** to hc-key value **us**, select **Country mappings**, which contains the relevant key-value pair mapping.

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5. In the **JSON key** section, select a JSON key to connect the map source data to maps. Geographical maps typically use hc-key.

   Every report map has a JSON definition. Select one JSON key-value pair to map the data to. The data to appear on the map must match the JSON key values. So the key that you select determines whether you must transform your data with the settings in the **How to use data** section. All default platform maps and mappings use the geoJSON hc-key and ISO 3166 standard values. For custom maps, you can enter a different JSON key.

6. Click **Update**.

Create a key-value pair mapping

Key-value pair mappings transform data in the ServiceNow platform to a value that can be plotted on a map. Mappings are used during map source configuration when data requires transformation. Each mapping exists in a mapping group.

Before you begin

Role required: report_admin or admin.

About this task

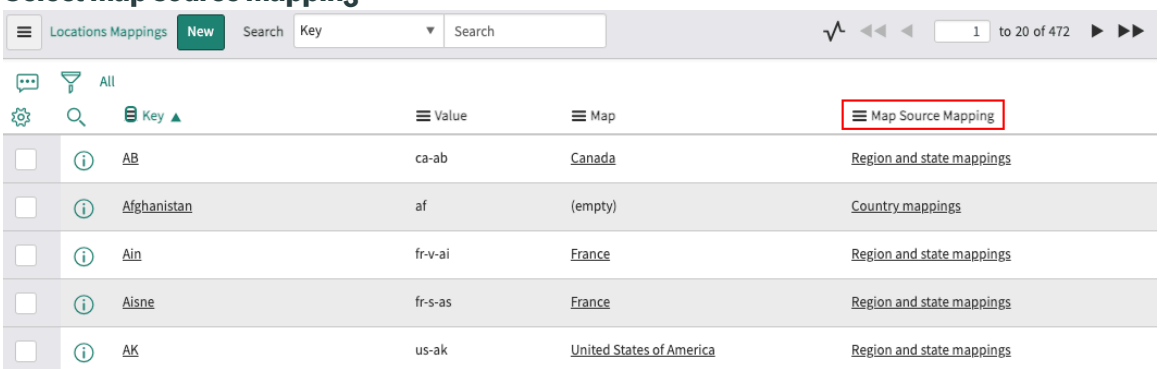
Default system key-value pairs map data to geoJSON hc-key values. All hc-key values follow ISO 3166 standards. Default mappings exist for the most commonly used data values. If your data uses a different value, you must create a key-value pair mapping.

For example, the default mapping for United States of America maps key USA to ISO value `us`. If your data has value of United States instead of USA, you must make a new key-value pair to map `United States` to ISO value `us`.

Procedure

1. Navigate to the Locations Mappings [sys_report_map_source_mappings] table.
2. In the **Map Source Mapping** column, select the mapping group to add the mapping to. Select the mapping group that corresponds to type of object that you want to create a mapping for. For example, if you are creating a mapping for field value United States, select the **Country mappings** group. Note that the Key and Map values in the row with the mapping aren't taken into account.

Select map source mapping



3. Select **New**.
4. Fill in these fields.

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Locations Mappings form

Field	Description
Key	The field value to transform. For example, USA.
Value	The value to transform the key to. For example, us. This value is typically an ISO 3166 standard value. Each value can be used only once per map.
Map	The map to associate with this mapping. If you do not fill in this field, this mapping can be used with any map.

5. Select **Submit** to save your changes.

What to do next
Add the mapping to a report source, so it can be used to map data from that source to a map.

Create a map

Create a map that can be used in a map hierarchy.

Before you begin
Role required: report_admin or admin.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Maps**, and click **New**.
2. Fill in the following fields as appropriate.

Report Maps form

Field	Description
Key	Specify a unique key that links this map to other maps. For default maps, the key is the hc-key value. The key must be included in the geoJSON of the parent map.
Name	Enter a name for the map.
Level	Specify the level for this map in the map hierarchy.
JSON definition	Define the geoJSON for the map. You can download predefined maps from Highcharts.
Parent	Select a parent map for this map. The parent-child relationships define drill levels in a map hierarchy.
Active	Clear this check box to make the map unavailable when creating map reports.
Geographical map	If your map is not geographical, clear this check box. For example, clear this check box for a floor map.

3. Right-click the form header and select **Save**.
4. To add conditions that filter the data in the map:

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a. Click **New** in the **Map conditions** related list.

b. Fill in these fields.

Map condition form

Field	Description
Active	Select this check box to apply this condition.
Table	Specify the table that these conditions apply to. Conditions cannot be shared across tables.
Map source	Select the map source that the condition applies to.
Conditions	Add filter conditions to apply to this map.

c. Click **Submit**.

5. **Optional:** In the **Report Maps** related list, create a child map to extend the map hierarchy.
6. Click **Update** to save the map.

Set the default map for map reports

You can change the map that appears by default in the **Set map** field when you create a map report.

Before you begin

Role required: admin or report_admin.

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Properties**.
2. In the **Set the default map for reports of type 'Map'** field, type the key of the map that you want to set as default.
   You can find a list of maps under **Reports** > **Administration** > **Maps**.
3. Click **Save**.

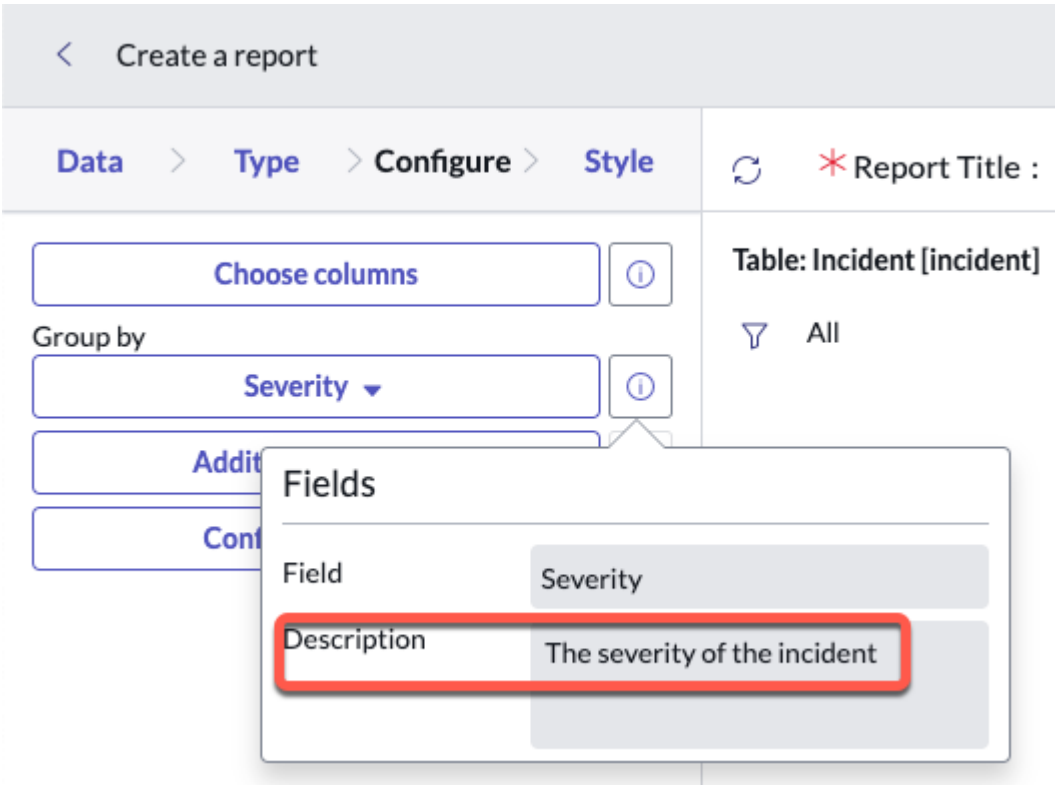
Administer table and field descriptions

Users with the report_description_admin role can add and edit table and field descriptions that users see when they create reports.

A user with the admin role must enable the report_description_admin role. The user with the report_description_admin role can edit field and table descriptions. Report administrators inherit this role by default when it is activated.

In the Report Designer, the user sees the table descriptions on the **Data** tab. When appropriate, the user sees the field descriptions on the **Configure** tab.

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Enable the report description admin role

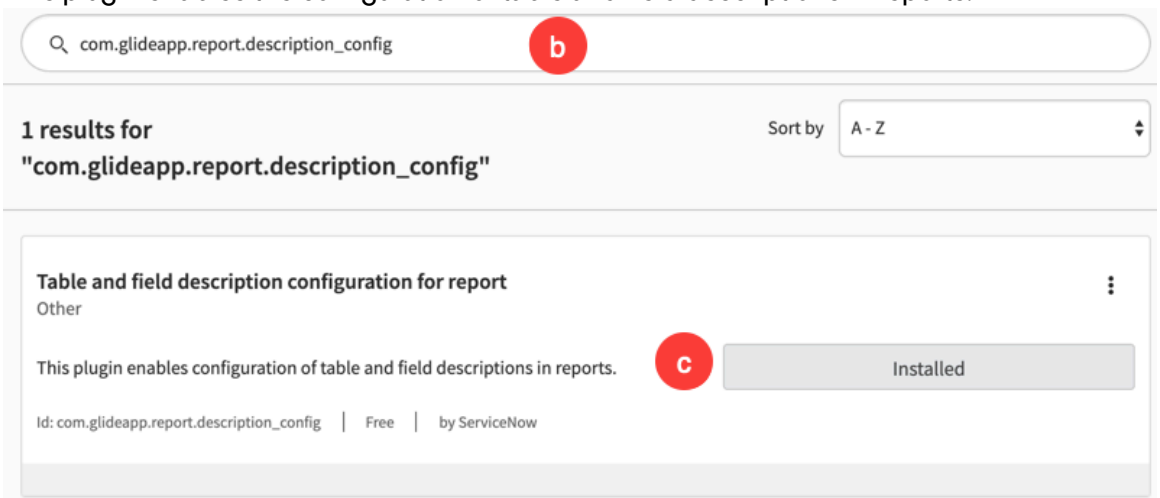
Users with the admin role can enable the report_description_admin role. Users with this role can add and edit table and field descriptions.

Before you begin

Role required: admin

Procedure

1. Navigate to **All** > **System Definition** > **Plugins**.
2. Enter `com.glideapp.report.description_config` in the search bar.
3. Install the **Table and field description configuration for report** plugin.
   This plugin enables the configuration of table and field descriptions in reports.



4. Assign the report_description_admin role.

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For more information, see Assign a role to a user and Assign a role to a group

Users with the report_admin role have the new role automatically.

Result

In the Report Designer, the user sees the table descriptions on the **Data** tab and the field descriptions, when appropriate, on the **Configure** tab.

Edit table and field descriptions

Users with the report_description_admin role can add and edit table and field descriptions that users see when they create reports.

Before you begin

Role required: report_description_admin

Procedure

1. Navigate to **All** > **Reports** > **Administration** > **Field Descriptions**.
   The **Field Labels** list has four columns:

   Table

   Lists the table the element is associated with. There is one entry in this column for every field in the table, plus one for the table itself.

   Element

   The field in the table that the description applies to. If the **Element** value is empty, then the description applies to the table.

   Language

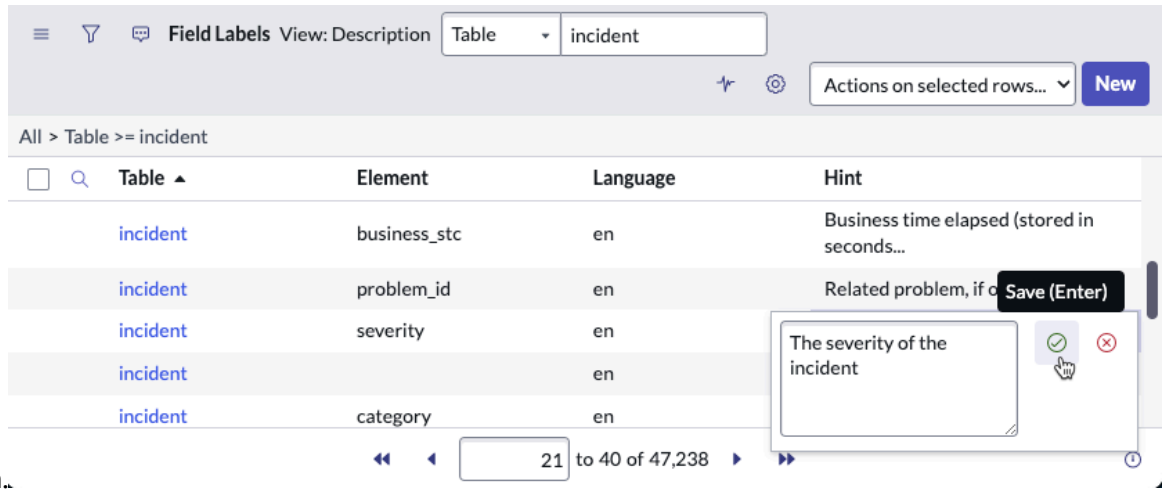
   Two-letter code of the language the field is localized in. Read-only.

   > **Note:**
   > Right-click the code of the language you're adding descriptions in and select **Show Matching**. In this way, you limit the table to only the fields you need for this task.

   Hint

   Contains the descriptions of the tables and fields that users see in the Report Designer.

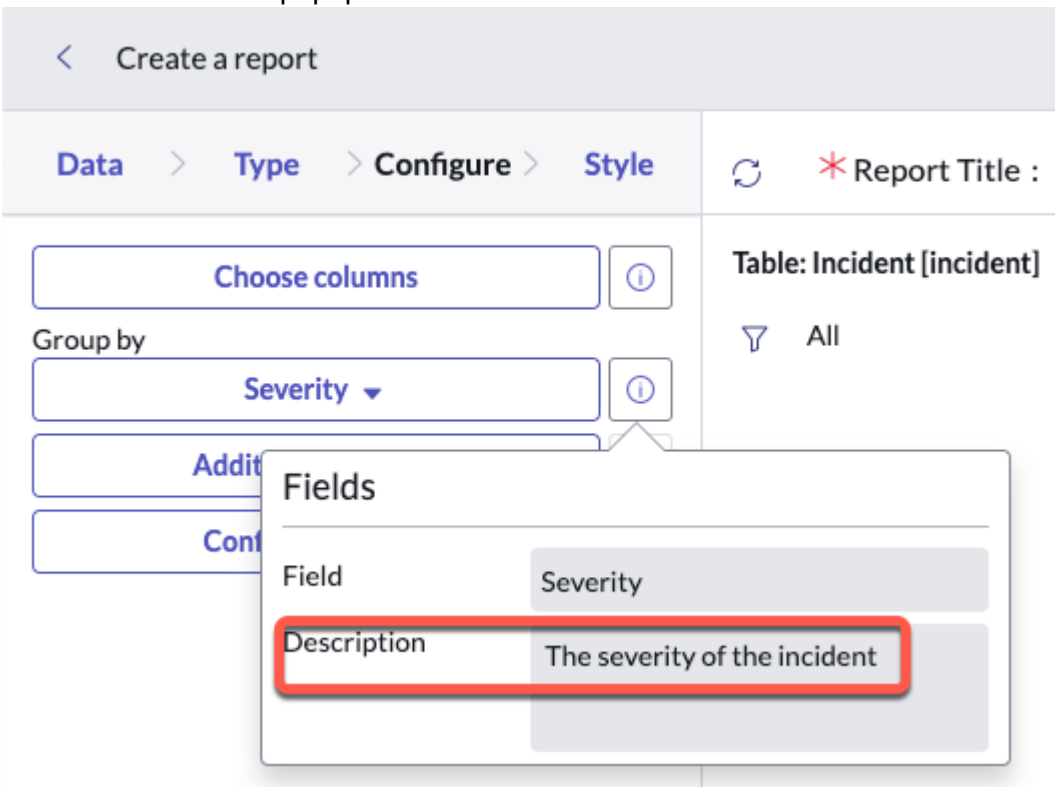
2. Double-click the cell in the **Hint** column and add or edit the description.
   Click the check icon to save the description.



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Result

In the Report Designer, when you group by a field that you have added a hint to, you see that hint text in the Information popup for the field.



Create coloring rules for multilevel pivot reports

Configure rules for how numerical values are displayed in a multilevel pivot table report. Coloring rules make it easy to highlight the more important values. The color rule is applied to the content of cells in pivot reports.

Before you begin

Role required: report_admin or admin

Note:
It isn't possible to apply coloring rules to the Total cells in multilevel pivot reports.

Procedure

1. On the **Style** tab of the Report Designer, select **Edit coloring rules**.
   If you see the error message 'Security constraints prevent access to requested page,' an access control list is preventing access. If necessary, one with the security_admin role should create read and write access control lists (ACLs) on the Multilevel Pivot Rule [sys_report_mpivot_rule] table.
2. In the Multilevel Pivot Rules dialog box, select **New rule**.
3. Fill in the fields on the form.

Multilevel Pivot Rule fields

Field	Description
Operator	The operator used when evaluating values in cells, such as **greater than** or **between**. For example, to style cells with a value less than 5, select **lower than** and specify a **Value 1** value of 5.

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Field	Description
Value 1	The number to evaluate cell values against. When the **Operator** value is **between**, enter the lower value in the **Value 1** field. **Note:** When creating rules based on a duration value, specify the duration in seconds.
Value 2	The maximum value that a cell can contain to match this rule. This field only appears when the **Operator** value is **between**.
Font color	The font color to apply to cells that match this rule.
Background color	The background color to apply to cells that match this rule. This option applies only to multilevel pivot table reports.
Rule order	A numerical value that determines the order in which the rules apply. Rules with a higher rule order apply later and override lower-order rules. For example, one rule matches cells with a value greater than 140, and another rule matches cells with a value lower than 150. The rule with the higher order applies to cells with values from 141 through 149.

4. Select **Submit** to save the rule and create another rule, or select **OK** to save the rule and return to the Report Designer.

Create coloring rules for single score reports

Configure rules for how numerical values are displayed in single score reports, to highlight why a value is important.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin.

This task is part of configuring the style options of a single score report.

See Single score visualization example for example steps to implement a coloring rule.

Procedure

1. On the **Style** tab of the Report Designer, click **Edit coloring rules**.
2. In the **Multilevel Pivot Rules [Single Score Color Rule view]** dialog box, select **New rule**.
3. Fill in the fields on the form.

Single Score Color Rule fields

Field	Description
Operator	The operator used when evaluating values, such as **greater than** or **between**. For example, to style values of less than 5, select **lower than** and specify a **Value 1** value of 5.
Value 1	The number to evaluate cell values against. When the **Operator** value is **between**, enter the lower value in the **Value 1** field.

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Field	Description
	Note: ○ The color rule is applied to the aggregated values. ○ When creating rules based on a duration value, specify the duration in seconds.
Value 2	The maximum value to match this rule. This field only appears when the **Operator** value is **between**.
Font color	The font color to apply to values that match this rule. Select the search icon ( ) to choose colors from an existing list or enter a hexadecimal color value.
Rule order (Optional)	A numerical value that determines the order in which the color rules apply. Rules are evaluated from lowest value to highest. For example, one rule applies the color blue to the value 7 and a second rule applies the color red to values from 1 through 10. If you want the 7 to appear blue, the **Rule order** value for the first rule should be higher so that the second rule doesn't override it. If you don't specify a rule order, the coloring rules are applied in the order in which they were created.

4. Click **Submit** to save the rule and create a new rule, or click **OK** to save the rule and return to the Report Designer.

Result

The colors you specify in the rules apply to the single score report that you're editing.

Domain separation and Reporting

Domain separation is supported in reporting and relates to report creation and administration. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data.

Support level: Standard

- Includes all aspects of **Basic** level support.
- Application properties are domain-aware as needed.
- Business logic: The service provider (SP) creates or modifies processes per customer. The use cases reflect proper use of the application by multiple SP customers in a single instance.
- The instance owner must configure the minimum viable product (MVP) business logic and data parameters per tenant as expected for the specific application.

Sample use case: An admin must be able to make comments required when a record closes for one tenant, but not for another.

For more information on support levels, see Application support for domain separation.

Activation

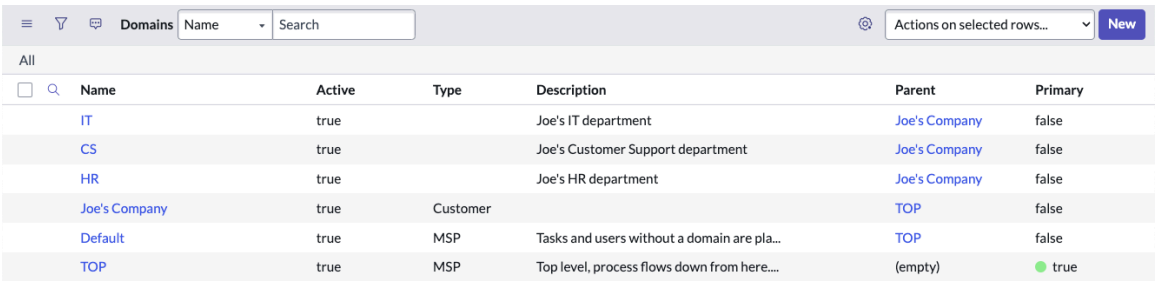
To activate the domain separation plugin, see Request domain separation.

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How domain separation works in Reporting

In Reporting, separated data includes report designs and report content. A report defined at the global level is visible to users in all child domains.

- Reports created in the TOP domain are visible to users in the Joe's Company domain but not in the HR, CS, and IT child domains of Joe's Company.
- Reports created in either the IT, CS, or HR child domains aren't visible to users in the other child domains, but they are visible to users in the parent Joe's Company domain.
- Reports created in the parent (Joe's Company) domain are available only to users in that domain, but not to users in the child domains.



Name	Active	Type	Description	Parent	Primary
IT	true		Joe's IT department	Joe's Company	false
CS	true		Joe's Customer Support department	Joe's Company	false
HR	true		Joe's HR department	Joe's Company	false
Joe's Company	true	Customer		TOP	false
Default	true	MSP	Tasks and users without a domain are pla...	TOP	false
TOP	true	MSP	Top level, process flows down from here....	(empty)	true

If you create a report in one domain and copy it to another, the report structure remains the same, but the report data is adjusted for the domain. For example, an Active Incident report shows all active incidents to a user in the parent domain, but only IT incidents to a user in the IT domain.

Related topics

Application support for domain separation

Understanding domain separation

Enable domain separation on reports

Activate the domain separation plugin to enable reports to display content based on data, rules, and settings from the logged-on user domain.

Before you begin

Role required: security_admin.

About this task

By default, the Domain Support plugin separates data on certain tables by domain. It does not, however, separate reports by domain unless the MSP Extensions plugin is installed. The report displays data only from the user's domain, but the user is able to see all the reports.

Follow these steps to ensure domain separation on reports if the MSP Extensions plugin is not installed.

Procedure

1. Navigate to **All** > **Reports** > **Administration** and select a report to separate by domain.
2. Right-click the header and select **Configure** > **Dictionary**.
3. Configure the dictionary on the `sys_domain` field and fill in the **Reference** field with the domain for this report.

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If left blank, the report is global.
Domain fields appear on reports, and this field references a table. After a domain field exists on a form, all records within the table will have the domain field enabled. By default, all these records are global.

Related topics

Request domain separation

Quick start tests for Reporting

Validate that Reporting still works after you make any configuration change such as applying an upgrade. Copy and customize these quick start tests to pass when using your instance-specific data.

The Reporting quick start test Automated Test Framework - Reporting plugin (com.glide.automated_testing_impl.report) is active by default or instance reboot.

Note:
Reporting quick start tests do not test report access from dashboards. To test dashboards, see Quick start tests for Dashboards.

Reporting quick start tests

Test	Description	Release version
Report Visibility	Confirm whether reports are still visible to users whom they are shared with.	Madrid

Related topics

Quick start tests

Report Visibility test steps

You can customize these pre-configured example test steps.

Before you begin
Role required: admin.

About this task
The Report Visibility test contains two types of steps:

Impersonate

When configuring this step, select which user to impersonate when executing the Confirm steps that follow. Select a user with the role or roles whose access you are testing.

Report Visibility

When configuring this step, select which report to test. Also select whether the test succeeds with positive results or with negative results. In other words, set whether Report Visibility succeeds when the user can view the report or when the user cannot view the report.

The example test included in the plugin includes the following three steps.

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Procedure

1. Impersonate the user.
2. Confirm a test report can be viewed by the test user.
3. Confirm a test report cannot be viewed by the test user.

What to do next

However, when you customize a test, you can combine steps in any logical sequence by adding and configuring the two types of steps. For example, you could configure the Report Visibility test as follows:

1. Impersonate a user.
2. Confirm that this user can view a report.
3. Confirm that this user can view another report.
4. Confirm that this user cannot view a third report.

Customize calendar reports

You can specify the fields that are displayed in calendar tasks.

By default, the **number**and **short_description** fields are displayed, but this behavior is configurable. Radio buttons on reports can be configured for various fields to highlight calendar entries by properties such as priority level and approval status. You can select a unique highlight color for each task property.

Configure how calendar entries look

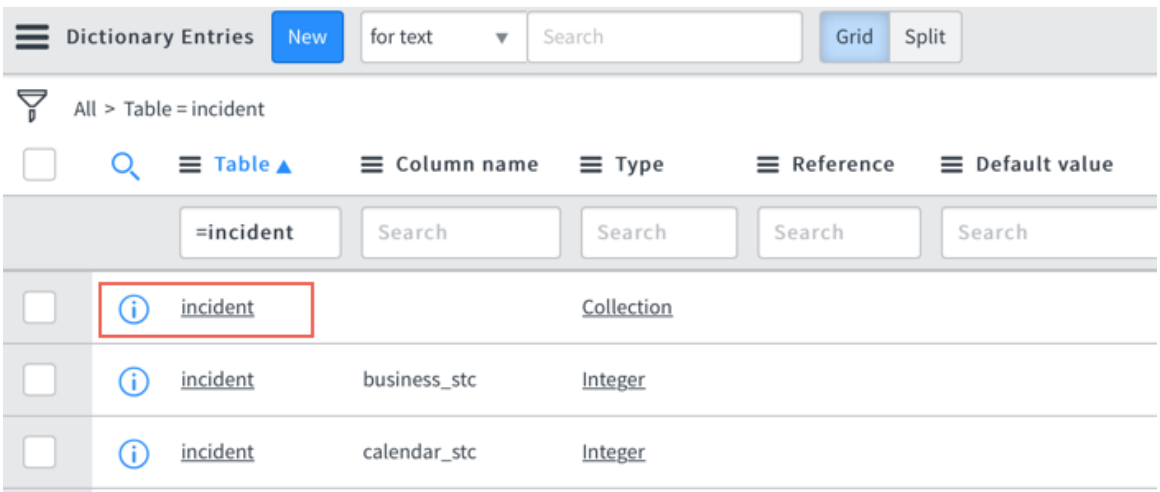
To configure how calendar entries appear for a table, add calendar_elements attributes to the System Dictionary entry for that table.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Procedure

1. Open a form for any record in that table.
2. Right-click the form header and select **Configure** > **Dictionary**.
3. In the record list that appears, select the first record that does not have a value in the **Column name** field.

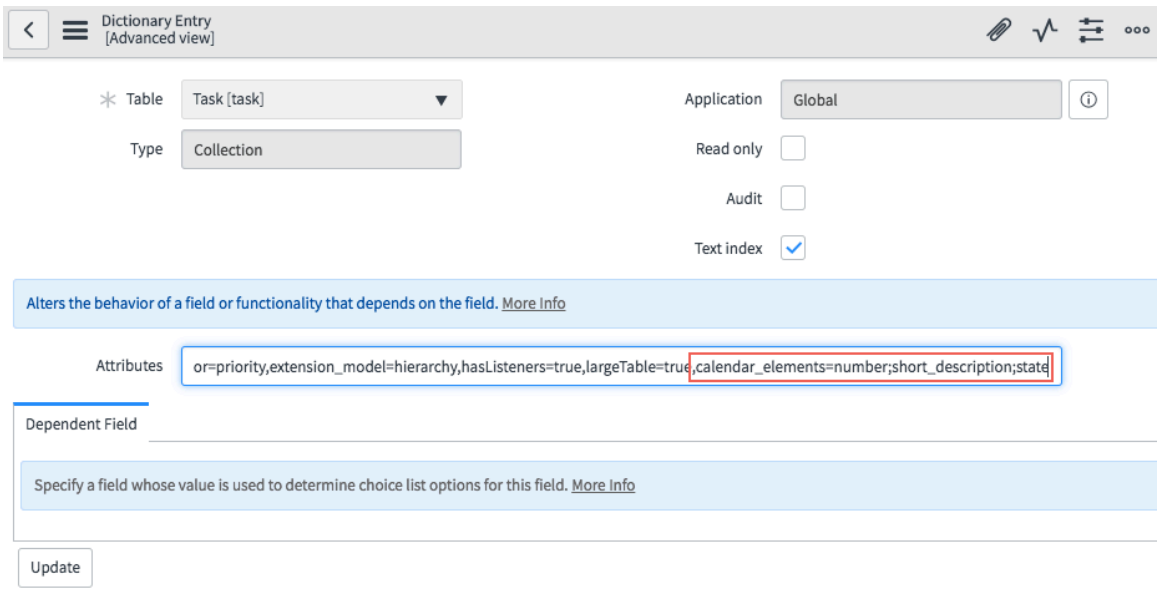


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4. Switch the **Dictionary Entry** form to the **Advanced** view.
5. In the **Attributes** field, add *calendar_elements=<field name>;<field name>*, listing the fields you want to appear in each entry of your calendar report separated by semi-colons.

Note:
When you define attributes for calendar elements, you replace the default display elements of **number** and **short_description** with the attributes that you list in this field. To add any additional attributes to the calendar entry and retain the number and short description of the change, include the **number** and **short_description** fields in your attributes. For example, to add state information to your task calendar, add the following attribute to the Task table:

```
calendar_elements=number;short_description;state
```



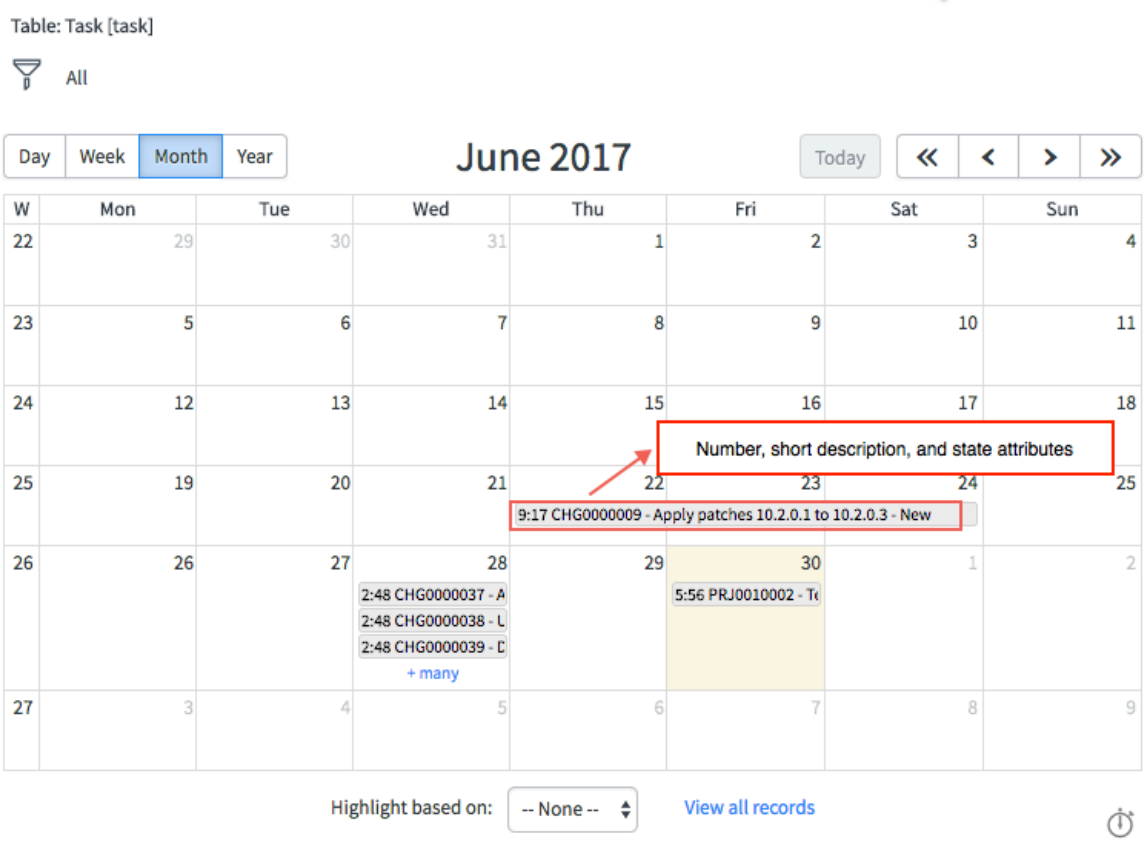
6. If the table already has an attribute, separate it from the attribute you are adding with a comma, for example:

```
reference_index_include=active,calendar_elements=number;short_description;state
```

7. Select **Update**.

Result
The calendar entries display the attributes you have added for the selected table.

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Modifying and adding calendar report system properties

Specify system property values to override Task table highlighting in calendar events, limit the number of events in a calendar cell, or change the day the calendar week starts.

Override Task table field styles for highlighting calendar events

Highlighting for calendar report events is configured with field styles, which are defined for a particular table. You can configure whether calendar reports use field styles from the tables or report sources that they are based on.

Before you begin

Role required: admin

About this task

By default, field styles in the Task [task] table are applied to calendar reports. If calendar reports are configured to use field styles from their tables or report sources, these field styles override the Task table styles.

Note:
Calendar highlighting only applies to Core UI reports, not to Platform Analytics experience data visualizations.

Procedure

1. In the filter navigator, enter: `sys_properties.list`
2. Select the *`glide.ui.report.extend_calendar_choices`* property to specify which field styles are used during calendar highlighting.

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- If `false`, calendar reports will use only styles from the Task table when determining options for calendar highlighting. For example, a calendar report on the Change Request [change_request] table will only use styles from the Task [task] table instead of styles from a the combination of the two tables.
- If `True`, calendar reports will use field styles from the table that the calendar report is based on.

3. Click **Update**.

Limit the number of events displayed on calendar days

In calendar reports, you can configure the maximum number of events that appear in some calendar views.

Before you begin

Role required: report_admin, admin.

About this task

When the maximum number of events is exceeded, a **+ <number>** link appears, which opens a pop-up window with additional events. You can also configure the maximum number of events that appear in this pop-up window. When this maximum is exceeded, a **+ many** link appears, which opens a list of events instead of a pop-up window.

You can configure these settings for the following calendar views:

- A calendar day when calendar is in month or year view
- The top 'full day' section of a calendar day when a calendar is in day or week view

Procedure

1. In the navigation filter, enter `sys_properties.list`.
2. Configure the *`glide.report.calendar.max_events_displayed_per_cell`* and *`glide.report.calendar.max_more_events_per_day`* properties.
3. Click **Update**.

Change the day that calendar weeks start on

By default, weeks for calendar reports start on Sunday. You can add a system property to start weeks on Sunday or another day instead.

Before you begin

Role required: admin
The *`glide.ui.date_format.first_day_of_week`* system property modifies the generated date/time value used in the query and sets the start day of the week in the rendered calender.

Note:

`glide.ui.filter.first_day_of_week` must also be set to the same value as *`glide.ui.date_format.first_day_of_week`* for the set day to display properly.

If you change the *`glide.ui.filter.first_day_of_week`* property after collecting Performance Analytics score data, you won't be able to view the scores for weekly indicators. To access them, you must collect scores again.

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Procedure

1. Add the *glide.ui.date_format.first_day_of_week* system property.
2. Set one of the following integer values.

Option	Description
Start weeks on Sunday	Set **Value** to 1
Start weeks on Monday	Set **Value** to 2
Start weeks on Tuesday	Set **Value** to 3
Start weeks on Wednesday	Set **Value** to 4
Start weeks on Thursday	Set **Value** to 5
Start weeks on Friday	Set **Value** to 6
Start weeks on Saturday	Set **Value** to 7

Note:
Only Sunday and Monday are explicitly supported.

3. Click **Submit**.

What to do next

Configure the system property *glide.db.week_numbering* to specify how weeks are calculated. For more information, see Customize calendar weeks.

Customize calendar weeks

Configure a system property to specify how calendar week numbers are determined.

Before you begin

Role required: admin

Procedure

1. Navigate to `sys_properties.list`.
2. Add the *glide.db.week_numbering* system property.
   For more information, see Add a system property.
3. Set one of the following string values.

Option	Description
iso_week	Week 1 is the week with January 4, the first business day, or the first Thursday in it. (These are mutually equivalent.) There is no Week 00.
sunday_week	Week 1 is the week with the first Sunday of the year. Days before it are in Week 0.
monday_week	Week 1 is the week with the first Monday of the year. Days before it are in Week 0.

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Option	Description
jan1_week	Week 1 is Jan 1-7; the next seven days are week 2, and so on.

4. Select **Submit**.

Set calendar record limit

By default, calendar reports save up to 10,000 records. Change this limit by setting the *glide.ui.max_calendar_records* system property. If the number of records fetched exceeds this limit, you are prompted to filter the data and run the report again.

Before you begin
Role required: admin.

Procedure

1. Add the *glide.ui.max_calendar_records* system property.
2. Complete the form with the following values.

Option	Description
Name	*glide.ui.max_calendar_records*
Description	Enter a phrase that describes the function of the property, such as `Maximum number of calendar records saved`.
Type	Integer
Value	Enter the desired value for the number of records retained by the platform. The de fault value if this property is not configured is 10,000.

3. Click **Submit**.

Related topics

Add a system property

Change highlighting of calendar report events

Field styles control the highlighting of events in calendar reports. Manage field styles to change how highlighting works.

Before you begin
Role required: admin.

About this task
You can apply field styles for the table that a calendar is based on or field styles for the Task [task] table to a calendar. The field styles that are applied for calendar highlighting depend on the *glide.ui.report.extend_calendar_choices* system property.

You can change only the background color of calendar events. All other CSS is ignored. Events without a defined field style display a white background when highlighting is applied to a calendar report.

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Note:

Define field styles for the appropriate table.

- To define field styles for all calendar reports, define the style on the Task [task] table.
- To define field styles that apply only to calendars that are a based on a specific table or report source, define the field styles on that table.

If calendar reports are configured to use field styles from their tables or report sources, these field styles override the Task [task] table styles.

Procedure

1. Navigate to **System UI** > **Field Styles**.
2. Filter the list to show the tables you want to address and then group the result by field name.

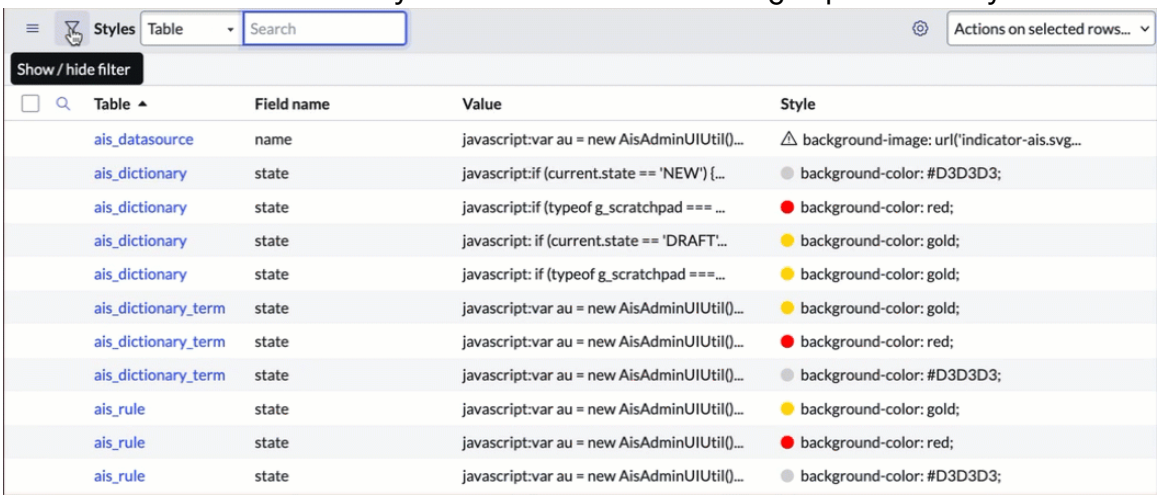
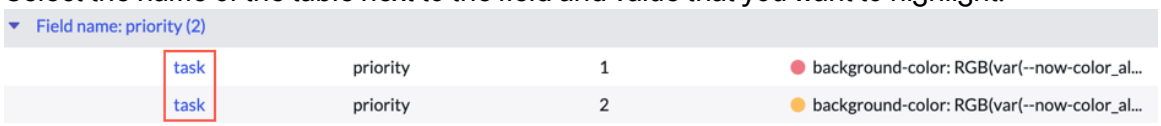


Table	Field name	Value	Style
ais_datasource	name	javascript:var au = new AisAdminUIUtil()...	background-image: url('indicator-ais.svg...
ais_dictionary	state	javascript:if (current.state == 'NEW') {...	background-color: #D3D3D3;
ais_dictionary	state	javascript:if (typeof g_scratchpad === ...	background-color: red;
ais_dictionary	state	javascript: if (current.state == 'DRAFT'...	background-color: gold;
ais_dictionary	state	javascript: if (typeof g_scratchpad ===...	background-color: gold;
ais_dictionary_term	state	javascript:var au = new AisAdminUIUtil()...	background-color: gold;
ais_dictionary_term	state	javascript:var au = new AisAdminUIUtil()...	background-color: red;
ais_dictionary_term	state	javascript:var au = new AisAdminUIUtil()...	background-color: #D3D3D3;
ais_rule	state	javascript:var au = new AisAdminUIUtil()...	background-color: gold;
ais_rule	state	javascript:var au = new AisAdminUIUtil()...	background-color: red;
ais_rule	state	javascript:var au = new AisAdminUIUtil()...	background-color: #D3D3D3;

3. Select the name of the table next to the field and value that you want to highlight.



Field name: priority (2)			
task	priority	1	background-color: RGB(var(--now-color_al...
task	priority	2	background-color: RGB(var(--now-color_al...

4. Change the background-color value as desired.
   Color names and RGB values are both valid.
5. Select **Update**.

Customize start and end dates

You can configure calendar reports to support the spanning of multi-day events across calendar cells.

Before you begin

Role required: dictionary admin or admin.

About this task

A change request with a **Work Start** date on Monday and a **Work End** date on Tuesday is displayed on both days when viewed in a **Calendar** field. However, when two custom fields named **First Date** and **Last Date** are used, the same behavior doesn't occur.

The code looks for an ending field with the same name as the start date field, except using the word end instead of start. If the custom fields are **My Start Date** and **My End Date**, the system

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correctly interprets the meaning of these fields because their names are the same except for the words start and end.

Procedure

1. Follow the steps in Add and customize a field in a table.
2. Enter the following values in the form to create the start date span field.
3. Add another field using the following values for the end date span field.

Translate a report's grouping labels

When executing reports that group results by a Translated Text field, to ensure that individual field labels and values display as translated, use the translated_text type.

Note:
Reporting only supports columns of type translated_text.

When executing reports, for example multi-level pivot or bar reports, that group results by a Translated Text field, the labels may not all display as translated when the instance language is changed from English to another language. These field labels are entries from the Translated Name / Field Table.

Translation errors can occur when translating more than the first row or column of a report, or when creating a custom field for grouping. Use the translated_text type to Translate individual field labels and values. See Report types for grouping options available from the Configure tab for the specific report type.

If you create a custom field for a report, the label is not added automatically. You need to add the label in the Field Label table and manually Translate a field label.

Related topics

- Translation tables
- Translating text fields
- Internationalization support

Report Administration module

Learn how to administer reports on the ServiceNow platform using the **Reports** > **Administration** module.

This module is not enabled by default, and must be activated. For a list of the reporting roles delivered with the ServiceNow platform, see Reporting roles.

Note:
Restricting a report by role restricts who can view a report. Users without the admin role cannot edit global reports. If a non-admin user edits a global report, saving that report creates a personalized version belonging to that user

Use the record list view to filter, view, or modify reports using any of the standard record list controls. Click **New** to create reports or select any of the records to display the report as a form. All the standard ServiceNow form controls apply.

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You can select the table and field on which to report and the characteristics of the report format. Create a condition in the **Filter** field to further restrict the data that is presented in the report and select a role that can use the report.

Report Security

The Report Security enforce access control checks plugin allows administrators to use access control list (ACL) rules to restrict report access. This functionality prevents unauthorized users from editing, updating, or deleting reports either through the UI or through a URL construct. See Access control list rules for more information.

Available Report Fields

The following fields can be manipulated:

Field	Input Value
Title	A unique and descriptive name for the report.
Table	The ServiceNow table against which this report is run.
Field Name	The name of the group-by field.
Type	The report type for this report.
Chart Size	Large, medium, or small.
Visible to	Select a group whose members are authorized to see the report. Select **Everyone** to give all your users access.
User	The user who can view the chart. Enter `GLOBAL` to make the report accessible to all.
Filter	The filter applied to the report data.
Roles	The roles required to view the report.
If added to the form, the following fields are available	
Aggregate	Determine how you want the data in the report aggregated. The default is **Count**, which displays the number of records selected. When you select **Average**, **Sum** or **Count Distinct**, you can select from a list of additional fields whose values you want to use to aggregate the data. Typical values to use as an average or a sum are the time measurements, such as **Business duration** (expressed in days, hours, and minutes) and **Resolve time** (expressed in seconds). Other fields, such as **Priority**, have numerical values associated with their levels and can be used as aggregators. **Note:** Averages are calculated by dividing the sum of all fields by the number of those fields that contain a value. Fields that are empty or that contain a light gray zero are not included in the field count that is used when dividing the sum.
Content	An HTML field for describing the content of the report. Not processed in the generation of the report.
Display grid	Select to display a table under the chart that contains a breakdown of the requested data. The aggregation units are **Count**, **Average**, **Sum**, or **Count Distinct**. The percentage of the total data represented by each discrete piece is displayed.

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Field	Input Value
Group	Select a group whose members are authorized to see the report. select **Everyone** to give all your users access.
Interval	For Trend or Trendbox charts, the interval of time to measure along.
No Groups	Use the values in this list to limit the number of bars that appear in the chart. The platform displays 12 bars by default, from high values to low values and puts the remaining data into an **Other** category. You can select to display 10, 12, 15, 20, or all bars.
Others	Check box to include the **Other** group in the report.
Select fields for list	The fields that display in a list report.
Select fields for orderBy	The order of fields that display in the report.
Show Empty	Whether to display empty categories.
Sumfield	The field to perform a sum on for Trend or Trendbox Charts.
Trend Field	The field to track over time for Trend or Trendbox Charts.

Reporting reference

Miscellaneous tables of roles, properties, and other information.

In this section, you will find tables describing data aggregation types for reports, reporting roles, properties, and Report Designer keyboard shortcuts.

Aggregation in reporting

Aggregation enables you to apply calculations to data displayed in reports.

- The count aggregation gives the number of records in each element of a report.
- Count distinct provides the count of unique values for a given field.
- Average shows the arithmetic mean of the values for a given field.
- Sum shows the total of the aggregated values.
- Minimum and Maximum show the least or greatest values for each displayed category.
- Standard deviation shows data variation from the average value for a given field.

If you choose **Average**,**Sum**, **Count Distinct**, **Minimum**, **Maximum**, or **Standard deviation**, you may be able to aggregate on fields from extended tables. See How to report on extended tables.

For information about aggregating on FX currency values, see FX Currency values in reporting.

Note:
Aggregation is not supported on histogram, pareto, single score, box, calendar, and list reports.

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Aggregate a report on count

When you create a report, you can aggregate the data on several calculations including the number of records, averages, and standard deviation. The count aggregation gives the number of records in each element of a visualization.

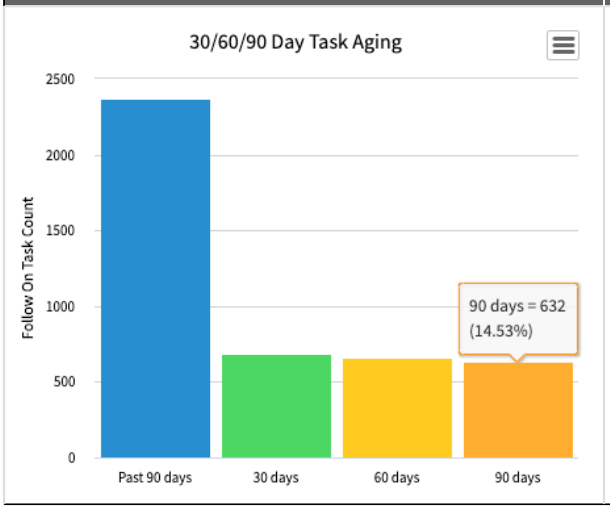
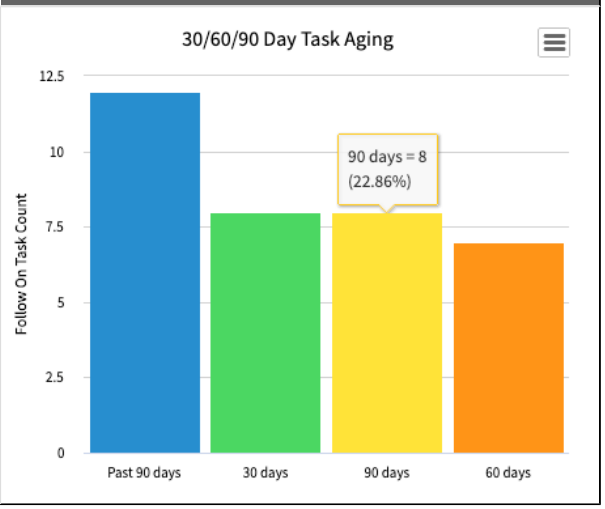
Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

The default aggregation is **Count**. The Count aggregation shows the number of records selected.

To show only unique records, select **Count Distinct**. For example, you want to show the value for the distinct number of task types being performed. Task types being performed for multiple customers are counted multiple times unless you use **Count Distinct**.

These images compare Count and Count Distinct. The first shows that the raw count of for one column is 632. The second shows that the distinct count for the same column is only 8.

Count	Count Distinct
	

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report you want to aggregate.
3. On the Configure tab, choose **Count** or **Count Distinct** from the **Aggregation** list.
4. Select **Run**.

Result

The sections of the visualization are grouped by the count of records.

Aggregate a report on averages

When you create a report, you can aggregate the data on several calculations including the number of records, averages, and standard deviation. The sum aggregation shows the sum of the field you aggregate on.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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Average aggregation shows the arithmetic mean of the field you aggregate on. For example, select a duration field. The aggregated data is expressed in terms of days, hours, minutes, and seconds. (You can configure durations to show the level of detail you want.) If you select an integer field, such as **Priority**, the data is expressed as a decimal value number.

When you choose the average aggregation, you can also specify the **Percentage calculation** The percentage calculation is displayed when you select **Show data table**.

Use Aggregation

Shows the percentage as a part of the total amount of averages in a column called **Percentage of Average**. In this data table, for example, the average duration of the Inquiry, Network, and Software incidents was approximately one day and 16 hours or 30% (or so) of the total average business duration. Average hardware incidents took 12 hours, approximately 9% of the total average business duration for incidents.

Aggregation

Category	Average Business duration	Percentage of Average
Inquiry / Help	1 Day 16 Hours 52 Minutes 26 Seconds	30.63%
Network	1 Day 16 Hours 40 Minutes 27 Seconds	30.48%
Software	1 Day 15 Hours 54 Minutes 58 Seconds	29.91%
Hardware	12 Hours 0 Minutes 0 Seconds	8.99%
Total	**1 Day 9 Hours 21 Minutes 57 Seconds**	**100%**

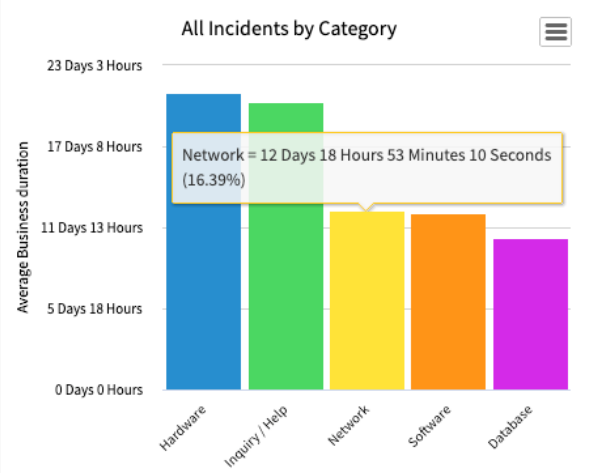
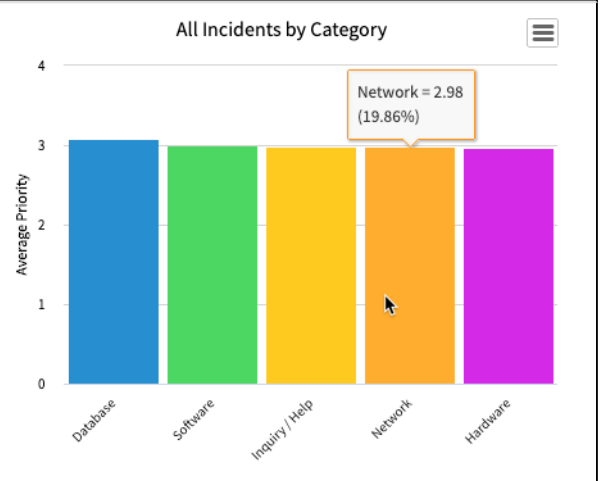
Use Record Count

Shows the number of records in each category as a percentage of the total number of records in the visualization in a column called **Percentage of Incidents**. In this data table, we see the same Average Business Duration for each category, but the percentage is of the number of incidents in that category. For example Inquiry incidents are approximately 17% of all incidents, and software incidents are approximately 77% of all incidents, though the average time to solve these incidents is still 30% (or so). On the other hand, Hardware incidents are less than 1% of all incidents, but the average duration is 9% of the total average time to solve.

Aggregation

Category	Average Business duration	Percentage of Incidents
Inquiry / Help	1 Day 16 Hours 52 Minutes 26 Seconds	16.69%
Network	1 Day 16 Hours 40 Minutes 27 Seconds	6.58%
Software	1 Day 15 Hours 54 Minutes 58 Seconds	76.67%
Hardware	12 Hours 0 Minutes 0 Seconds	0.06%
Total	**1 Day 9 Hours 21 Minutes 57 Seconds**	**100%**

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Average duration	Average priority
	

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report that you want to aggregate.
3. On the Configure tab, choose Average from the **Aggregation** list.
4. Choose the field to aggregate.
5. Select **Run**.

Result

The sections of the visualization are grouped by the average of the selected records.

Aggregate a report on sum

When you create a report, you can aggregate the data on several calculations including the number of records, averages, and standard deviation. The sum aggregation shows the sum of the field you aggregate on.

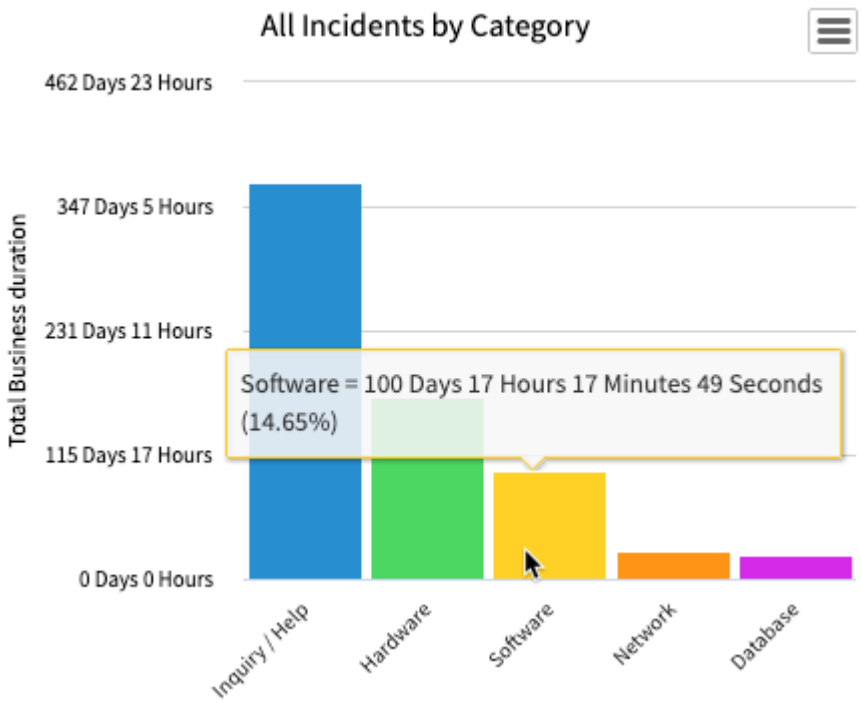
Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Sum

Select **Sum** to show the sum of the field you aggregate on. For example, select a duration field. The aggregated data is expressed in terms of days, hours, minutes, and seconds. (You can configure durations to show the level of detail you want.) Select an integer field, such as **Priority**, and the data is expressed as a whole number.

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Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report that you want to aggregate.
3. On the Configure tab, choose Sum from the **Aggregation** list.
4. Choose the field to aggregate.
5. Select **Run**.

Result

The sections of the visualization are grouped by the sum of the selected records. Select a duration field and the aggregated data is expressed in terms of days, hours, minutes, and seconds. Select an integer field, such as **Priority**, and the data is expressed as whole numbers.

Aggregate a report on minimum or maximum

When you create a report, you can aggregate the data on several calculations including the number of records, averages, and standard deviation. The maximum and minimum aggregations show the maximum or minimum value for each segment of the visualization.

Before you begin

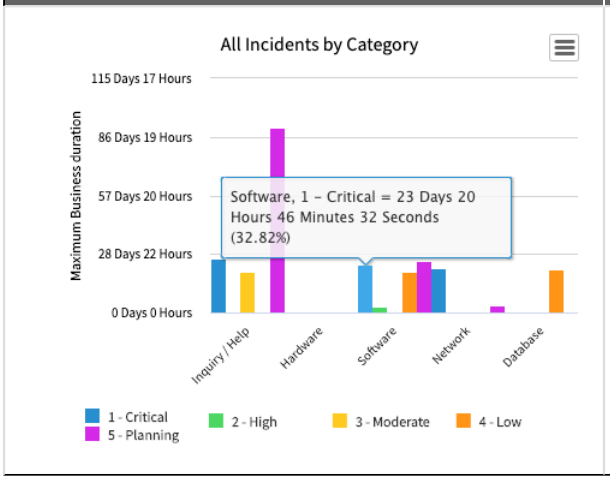
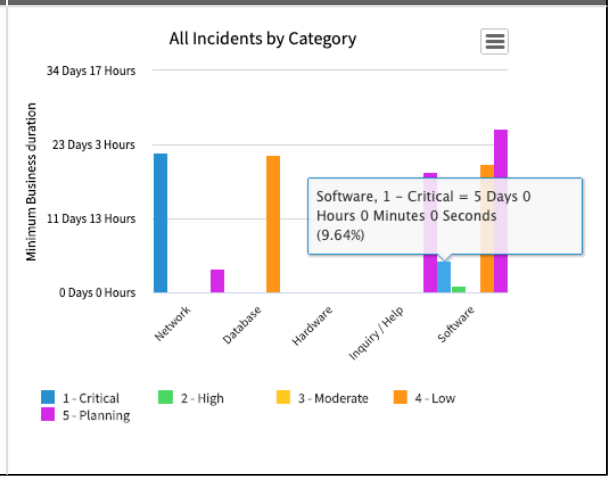
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Minimum and Maximum

Select **Minimum** or **Maximum** to show the maximum or minimum value for each segment of the report. For example, apply the Maximum aggregation to incidents grouped by priority. The report shows a bar for the incident in each priority with the highest business duration.

These images illustrate maximum and minimum duration using grouped bars to show the different priorities of each category of incident side by side. Stacked bars give the illusion that the element on top of the stack has a greater value. In fact, the bar is only showing the relative value of the two elements.

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Maximum duration	Minimum duration
	

Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report that you want to aggregate.
3. On the Configure tab, choose **Maximum** or **Minimum** from the **Aggregation** list.
4. Select **Run**.

Result

The sections of the visualization are grouped by the highest or lowest value for the selected records.

Aggregate a report on standard deviation

When you create a report, you can aggregate the data on several calculations including the number of records, averages, and standard deviation. The standard deviation aggregation shows variation from average values for a duration or numeric field in a visualization.

Before you begin

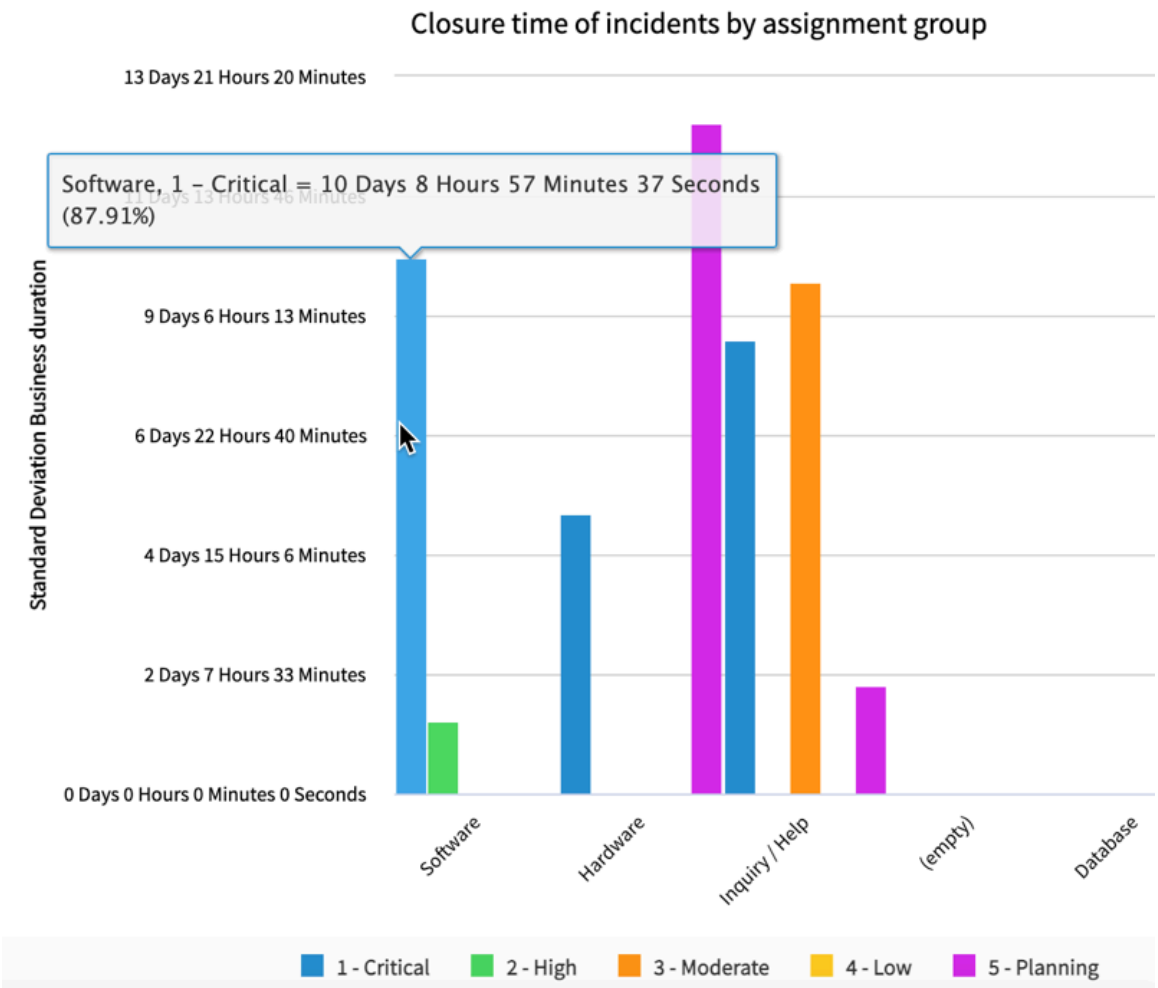
Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

Standard deviation

Select **Standard deviation** (SD) to see variation from average values for a duration or numeric field. For example, apply the Standard deviation aggregation to business duration of incidents. The report shows deviation from the average business duration of incidents in each priority.

Standard deviation is always expressed in the same unit as the data. In the following example, the data is in time units and so is the aggregation.

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Procedure

1. Navigate to **All** > **Reports** > **View / Run**.
2. Select the report that you want to aggregate.
3. On the Configure tab, choose **Standard Deviation** from the **Aggregation** list.
4. Select **Run**.

Result

The sections of the visualization are grouped by the highest or lowest value for the selected records.

Reporting roles

Reporting is installed with roles that limit report creation. Access control lists (ACLs) can also limit report viewing and creation.

Note:

- Users must have the report_user role to see the **Reports** module on the application navigator (left navigation pane).
- Users with any reporting role or the itil role can access the following report options for all reports that are visible to them: **Insert**, **Insert and Stay**, **Add to Dashboard**, and **Export to PDF**.

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To learn more about managing per-user subscriptions, see Managing per-user subscriptions in Subscription Management and contact your account representative.

In the following table, the term manage indicates access to the following report options: **Update**, **Delete**, and **Export settings**.

Access with no roles

Can view reports that are shared with them.

Reporting access with ACL

The report_view access controls on tables and fields limits the ability to read, edit and create reports. Administrators can create other ACL rules. You need a role that gives you access to the data that is the subject of the report. For more information, see Restrict report creation with an ACL rule and Report_view access control.

Note:
The Report Publisher [report_publisher] and Report Alias Administrator [report_alias_admin] roles also exist, but support deactivated functions.

Report user [report_user]

Create and view reports that have been shared with them. Cannot share, edit, or delete reports that have been shared with them. Users with the itil role also have these limitations.

Contains Roles

The Report user [report_user] role contains the Visualization Creator [viz_creator] role. The viz_creator role also enables a user to create reports.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

Report scheduler [report_scheduler]

Schedule emailing of all reports that they can see, including reports they cannot manage. Users with this role must also have another role that grants permission to create, edit, and share reports.

Contains Roles

The Report scheduler [report_scheduler] role contains the Report user [report_user] role.

Groups

List of groups this role is assigned to by default.

None.

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Special considerations

None.

Group report user [report_group]

Can manage and share reports that are shared with the groups they are members of (listed in Group).

Contains Roles

The report_group role contains the Report user [report_user] role.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

Global report user [report_global]

Can share a report that is shared with everyone. This role can share with everyone. Cannot share a report that is shared with the user or a group.

Contains Roles

The report_global role contains the Report user [report_user] role.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

Report administrator [report_admin]

Manage, share, publish, and schedule all reports. Access **Reports** > **Administration** and manage all report-related objects.

Contains Roles

List of roles contained within the role.

- report_scheduler
- analytics_filter_admin
- report_global
- report_group
- gauge_maker
- viz_admin

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Groups

List of groups this role is assigned to by default.

None.

Special considerations

Note:
Avoid granting an admin role when more specialized roles are available.

Report description administrator [report_description_admin]

Read and update table and field descriptions for reports. Included in the plugin Table and field description configuration for report [com.glideapp.report.description_config].

Contains Roles

List of roles contained within the role.

None.

Groups

List of groups this role is assigned to by default.

None.

Special considerations

For more information, see Administer table and field descriptions.

Reporting properties

Use properties to fine-tune report behavior and appearance.

Introduction

Navigate to **Reports** > **Administration** > **Properties** to configure the main reporting properties. In the Filter navigator, enter `sys_properties.list` to configure other reporting properties.

Reporting properties

Property	Description
Enable Natural Language Queries (NLQ) in Report Designer com.snc.par.nlq.report_designer.enabled	• Type: true | false • Default value: true • Location: **Reports** > **Administration** > **Properties**
Truncates x-axis labels to 20 characters. (Applicable only to charts generated with the charting v2 plugin) glide.chart.truncate.x_axis_labels	• Type: true | false • Default value: true • Location: **Reports** > **Administration** > **Properties**

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Property	Description
glide.ui.chart.bar.horiz.max_col_slant_labels	Sets the maximum number of columns in a horizontal bar slanting (angling) the labels. • Type: integer • Default value: 5 • Location: Add the property to the System Property [s table.
Toggle animations on and off for charts generated with the charting v2 plugin glide.chart.animation	Enables animations for reports and Performance Analytic that support animations. **Note:** Map reports do not support animations and therefore this property. • Type: true | false • Default value: true • Location: **Reports** > **Administration** > **Properties**
Sets the default truncation for truncated values. glide.chart.data_labels.remove_leading	When enabled, the default truncation is left side. When d default is right side truncation. • Type: string • Default value: false • Location: **Reports** > **Administration** > **Properties** This property is applicable only if glide.chart.truncate.data
Number of bins in a histogram chart (minimum 1, maximum 20) glide.chart.histogram.bins	Determines the number of sections that appear on the Y a histogram. • Type: integer • Default value: 10 (Allowed range of values 1–20) • Location: **Reports** > **Administration** > **Properties** This property applies to histogram reports.
Color of the mean value dot in box and trendbox charts. glide.chart.box.mean.color	Sets the color of the 'mean' value dot in a box or trendbox • Type: string • Default value: #2f7ed8 • Location: **Reports** > **Administration** > **Properties** This property applies to box and trendbox reports.
glide.chart.drill.open_new_win	If enabled, opens the default list drilldown in a new tab if defined. Applies only for non-list type reports.

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Property	Description
	• Type: true | false • Default value: false • Location: **Reports** > **Administration** > **Properties**
Color of the box and whisker in box charts glide.chart.box.color	Sets the color of the box report. • Type: string • Default value: #FF0000 • Location: **Reports** > **Administration** > **Properties** This property applies to box reports.
Default Color list name for each dataset glide.ui.report.datasets.default_colors	Sets the default colors to use when adding multiple data chart. These values are used when the **Chart color** value Enter a comma-separated list of chart color **Color name** v can view available colors and define new colors on the C [sys_report_chart_color] table. Each color is used in order as the default chart color whe set to a chart. If there are more data sets than default colo repeat. • Type: string • Default value: Default Color • Location: **Reports** > **Administration** > **Properties**
List of color palette names that are used as a default color palette for each dataset glide.ui.report.datasets.default_palettes	Sets the default palette to use when adding multiple data chart. These values are used when the **Chart color** value **palette**. Enter a comma-separated list of chart color scheme **Nam** view the available palettes and define new palettes on th Schemes [pa_chart_color_schemes] table. Each palette is used in order as the default chart palette v data set to a chart. If there are more data sets than defaul palettes repeat. • Type: string • Default value: Default UI14 • Location: **Reports** > **Administration** > **Properties** This property applies to pie, bar, horizontal bar, donut, an reports.
Set the default map for reports of type 'Map' glide.ui.report.map.default_map	Specifies the default map to use when creating Map-type • Type: string • Default value: world • Location: **Reports** > **Administration** > **Properties**

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Property	Description
	This property applies to Map reports.
glide.ui.chart.color	Specify the chart color. • Type: string • Default value: #006DDA • Location: Add a system property to the System Prop [sys_properties] table.
glide.ui.chart.use_full_color_palette	Enable this property to generate bars in bar and Pareto ch different colors for each bar. • Type: true | false • Default value: #false • Location: **Reports** > **Administration** > **Properties** This property applies to bar, horizontal bar, and Pareto rep
glide.chart.label.legend.truncate_to	Truncates legend labels for left or right legend alignment except large charts. Prevents shrinking of charts when lab • Type: integer • Default value: 14 • Location: System Property `[sys_properties]` tabl
glide.chart.label.legend.truncate_to.large	Truncates legend labels for left or right legend alignment Prevents shrinking of charts when labels are too long. • Type: integer • Default value: 20 • Location: System Property `[sys_properties]` tabl
glide.report.new_calendar	• Type: true | false • Default value: true • Location: System Property [sys_properties] table
glide.report.calendar.max_days_back	Enables you to specify the number of days with events th when you browse backward and forward in a calendar rep the **Calendar by** field in the report creator. • Type: integer • Default value: 30 • Location: Add a system property to the System Prop [sys_properties] table. This property applies to calendar reports.
glide.report.calendar.default_event_duration	The default duration for an event without a specified end

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Property	Description
	• Type: string • Default value: 01:00:00 (One hour, zero minutes, zero s • Location: System Property `[sys_properties]` tabl This property applies to calendar reports.
glide.report.calendar.max_more_events_per_day	Defines the maximum number of calendar events that ca **<number>** pop-up window for: • A calendar day when calendar is in month or year view • The top 'full day' section of a calendar day when a cale week view When this number is exceeded, a **+ many** link appears, w of events instead of a pop-up. For more information, see s *glide.report.calendar.max_events_displa* • Type: integer • Default value: 30 • Location: Add the property to the System Property [s table.
glide.report.calendar.max_events_displayed_per_cell	Defines the maximum number of events that can appear i for: • A calendar day when calendar is in month or year view • The top 'full day' section of a calendar day when a cale week view Events that exceed this value are visible via a link in the c *glide.report.calendar.max_more_events_p* more information. • Type: integer • Default value: 3 • Location: Add the property to the System Property [s table.
glide.ui.report.extend_calendar_choices	Controls which field styles are applied during calendar hi property is set to false, field styles in only the Task table a property is set to true, the calendar first uses field styles f that the report is based on. If no applicable styles exist in calendar uses field styles from the Task table. • Type: true | false • Default value: true • Location: System Property [sys_properties] table
glide.ui.filter.first_day_of_week	Identifies the first day of the calendar week for the compa the start of the week is Monday, meaning that the calenda

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Property	Description
	with Monday and ends with Sunday. To change this beha property *glide.ui.filter.first_day_of_week* as an integer property. Enter the integer corresponding w week that the calendar begins on. 1 is Sunday, 2 is Monda function impacts all charts and calculations where the da used as a parameter. • Type: integer • Default value: 2 • Location: Add a system property to the System Prop [sys_properties] table.
glide.ui.chart.bar.horiz.max_col_slant_labels	Sets the maximum number of columns in a horizontal bar slanting (angling) the labels. • Type: integer • Default value: 5 • Location: Add a system property to the System Prop [sys_properties] table. This property applies to horizontal bar reports.
glide.ui.chart.pie.labels	Enables (true) or disables (false) labels on pie chart slices • Type: true | false • Default value: true • Location: Add the property to the System Property [s table.
glide.ui.chart.pie.labels.max_items	Sets the maximum number of pie chart slice values that c display their labels. • Type: integer • Default value: 8 • Location: Add the property to the System Property [s table.
glide.chart.data.label.truncate_to	Sets the maximum length of a data label for a chart. If long truncated and an ellipsis (...) appended. **Note:** This property does not apply to stacked bar chart rep • Type: integer • Default value: 13 • Location: System Property [sys_properties] tabl
glide.report.pivot.fixed_headers	When disabled, the header row of a multiple level pivot ta and scrolls out of frame when the user scrolls through the

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Property	Description
	• Type: true | false • Default value: true • Location: Add a system property to the System Prop [sys_properties] table. This property applies to multilevel pivot tables.
glide.report.metric_max_data_points	Configure the maximum number of data points per Metric Typically only MetricBase time series reports display eno require this limitation. • Type: integer • Default value: 2000 • Location: Add a system property to the System Prop [sys_properties] table.
glide.report.metric_max_series	Configure the number of series per data set in a MetricBa • Type: integer • Default value: 20 • Maximum value: 100 • Location: Add a system property to the System Prop [sys_properties] table.
glide.report.report_view.read_acl	Configure READ-level security on report execution. • Type: string • Default value: enforce • Possible values: **ignore** No evaluation is conducted against the read ACL users can see the report as if they had passed th **enforce** Evaluation is conducted against the read ACL. Us only view the report if they pass the read ACL. **log** The read ACL check is not enforced, but the adm can see which users would have been blocked if security check was enforced. • Location: Add a system property to the System Prop [sys_properties] table.

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Interactive Filters properties

Property	Description
glide.homepage_interactivity.ui_ctrls_max_display_options	Maximum number of choices for radio button and check box interactive filters. • Type: integer • Default value: 25 • Location: **Reports** > **Administration** > **Properties** Category: Choice list, Reference field, Date, Group

Report Designer keyboard shortcuts

Keyboard shortcuts enable you to perform certain functions in the Report Designer without using your mouse.

You can use the following keyboard shortcuts.

Function	Shortcut
Run the current report	`Control + Alt (Option) + R`
Save the current report	`Control + Alt (Option) + S`
Open the domain picker. (This shortcut only works if domain separation is enabled.	`Control + Alt (Option) + D`
Opens the **Data** tab	`Control + Alt (Option) + 1`

Related topics

Keyboard shortcuts

Responsive dashboards in the Core UI

Responsive Dashboards enable you to display multiple performance analytics, reporting, and other widgets on a single screen. Use dashboards to create a story with data you can share with multiple users.

Get started

Note:
You can migrate your Core UI (UI16) dashboards to the Platform Analytics experience. For more information, see Platform Analytics Migration Center.

Core UI dashboard functionality is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

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Explore



ServiceNow responsive dashboards enable you to share reports and other data visualizations as well as filters for the use of people across your organization.

Create



Learn how to tell the story of your data by creating, editing, viewing, and sharing dashboards.

Administer



Learn how to group dashboards, move dashboards with update sets, and troubleshoot permissions, and more.

Migrate



Migrate your dashboards to the Platform Analytics experience.

Exploring Responsive dashboards

Learn more about dashboards with a sample workflow and reviewing the benefits it can provide for different users.

Dashboards overview

Core UI Responsive Dashboards show reports, Performance Analytics indicator widgets, interactive filters, and other Core UI components of the story of the data on your instance.

Important:
Responsive dashboards cannot show Platform Analytics components such as data visualizations. For more information, see Platform Analytics experience.

Benefits of Responsive Dashboards

Benefit	Feature	Users
View a list of dashboards and choose dashboards to see up-to-date information about your instance in the context of related data.	Find a responsive dashboard	There are no specific permissions required to work with dashboards. You must have permission to view at least one dashboard to see the Dashboards Overview and the dashboard picker.

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Benefit	Feature	Users
Create a dashboard to tell a story with current instance data that you can share.	Create or configure a responsive dashboard	
Manage dashboards including deleting, copying, and editing user access.	Manage responsive dashboards	You must own a dashboard or be an admin to copy, delete, or manage permissions on it.
Share dashboards to create a shared view of data that you can use to collaborate. You can give other users viewing rights or both viewing and editing rights.	Share a responsive dashboard	You must own a dashboard or be an admin to share a dashboard.

Create and use dashboards

Learn about different types of dashboards and how to use them.

Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Creating dashboards and other common dashboard tasks.

Use dashboards to share reports and other data visualizations, filters, and other content with people across your organization. See Reporting, Interactive Filters, and Performance Analytics widgets for more information.

Dashboards overview

To create a responsive dashboard, see Create or configure a responsive dashboard.

Edit a responsive dashboard

You can edit the contents of a dashboard, including Performance Analytics widgets, reports, and tabs. Because dashboards are shared, any modifications you make are applied globally.

Before you begin

Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Edit Platform Analytics dashboards.

Owners of Core UI responsive dashboards have the option to migrate these dashboards to Platform Analytics experience. For more information, see .

If Platform Analytics experience is enabled, the dashboard picker shows both Core UI and Platform Analytics experience dashboards.

Core UI dashboard backgrounds are not themeable with custom colors.

Role required: Users can edit dashboards that they own, or ones that they have the right to edit. See Dashboard permissions for more information about viewing and editing rights on dashboards.

Note:
Responsive dashboards do not support the Sticky Notes widget.

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Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. From the dashboard picker, select the dashboard that you want to edit.
3. Perform any of the following actions.

Related topics

Share a responsive dashboard

Configure the layout of a responsive dashboard

You can change the appearance of widgets; change widget layouts; change the colors of the widget title, header, and background; and show or hide widget headers.

Before you begin

Role required: User. dashboard_admin for all dashboards, or any role for dashboards that you own or ones that you have been given the right to edit. See Platform Analytics dashboard roles for more information about viewing and editing rights on dashboards.

Note:
Responsive dashboards do not support the Sticky Notes widget.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. From the dashboard picker, select the dashboard that you want to edit.
3. Click the plus sign ( ) to put the dashboard in edit mode.
4. Perform any of the following actions.
5. **Optional:** Add content blocks to divide the content of the dashboard or to provide other content.
   From the **Add Widgets** list, select Content Blocks. For information about static content blocks, see Configure a static HTML block .

Working with responsive dashboards

Responsive dashboards enable you to share widgets such as reports and Performance Analytics visualizations in the classic environment. An easy-to-use drag and drop canvas helps you create, edit, and arrange content, and then share it with colleagues.

Use dashboards to:

- Create and edit Performance Analytics visualizations and other widgets directly from the dashboard.
- Quickly find and preview widgets, then add them to the dashboard from the Add Widget pane.
- Easily share dashboards with other users from the integrated Sharing pane.
- Snap the widgets into a predefined layout, then adjust the layout as desired.
- Access information that you use frequently by setting dashboards as your **Home**.

Watch this three-minute video to learn more about flexible layouts, multiple tabs, sharing, converting homepages to dashboards, and enabling responsive dashboards.

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https://player.vimeo.com/video/1107466335?h=9947e73bf0&badge=0&autopause=0&player_id=0&app_id=58479

Benefits

- Optimize performance with configurable widget loading. For more information on the benefits of configurable widget loading, see Optimize widget rendering time on responsive dashboards.
- Use the **Restrict to roles** field to specify roles required to access the dashboard. Users with any of the specified roles can access the dashboard if they have been given access on the dashboard's **Share** panel.

Limitation

ServiceNow mobile apps don't give access to dashboards as dashboards aren't optimized for mobile screen sizes. You can access dashboards on a tablet using the standard web interface. It's possible to create mobile apps that display reports and Performance Analytics visualizations, but these aren't full responsive dashboards. For more information, see Configure an analytics UI section .

Related topics

Set responsive dashboards as your home

Create or configure a responsive dashboard

Create a dashboard where you can add Performance Analytics widgets, data visualizations, and other content that you frequently use. You can then share the dashboard with other users.

Before you begin

If you are new to dashboards, the Visualize and Next Experience Dashboards sections of the ServiceNow University Platform Analytics (PA) Overview training provide an overview of these features. (Registration and enrollment required.)

Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Create a dashboard with the in-line editor.

Core UI dashboard backgrounds are not themeable with custom colors.

Role required: none

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select **Create a dashboard**.
3. Fill in the following fields:

4. **Optional:** Select the **Restrict to roles** edit icon ( ) to specify the roles that a user must have to access this dashboard.
   For more information, see Share a responsive dashboard.
5. **Optional:** Users with admin, pa_admin, and pa_power_user roles can configure these additional fields:

6. Select **Submit**.

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Result
The dashboard is created with no content. To add your first content, select a widget type and a widget and click **Add**.

What to do next
Add more content to your new dashboard. For more information, see Edit a responsive dashboard.

Related topics
- Indicator breakdowns
- Add a breakdown to a dashboard
- Organize dashboards into groups

Solve problems with empty dashboards

When a dashboard shows an empty page with an empty dashboard selector, the dashboard name may include special characters.

Before you begin
This problem happens when the dashboard name includes tab or newline characters or ASCII characters that aren't letters or numbers.

Role required: admin

Procedure
1. Navigate to `pa_dashboards_list.do`.
2. Edit the title fields of problem dashboards to remove any special characters.

Result
The dashboard page shows the expected content and a populated dashboard selector.

Dashboards overview

The Dashboards Overview enables you to choose from dashboards that you have access to, dashboards associated with a single group, or a list of all dashboards. Click a card to open the dashboard.

Introduction to the Dashboards Overview page

Watch this brief video to learn more about using the Dashboards Overview.

Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.

The Dashboards Overview enables you to show dashboards in one of these categories. By default, the Recent category is selected when you visit the Dashboards Overview.

- **Recent** shows up to nine dashboards that you have visited recently. The most recent are shown first.
- **Owned by me** shows the dashboards that you have created and those dashboards to which you have been assigned ownership.
- **Shared with me** shows the dashboards which have been shared with you as a user, or member of a group or role.
- **All** shows all the dashboards that you have access to.

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Note:
The category you choose limits the dashboard groups and individual dashboards that you see when you choose from the **Groups** list and the **Dashboard Picker** search box. If no dashboards in the group you select have been shared with you, then the overview indicates No dashboards shared with you match your search

All tabs except for the Recent tab are sorted in ascending order by:

1. Dashboard group — Order

   The owner of the dashboard can specify an order number in the dashboard group's form. This field is optional.

2. Dashboard group — Name
3. Dashboard — Order

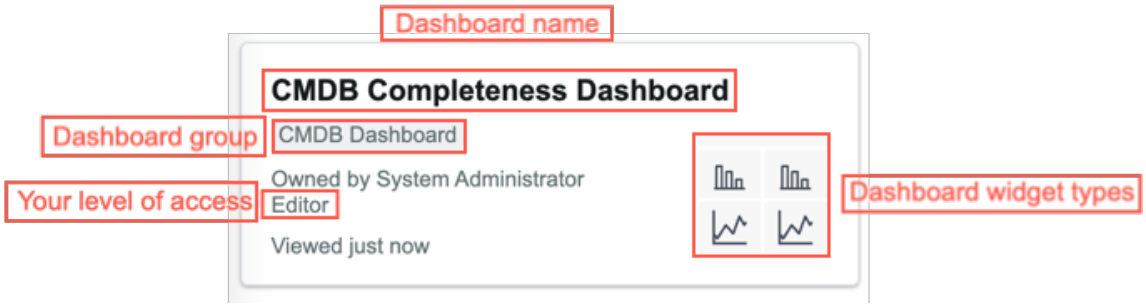
   The owner of the dashboard can specify an order number in the dashboard's form. This field is optional.

4. Dashboard — Name

Dashboards Overview tiles

Tiles on the overview show thumbnails of the dashboard's widgets, the Dashboard Group, your level of access, the dashboard name, and the dashboard owner. Dashboard access levels are Owner, Editor, and Viewer. For more information, see Share a responsive dashboard.

Dashboards overview tile example



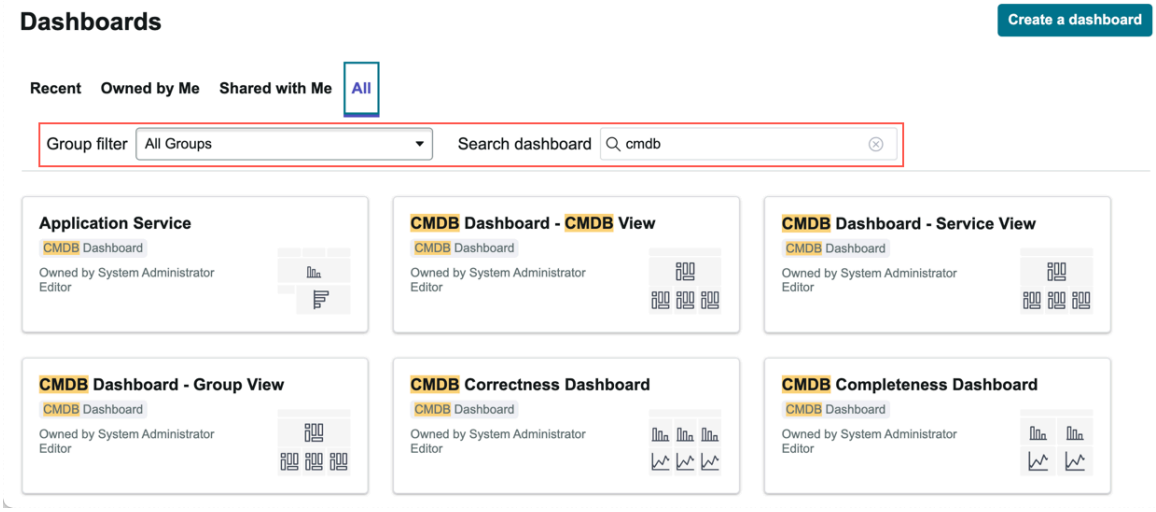
Note:
When you are prevented from viewing a dashboard widget for any reason, a message specific to the error prompts you to contact the administrator.

Dashboards Overview Groups list

Use the **Groups** list to show only those dashboards in a single group. Dashboards that don't have a group specified fall under the group **Other**.

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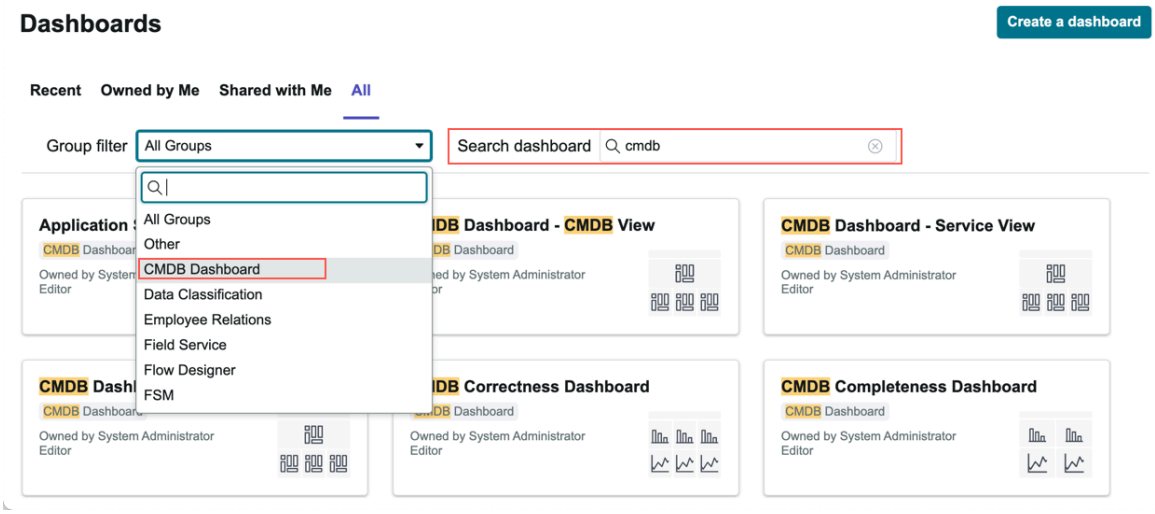
Dashboard overview groups example



Dashboards Overview search box

Use the search box to search for dashboards by name or group.

Dashboards overview search example



Click **New** to create a responsive dashboard.

Related topics

Working with responsive dashboards

Find a responsive dashboard

Use dashboard categories, dashboard groups, and dashboard lists to find the dashboard you want to use.

Before you begin

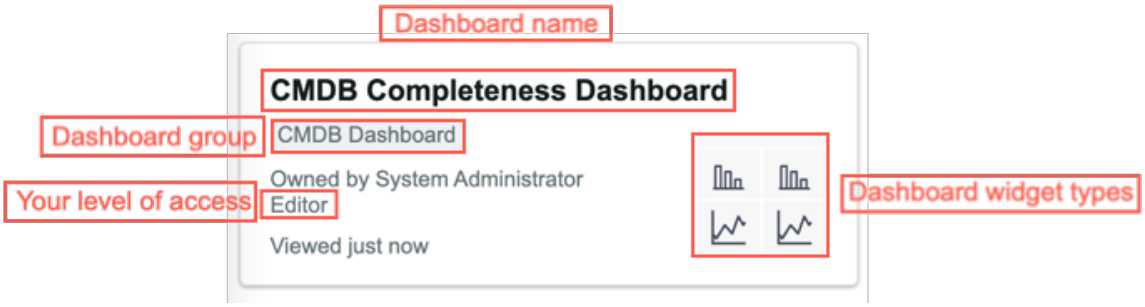
Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Dashboards in the library.

Role required: There are no specific permissions required to view dashboards. However, you must have permission to view at least one dashboard to see the Dashboards Overview and the dashboard picker. For more information about dashboard permissions, see Solving permissions issues on a responsive dashboard.

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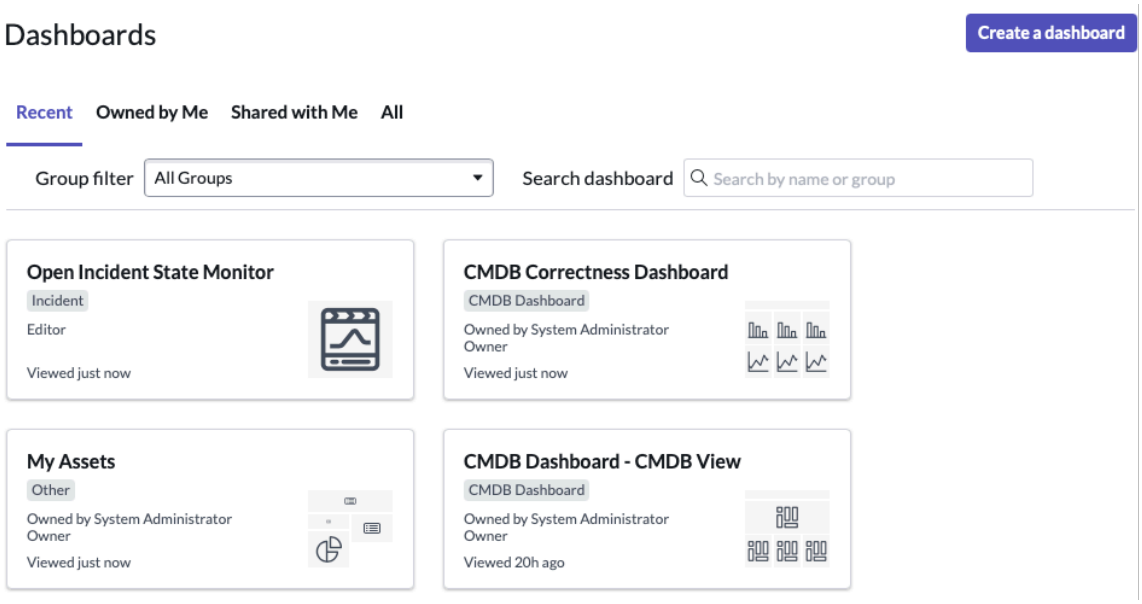
About this task

On the Dashboards Overview, each tile contains information about the dashboard it represents: Thumbnails of the widgets on the dashboard, the Dashboard group, your role on the dashboard, the name of the dashboard, and the owner of the dashboard. Dashboards that are not assigned a group by their creators are assigned the group **Other**.



Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**. The Dashboards Overview shows tiles representing the most recent dashboards you have visited.



2. Select a category:
   - **Recent** shows up to nine dashboards that you have visited recently. The most recent are shown first.
   - **Owned by me** shows the dashboards that you have created and those dashboards to which you have been assigned ownership.
   - **Shared with me** shows the dashboards which have been shared with you as a user, or member of a group or role.
   - **All** shows all the dashboards that you have access to.

   All tabs except for the Recent tab are sorted in ascending order by:

   a. Dashboard group — Order

      The owner of the dashboard can specify an order number in the dashboard group's form. This field is optional.

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b. Dashboard group — Name

c. Dashboard — Order

The owner of the dashboard can specify an order number in the dashboard's form. This field is optional.

d. Dashboard — Name

3. Select a group from the **Groups** list to filter the displayed tiles on a dashboard group.

   If no dashboards match the combination of category and group, a message is shown, for example, No dashboards shared with you match your search.

4. Type a string in the **Search dashboard** box to filter the dashboards further.
   - Put your search string in double quotes to find an exact match. Searching for `"Open Incidents"` returns the dashboard called Open Incidents, but not Open Incidents Age Monitor.
   - Enter your search string without double quotes to return all matches that contain the string. Searching for `Open Incidents` returns the dashboards Open Incidents, Open Incidents Reports, and Open Incident State Monitor.

   Note:
   Neither of these search strings returns the keywords in a different order. For example, neither will return the dashboard Incidents Open This Week.

   Search results are limited to 100 results per category. To change this value, create and configure the system property *`glide.cms.dashboards.sharing.search.maxRecords`*. For more information see Responsive dashboard properties.

5. Select a dashboard tile to open that dashboard.

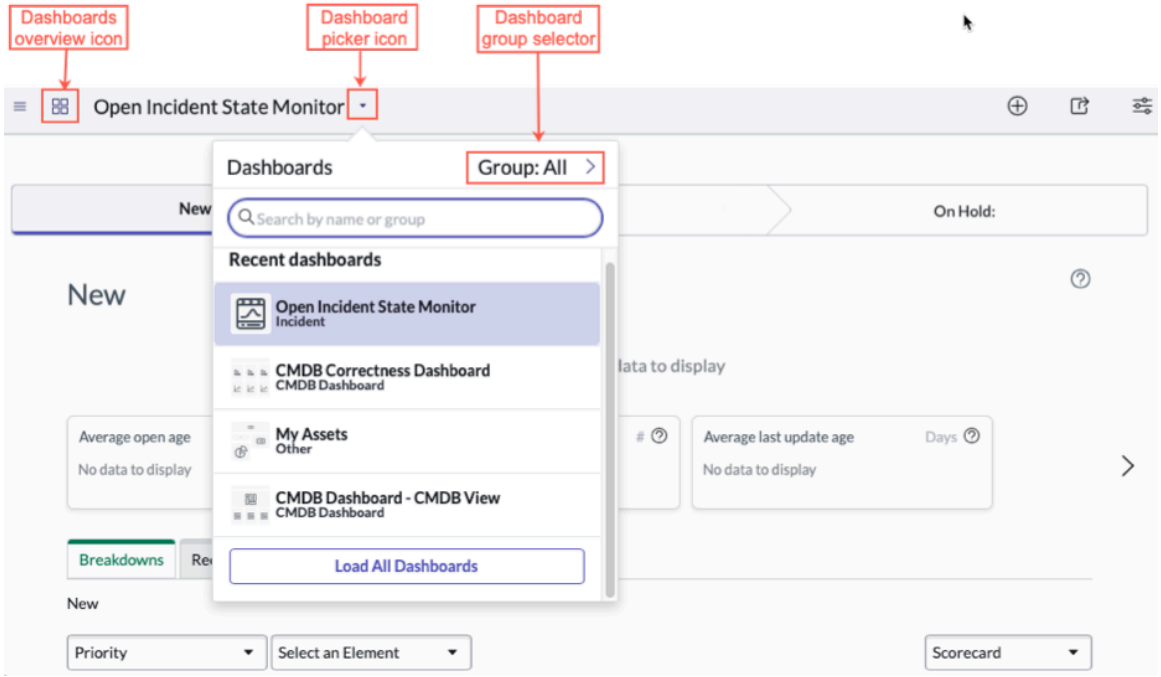
6. On any open dashboard, select the Dashboards Overview icon () to return to the Dashboards Overview.

7. To find another dashboard, click the arrow next to the dashboard name to open the Dashboard Picker.
   You can:
   - Start typing in the **Search by name or group** box to filter the list.
   - Select the **Group filter** to filter the list on a specific dashboard group.

     The **Group filter** shows all dashboard groups in the instance. If you do not have permission to view any dashboards in a selected group, you will see the message, No dashboards shared with you match your search

   - Scroll through all dashboards you have permission to open, starting with the most recent that you have viewed.

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8. Select the name of a dashboard to replace the current dashboard with the new one.

Share a responsive dashboard

Share a dashboard with other users to create a shared view of data that you can use to collaborate. You can give other users viewing rights or both viewing and editing rights.

Before you begin

Role required:

- You can share dashboards that you own with other groups and users.
- Only users with the admin, dashboard_admin, pa_admin, or pa_power_user role can see roles in the **Sharing** panel.
- Users with the pa_admin or pa_power_user role can share dashboards that they can edit.
- Users with the admin role can share any dashboard they can access.

Note:

This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Share a Platform Analytics dashboard.

Access control list (ACL) rules for scoped applications apply to dashboards created within scoped applications. To apply pa_dashboard ACLs to dashboards within a scoped app, see Enable pa_dashboard records in scoped applications.

Reports and other data visualizations on dashboards are subject to report_view ACLs and may not be visible to all users you share a dashboard with. For more information, see Report_view access control.

Administrators can set two properties that affect how you share responsive dashboards:

glide.cms.share_dashboards.role

In this system property, the admin can specify a comma-separated list of roles that can share their own dashboards.

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Note:
If one role in this list is misspelled, that role will not be able to share dashboards. If there is only one role in this list and that role is misspelled, no user will be able to share dashboards until the value for this property is corrected.

glide.cms.dashboards.sharing_with_secure_search

In this system property, the admin can specify that security rules are applied to the lists of users, user groups, and roles that are visible when users share responsive dashboards. Only users with one of these roles can see roles in the **Sharing** panel: admin, dashboard_admin, pa_admin, and pa_power_user.

For more information, see Dashboard permissions.

About this task

In general, when you share a dashboard, you aren't granting permission to the widgets on that dashboard. Most Performance Analytics widgets, however, inherit security rules from the dashboards where they've been added. If you can view a dashboard, you can see the Performance Analytics widgets on that dashboard.

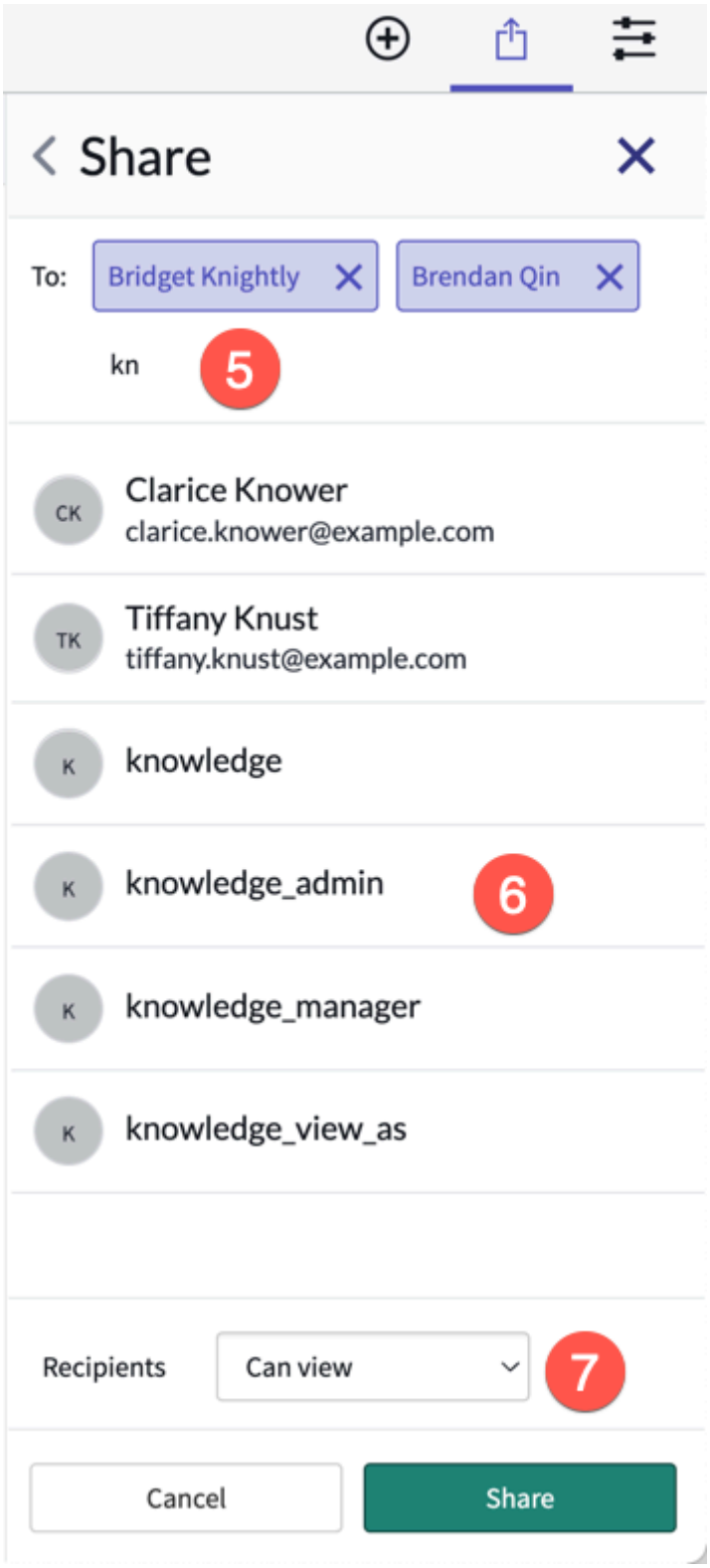
Note:
Performance Analytics List widgets don't show the indicators that you don't have permission to read. While the dashboard permission applies to the whole Performance Analytics list widget, individual indicators in the widget follow the permissions for those indicators. For more information about indicator permissions, see Control access to an indicator.

When domain separation is enabled and the system property *glide.security.admin.override.accessterm* is not selected, admins must be in the same domain as the dashboard to share it. See Evaluate the admin override at the access level.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Use the **Search dashboard** box to find the dashboard that you want to share.
3. Select the Sharing icon ( ) to open the **Share** panel.
4. Select **Add groups and users** ( ). Users who have the admin, pa_admin, dashboard_admin, or pa_power_user roles can also see roles on the **Share** panel.
5. Start typing the name in the **To** field.
6. Select a user, group, or role from the displayed list.
7. From the **Recipients** list, select **Can view** or **Can edit** to specify the permissions the user, group, or role has on the dashboard.
   When a person you've shared the dashboard with goes to the Dashboard Overview, they see either Viewer or Editor as their role on the dashboard.

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Note:
To edit a shared dashboard, a user must be in the same domain as the dashboard. Sharing a dashboard with write access (**Can edit**) doesn't change that. The **Can edit** option only works if the dashboard is shared with a user in the same domain as the dashboard. For more information, see Domain separation and responsive dashboards.

8. **Optional:** Clear the **Send an email invitation** check box.

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You can choose not to send an email message. For example, when recipients already know the dashboard has been shared with them.

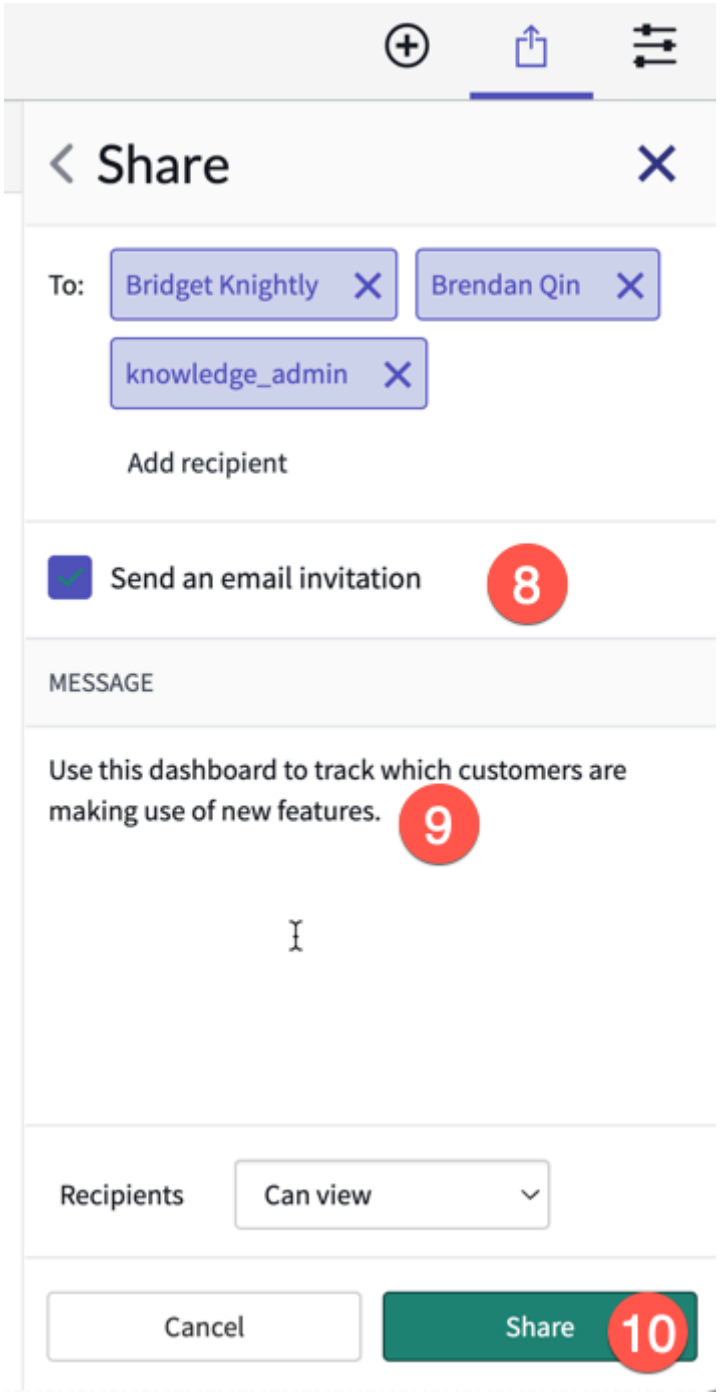
Note:
Sending email from within your instance requires configuration of email servers. For more information, see Basic email setup.

9. **Optional:** Write an addition to the default email invitation message.
The default email message reads "The dashboard <Name of Dashboard> has been shared with you by <user role>."

(Optional) Users with the admin role can edit the default email message. Navigate to **System Notification** > **Email** > **Notifications** and open the dashboard sharing notification. For more information, see Create an email notification.

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10. Select **Share**.



Result
The dashboard is shared and, if specified, an invitation is sent to the invited users.

Enable pa_dashboard records in scoped applications

When application administration is enabled for a scoped application, access control list (ACL) rules for the scoped application are applied. To allow your scope to use the ACLs defined on the [pa_dashboards] table but out of your scoped app, inherit the [pa_dashboards] ACLs.

Before you begin
Role required: admin.

Scope required: the scope of your application.

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Procedure

1. Set the system property *glide.security.scoped_administration.honor_global_acl* to true.
   Often this property is already set to true, so additional update is not necessary. For more information, see Add a system property.
2. Switch the scope to the scope that the dashboard is created in.
   The user should be that scope's application administrator.
3. Navigate to sys_scoped_admin_acl_inheritance_list.do.
4. Create a record for the PA Dashboards [pa_dashboards] table and select **Submit**.
5. Create a record for each of these tables:
   - Portal Page [sys_portal_page]
   - Tabs [pa_tabs]
   - Dashboard Permissions [pa_dashboards_permissions]
6. **Optional:** If multiple reports have the same issue, create a record for each of these tables:
   - Reports [sys_report]
   - Report Users and Groups [sys_report_users_groups]

Manage responsive dashboards

Depending upon their role, users can delete or duplicate responsive dashboards, and remove a user from a dashboard. All users can mark a dashboard as a favorite.

Delete a responsive dashboard

Delete dashboards that are no longer used. Deleted dashboards cannot be restored.

Before you begin

Role required: dashboard_admin or admin, or be the owner of the dashboard.

Inform any users that you have shared the dashboard with that you are deleting it. Users may have bookmarked the dashboard or marked it as a favorite. Those users see an error when they try to access a deleted dashboard.

Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Delete a Platform Analytics dashboard.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard that you want to delete.
3. Click the context menu ( ) and choose **Delete Dashboard**.

Result

When you delete a dashboard, dashboard tabs that are not used on other dashboards are deleted.

Delete a dashboard tab

When dashboard tabs are no longer useful, it is possible to delete them.

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Before you begin
Role required: dashboard_admin or admin. If you are the owner of the dashboard or otherwise have edit rights on the dashboard, you can also delete a dashboard tab.

Procedure
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard containing the tab that you want to delete.
3. To delete a dashboard tab, point to the tab and click the trash icon.

Result
When you delete a dashboard tab, it is removed from the dashboard. If it is not used in any other dashboard, it is deleted entirely.

Copy a responsive dashboard

When you duplicate a responsive dashboard, its widget layout is preserved. However, sharing permissions aren't preserved. Changes you make to the duplicated dashboard don't affect the original dashboard.

Before you begin
Note:
This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Duplicate a Platform Analytics dashboard.

To copy a dashboard related to an Platform Analytics Solution, see Duplicate an Analytics and Reporting Solution dashboard.

Role required: Any user who can share a dashboard can copy it.

Procedure
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard that you want to duplicate.
3. Select the context menu ( ) and select **Duplicate Dashboard**.
   A copy of the dashboard is created with you as the owner. The name of the copy is Copy of [Original Dashboard Name].
4. **Optional:** To rename the dashboard, click the context menu ( ), select **Dashboard Properties**, and edit the **Name** field.

Result
A copy of the dashboard is created with you as the owner.

What to do next
Modify the dashboard and then share it with other users.

Rename a responsive dashboard

Provide a more useful name for your dashboard by renaming it.

Before you begin
Role required: Users can edit dashboards that they own, or ones that they have the right to edit. See Dashboard permissions for more information about viewing and editing rights on dashboards.

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Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. From the dashboard picker, select the dashboard that you want to rename.
3. From the context menu ( ), select **Dashboard Properties**.
4. In the name field, enter the new name for the dashboard.
5. Select **Update**.

> **Note:**
> The **Owner** field is required. If this field is empty, provide the name of the dashboard's owner to complete this task.

Remove a user from a dashboard

When you no longer want to share a dashboard with specific users, groups, or roles, you can remove their access to the dashboard.

Before you begin

Role required: Any dashboard owner can remove users or groups from dashboards they own.

Users with the dashboard_admin or admin role can remove users, groups, or roles from any dashboard.

Users with the pa_admin or pa_power_user role can remove users, groups, or roles from any dashboard that they can edit. These dashboards include dashboards that a user owns, and dashboards to which they have been granted edit rights.

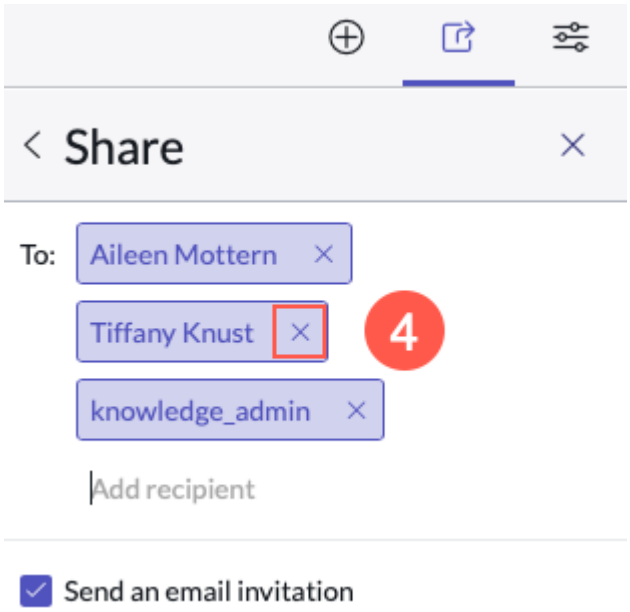
For more information, see Dashboard permissions.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard that you want to modify.
3. Select the sharing icon ( ).

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4. In the **Share** panel, select the X next to the name of the user, group, or role that you want to remove.



Result
The removed users no longer have the right to view the shared dashboard.

Related topics
Restrict responsive dashboard access to specific roles

Mark a responsive dashboard as a favorite

You can mark a dashboard as a favorite to access it easily from the navigation pane.

Before you begin
Anyone who can access a dashboard can make it a favorite.

Role required: none

Procedure
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. From the dashboard picker, select the dashboard that you want to mark as a favorite.
3. Select the context menu ( ) and select **Create Favorite**.

Result
Favorite dashboards appear in the favorites tab of the application navigator.

Filter dashboards on breakdown elements

Some dashboards let you apply one or more Performance Analytics breakdown elements to filter the entire dashboard. For example, you can show only high and critical priority items or only the teams that report to a certain manager.

Before you begin
You must have a dashboard already created with the Performance Analytics that you want to filter by breakdown element. Dashboards that have been configured in this way are called breakdown dashboards.

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Role required: None

About this task

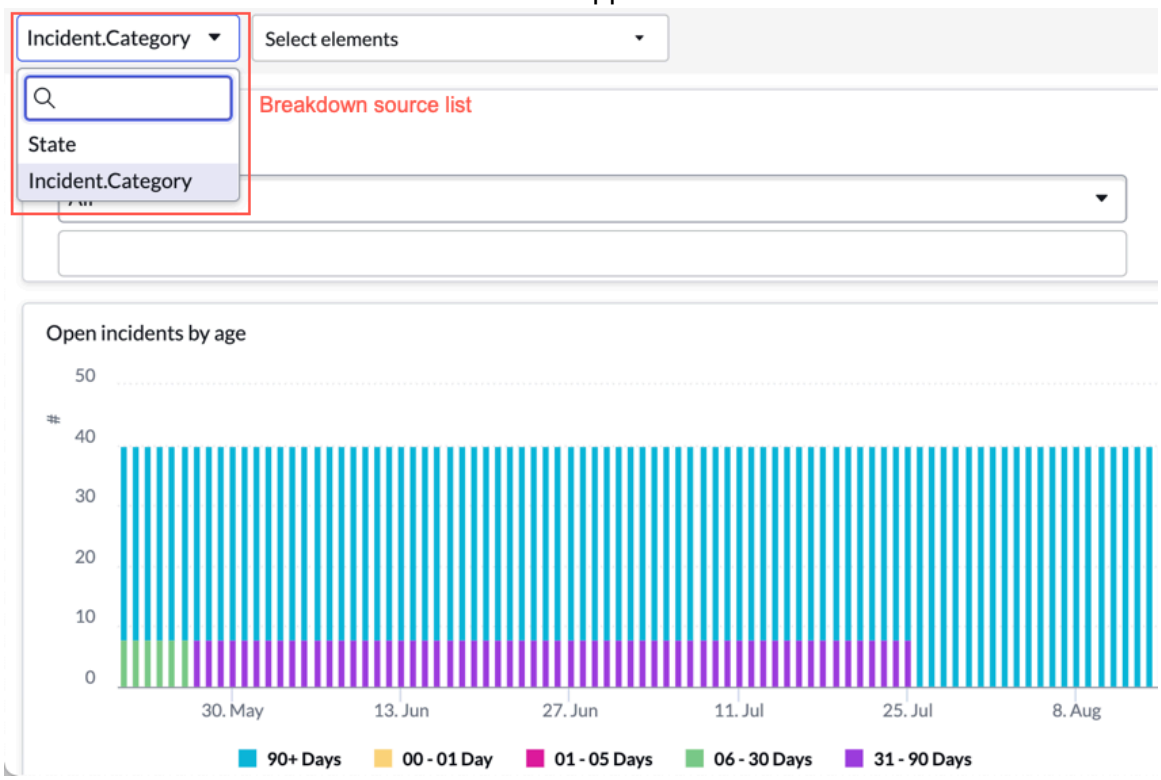
To filter a dashboard on breakdown elements, such as priorities or categories, select the breakdown source and then select elements within that breakdown source. Reports and appropriately configured Performance Analytics widgets reflect the filter when it is applied. If you select multiple elements, Performance Analytics shows the values associated with those elements as an aggregation or as separated elements, depending on how each Performance Analytics widget is configured. For more information about configuring breakdown dashboards and their widgets, see Using breakdowns on dashboards.

For performance reasons, there is no option to select all breakdown elements.

Note:
If you view a breakdown dashboard with a breakdown applied but no elements, the widgets show the base indicator scores. The breakdown does not filter the scores. These scores are usually higher than the scores when you select a breakdown and all elements. Often not all elements are available due to element security or an element filter. You also usually cannot select the Unassigned score, which contributes to the indicator scores.

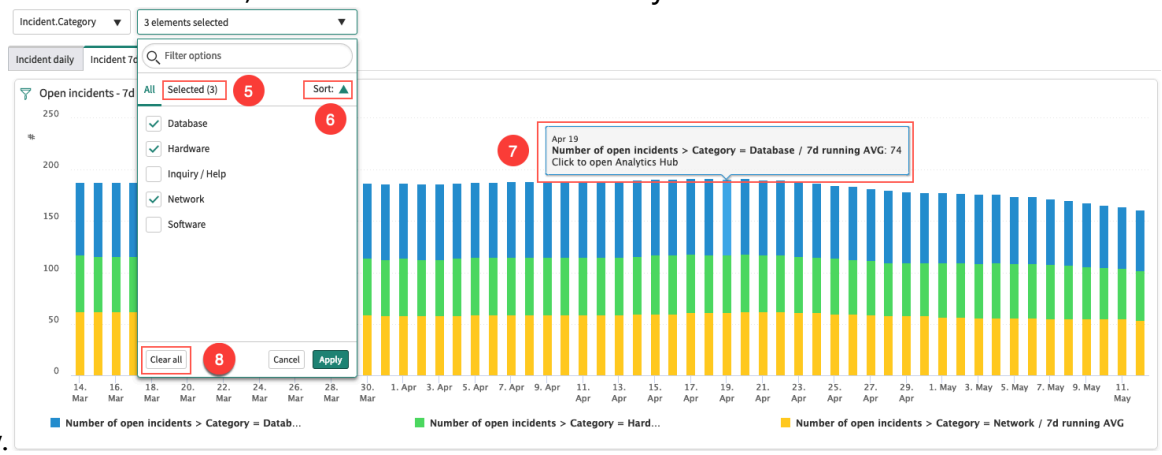
Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard that you want to filter by breakdown elements.
3. Select a breakdown source from the list in the upper left.



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4. In the Select Elements list, select the element or elements you want to filter on and click **Apply**.



The widgets on the dashboard that can be filtered are filtered on the selected elements. Next to their titles, filtered widgets show a filter icon .

> **Note:**
> If element security settings prevent you from seeing one or more selected elements, a warning appears.

5. Click **Selected** to show only the selected breakdown elements.
   Click **All** to show all of the breakdown elements in the list.
6. Click **Sort** to sort the list of elements in alphabetical order.
   The direction of the triangle indicates a-z or z-a.
7. Select a data point to show the indicator and breakdown elements in the Analytics Hub .
   Access to the Analytics Hub requires the pa_viewer role.

   Targets, thresholds, and comments are not available when you navigate to the Analytics Hub from a widget with multiple breakdown elements selected in an aggregate view. The breakdown selector and search functionality are also unavailable. For more information about aggregate and separate views of multiple elements in a widget, see Configure widgets for breakdown dashboards.
8. Select **Clear all** to remove the selected elements and show the breakdown widget with all elements.

Disable multiple element selection on a dashboard

Dashboard owners have the option to disable multiple element select on an entire breakdown dashboard.

Before you begin

Role required: admin

About this task

When you disable multiple element selection on a breakdown dashboard, users of that dashboard are only able to filter the dashboard's widgets on one element of the breakdown.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the breakdown dashboard that you want to filter by only one breakdown element at a time.

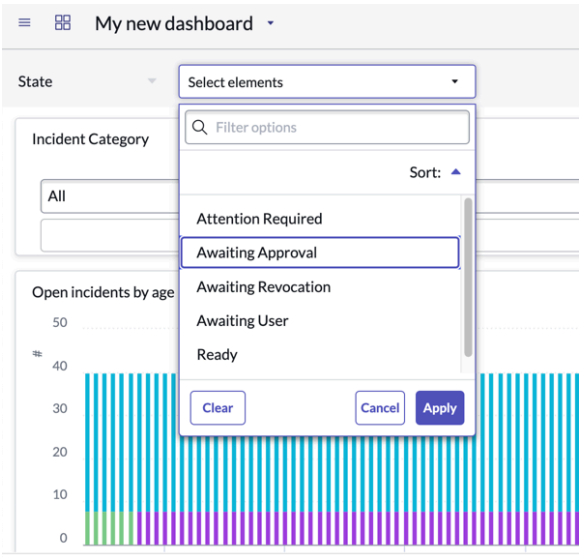
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3. From the context menu, select **Dashboard Properties**.
4. Select **Disable multiple element selection**.
   This option is available when there is at least one breakdown source in the dashboard's Breakdown Source related list.
5. Click **Update**.

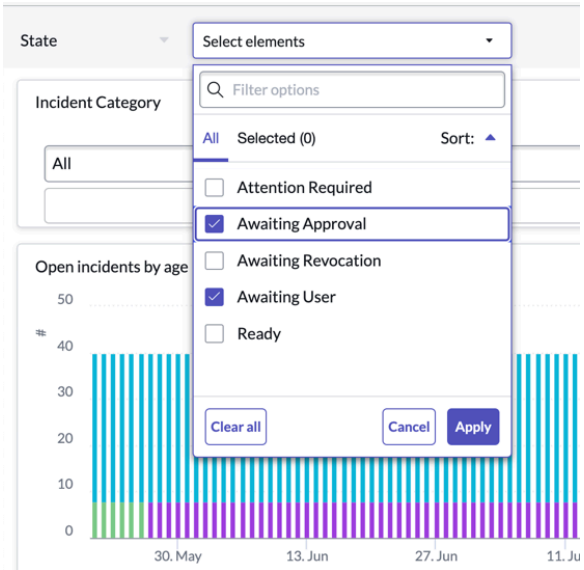
Result

When you filter the dashboard on breakdown elements, you can select only one breakdown element. The widgets on the dashboard follow the single breakdown element selected. When you select elements or clear selected elements, you have to click **Apply** to make this choice.

List of breakdown elements - multiple element selection disabled



List of breakdown elements - multiple element selection enabled



Export a responsive dashboard to PDF

Export a dashboard as a PDF so you can archive, print, or distribute it.

Before you begin

This topic refers to Dashboards in the Core UI. If your instance is migrated to Platform Analytics experience, see Export a Platform Analytics dashboard.

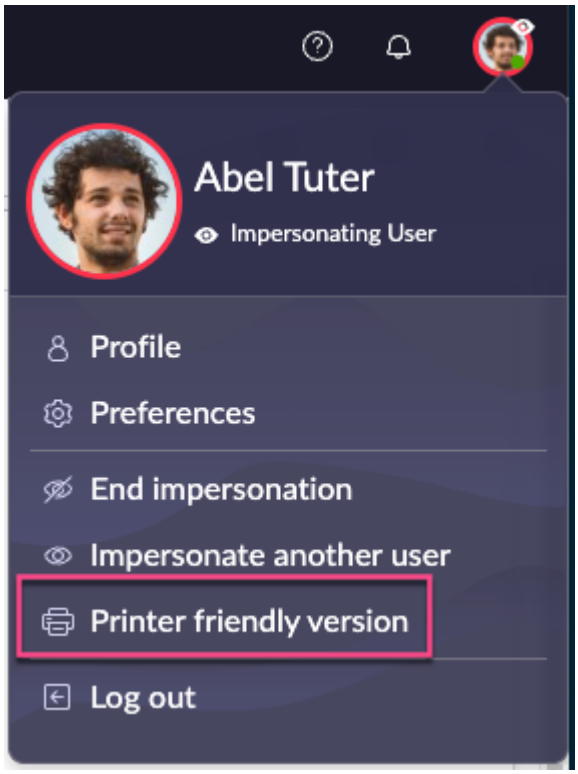
Roles required: No role is required to export dashboards to PDF, however, an admin has to configure the instance for PDF export. See Enable PDF export of dashboards for more information.

About this task

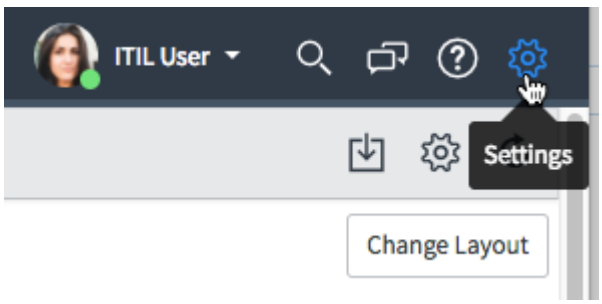
Interactive filters that are applied to the dashboard are also applied to the PDF. However, applied breakdowns are not included in the export.

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Note:
To generate the PDF locally, set the interactive filters, click the user icon, and select **Printer Friendly Version**. The dashboard opens in a new window or tab. Export the dashboard using the print settings of the browser.



If you do not have Next Experience activated, select **Printer Friendly Version** from the **Settings** menu.



Limitations:

- Custom content may not generate as expected when exported to PDF. For more information, see Custom content PDF export limitations.
- Dashboards that are exported to PDF do not include the dashboard layout. Widgets are stacked on top of each other and take up the full page width.
- Widgets are exported to a fixed height. Large widgets, such as workbench or list widgets, are truncated.
- Calendar reports exported from a dashboard may be truncated because exporting calendar reports to PDF is not supported.
- Breakdowns applied to a dashboard are not included in the PDF.
- Widgets may appear in a different order than on the dashboard.
- Widget legends may not appear.

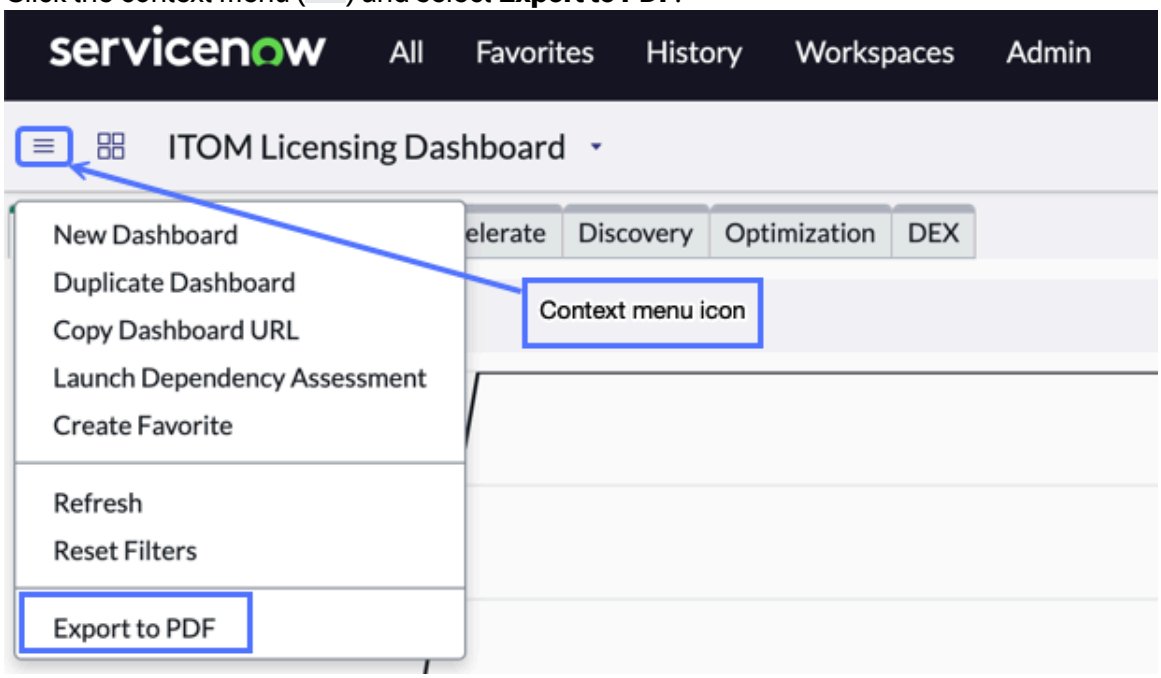
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- Exports do not include data tables associated with report visualizations. You can export individual reports separately, including their data tables. To include data tables in scheduled reports, check **Display data table** on the report's Configure tab in Report Designer.
- Coloring on the delta text for single score report widgets is not preserved.
- PDFs do not reflect the selected time frame when you select the **Show date range selector** at the widget level.
- It is not possible to export responsive dashboards as templates.

Note:
PDFs that are sent as emails may not be generated immediately.

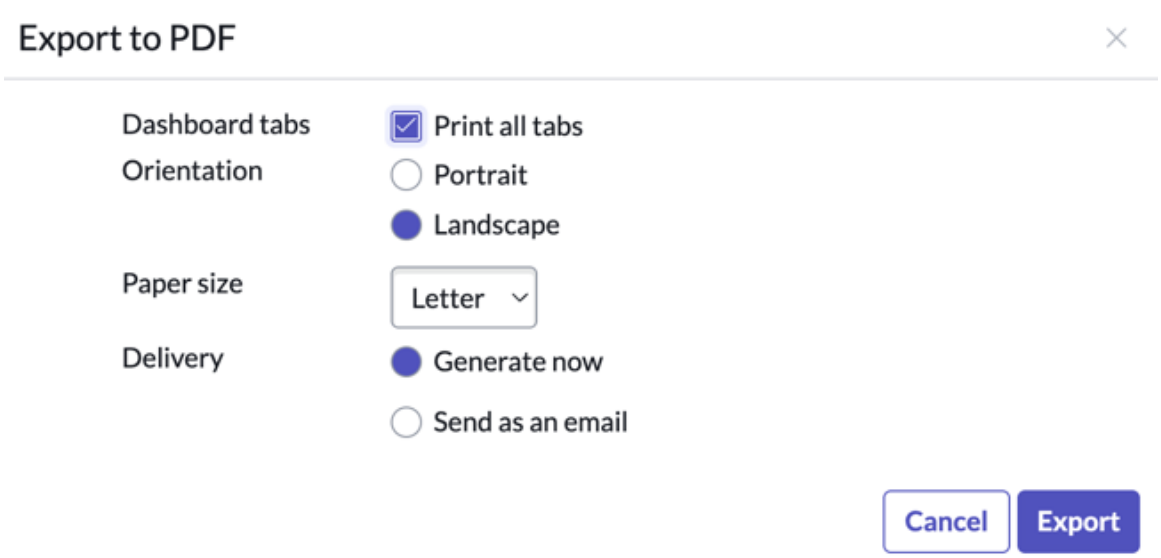
Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. From the dashboard picker in the upper left, select the dashboard that you want to export.
3. Click the context menu (☰) and select **Export to PDF**.



4. Configure your print and delivery options.

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5. Click **Export**.

Result
The content is exported to PDF according to the print and delivery options. If the PDF does not generate, identify and resolve any JavaScript errors.

Export a dashboard using the browser's print function

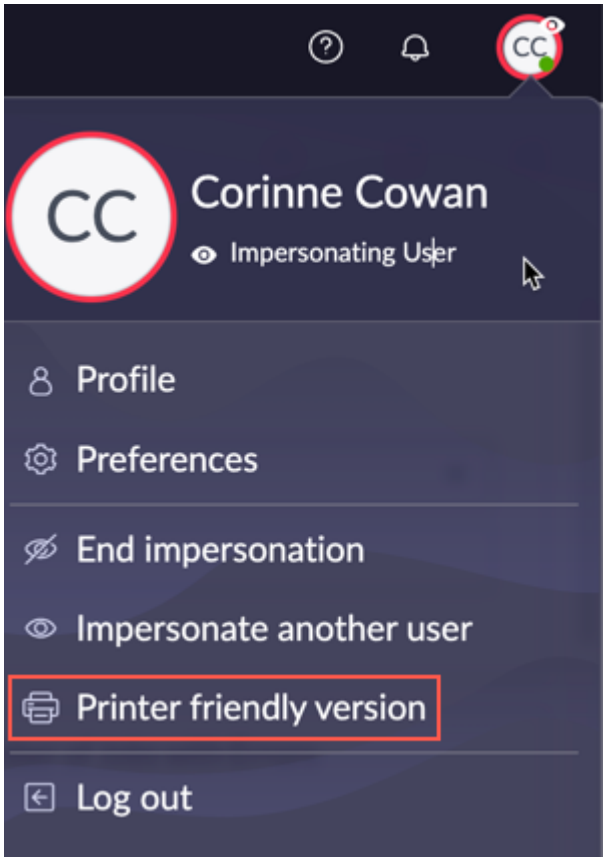
It's possible to export any dashboard or homepage to PDF using your browser's print functionality.

Before you begin
Roles required: No role is required to export dashboards to PDF using the browser's print function.

About this task
You can use your browser's print functionality to export a PDF on demand, and to export a PDF with applied breakdowns. In scheduled PDFs, breakdowns are not applied to the data.

Procedure
1. Open the dashboard that you want to export.
2. Set the interactive filters.
3. Select your user icon to show the Settings menu.

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A browser tab opens with the dashboard's widgets stacked one on top of another.

4. In the new browser tab, select the tab to print, the page size, and the page orientation.
5. Select **Print**.
6. In your browser's Print dialogue, select PDF as the print destination or output.

Result
The dashboard tab is exported to PDF with your chosen page size and orientation.

Copy a responsive dashboard URL

It is not possible to copy a dashboard URL from the browser. You can, however, create a URL that opens the current view of the dashboard, including tabs and breakdown elements. When the link is followed, the ServiceNow platform frame around the dashboard is not included.

Before you begin
Role required: You must be able to access the dashboard.

Procedure
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Select the responsive dashboard with the URL that you want to copy.
3. **Optional:** Select a tab, breakdown, and breakdown element.
4. Select the context menu (☰) and select **Copy Dashboard URL**.

Result
The dashboard URL is copied to your clipboard. Some browsers prompt you to copy the URL to your clipboard.

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What to do next

Share the URL with other users.

Dashboard URL format

You can link to a Performance Analytics dashboard from your instance. Several URL parameters enable you to specify aspects of the dashboard when the link is followed.

All dashboard URLs follow this format:

```
https://<instance>.service-now.com/$dashboards.do?
```

.

Note:

Because dashboards are not limited to users of Performance Analytics,

```
$dashboards.do
```

replaces

```
$pa_dashboard
```

, although both strings work in dashboard URLs.

This base URL is followed by several optional URL query parameters.

URL parameters

Parameter	Description
sysparm_dashboard=<sys_id>	The sys_id of the dashboard to show.
sysparm_tab=<sys_id>	The sys_id of the dashboard tab to show. If you do not specify a tab, the leftmost tab is displayed. This parameter applies only if *sysparm_dashboard* exists.
sysparm_breakdown_source=<sys_id>	The sys_id of the dashboard breakdown to show.
sysparm_element=<value>	The sys_id or value of the breakdown element to show. This parameter applies only if *sysparm_breakdown_source* also exists. Values are case-sensitive.
sysparm_element_value=<value>	The selected element value. This value may be the sys_id of a referenced record, or the database value for a choice list choice. Database values are case-sensitive. This parameter applies only if *sysparm_element* and *syspartm_breakdown_source* also exist.
sysparm_header=<value>	Controls if the dashboard header appears. Possible values are: • Visible — The full header is visible. • Hidden — The full header is hidden. • Embedded — The header is visible but only the options **Refresh**, **Reset filters**, and **Export to PDF** are visible.

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URL parameters (continued)

Parameter	Description
sysparm_breakdown=<value>	Controls if the dashboard breakdown appears. Possible values are: • Visible — The full breakdown is visible, including both source and element. • Hidden — The full breakdown is hidden. • Embedded — Only the breakdown element is visible. • Readonly — The breakdown is visible but the user cannot change how the filter is configured.

Enable real-time updating for single score report widgets

Real-time updates ensure that users viewing a responsive dashboard always see the most up-to-date information.

Before you begin

Role required: You must have edit rights to the dashboard where the widget has been added.

Four types of aggregation are available for single-score reports: Count, Average, Sum, and Count Distinct. Real-time updating is available only for single score widgets that use the **Count** aggregation.

Note:

Real-time updating doesn't work for single score report widgets on responsive dashboards under the following circumstances:

- When the report source is a database view, the user must click the Refresh icon on the widget to update the score. For more information, see Database views.
- Domain visibility is not supported in real-time reporting. Only the assigned domain of the user and its domain hierarchy and, the global domain are supported.
- When the visualization has dot-walked conditions, the single score report doesn't update when there's a related change on the extended table. The record watcher only sends updates on the base table of the report. For more information, see KB article KB0868215.
- When a business rule that uses the `current.update()` method fires on insert/update, the single score report increments by two instead of one. For more information, see KB article KB0693812.
- Conditions that are added or modified by query business rules are not respected in real-time reporting.

  Because query business rules change query conditions on the fly for the specific user, the record watcher framework used for real-time updates doesn't trigger the query business rules.
- When a widget uses the filter `Assignment group - is (dynamic) - One of My Groups`, the widget doesn't update in real time.
- Single score report time update is not supported on rotation tables.

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About this task
You can enable real-time updating for single score widgets on dashboards.

Procedure
1. Navigate to the dashboard where the single score widget has been added.
2. Click the Add widgets icon( ) to put the dashboard in edit mode.
3. Point to the widget, then click the gear icon ( ).
4. Select **Show real-time updates** then click **Done**.
5. Click the plus sign ( ) to exit edit mode for the dashboard.
   The real-time icon ( ) is added to the widget. This icon is permanently visible, even when the score isn't changing.

Result
When the value for a single score visualization changes, the change is reflected on the dashboard.

Change the owner of a responsive dashboard

The owner of a dashboard can edit it, and share it with other users.

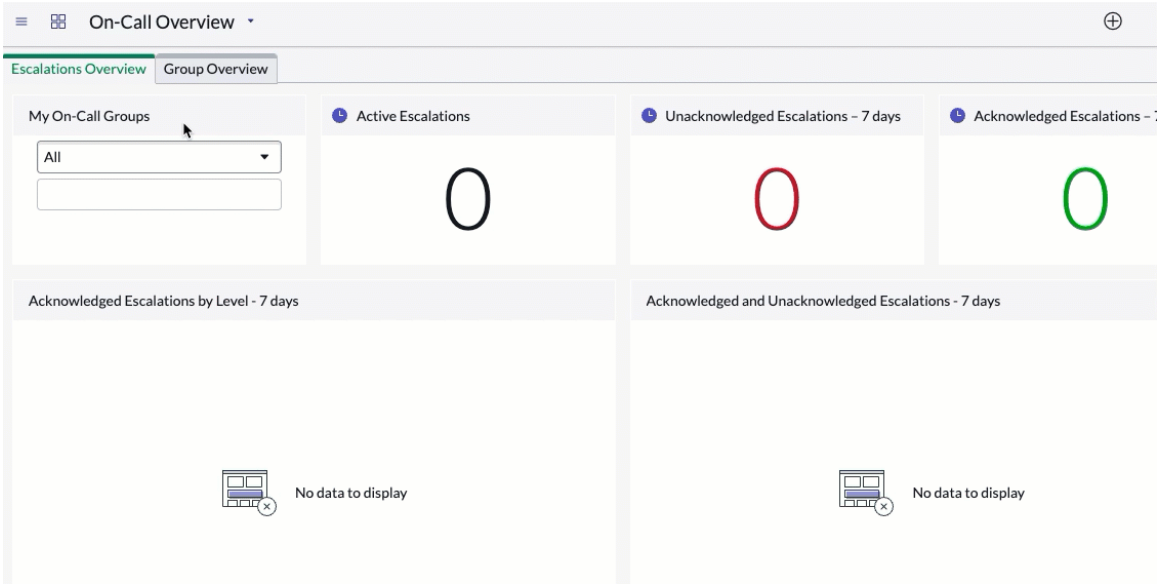
Before you begin
Role required: Only users with the dashboard_admin or admin role can change a dashboard owner.

About this task
To learn who owns a dashboard, navigate to pa_dashboards_list.do and search for the dashboard.

This topic refers to owners of Core UI dashboards. To change the owner of a dashboard in Platform Analytics experience, see Configure Platform Analytics dashboard details.

Procedure
1. Navigate to **All** > **Self-Service** > **Dashboards** or **All** > **Performance Analytics** > **Dashboards**.
2. Open the dashboard whose owner that you want to change.
3. Click the context menu ( ) and select **Dashboard Properties**.
4. Select a new owner in the **Owner** field.

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5. Click **Update**.

Related topics

Share a responsive dashboard

Edit a responsive dashboard

Working with non-responsive dashboards

From the Utah release, non-responsive dashboards are no longer available.

On upgrade, non-responsive dashboards are converted to responsive dashboards.

Set responsive dashboards as your home

You can set dashboards as your **Home**. With this setting, the last dashboard you selected appears when you select the logo on the upper left corner of the platform.

Before you begin

Note:
If Next Experience is enabled, the instructions on this page do not apply. For more information on Next Experience landing pages, see

- Exploring your default landing page
- Configuring Next Experience start page options
- Configure a user-selected start page

Role required: user.

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Important:

The functionality found in homepages, arranging information from your instance to tell a story about your data, is found in dashboards on new instances. On upgraded instances with Next Experience enabled, users can view existing homepages if they have a direct URL, but they can't create or edit them. Responsive dashboards and Analytics Center dashboards take over homepage functionality.

Use the Homepage deprecation help tool to convert the homepages on your instance to responsive dashboards.

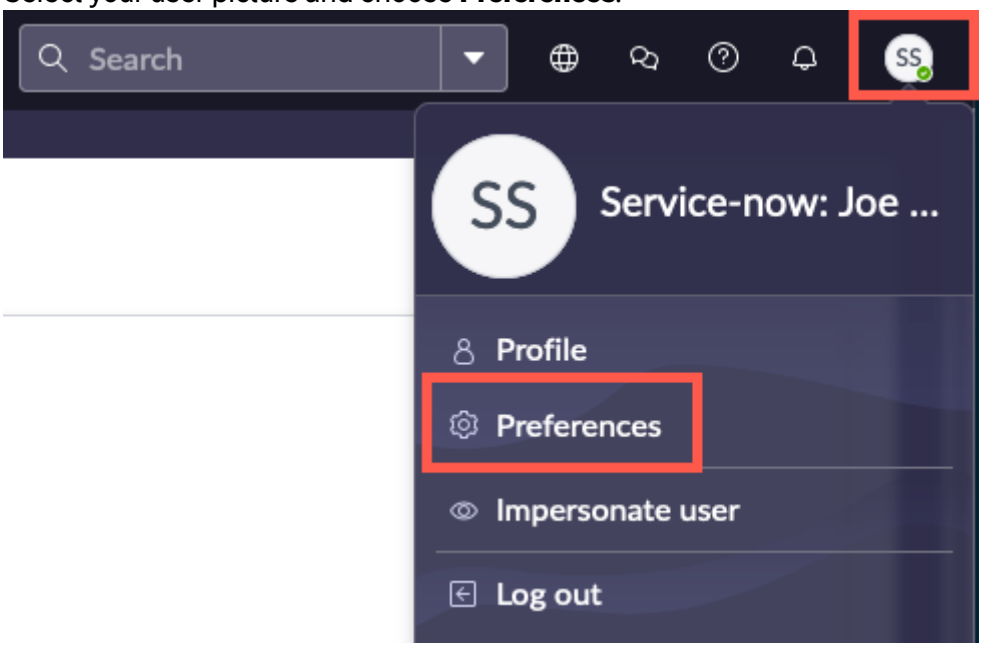
For more information, see:

- Dashboards in the Analytics Center.
- Working with responsive dashboards.

When dashboards are set as your **Home**, the most recently selected dashboard is always loaded. You cannot specify a dashboard as your **Home**. Mark a dashboard as a favorite to navigate to the dashboard easily.

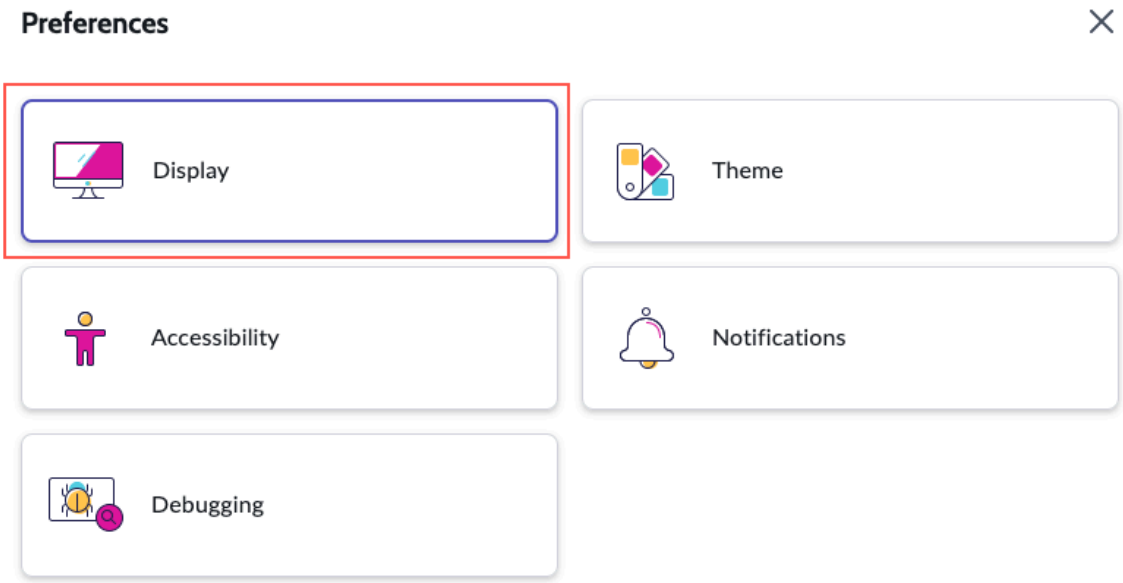
Procedure

1. Select your user picture and choose **Preferences**.

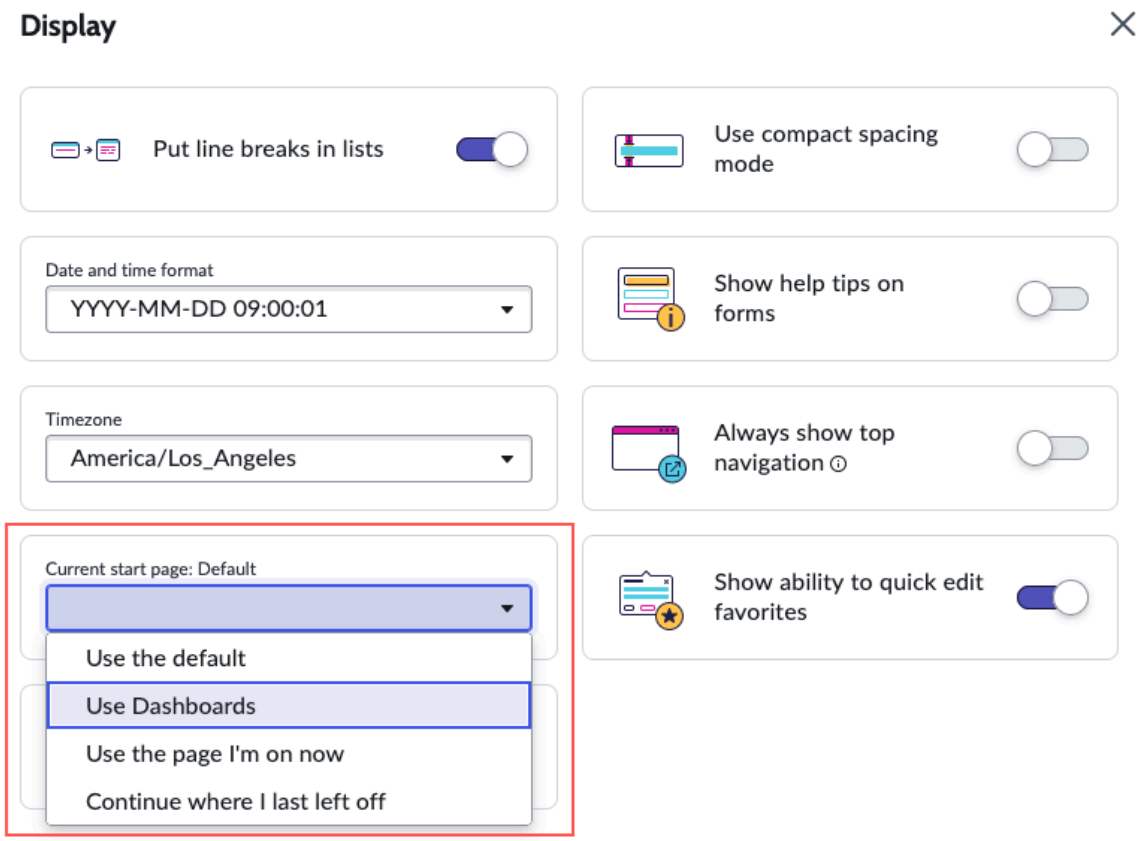


2. Select the **Display** tile.

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3. On the Display tab, select **Use Dashboards** as the start page.



Result
When you navigate to **Self-Service** > **Dashboards** or select your company logo, the last dashboard you selected appears.

Request an analytics service

Request services associated with dashboards, such as to request a new dashboard or access to an existing dashboard.

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Before you begin
Role required: none

Procedure

1. Navigate to either **All** > **Self-Service** > **Service Catalog** or **Service Portal** > **Service Portal Home**.
2. If you navigated to the Service Portal, select **Order Something**.
3. Select the **Can We Help You?** category.
4. Select **Analytics Request**.
5. Select the **Request type**, such as **Request dashboard access**, **Edit a dashboard**, or **Report an issue**.
6. **Optional:** If you are submitting the request for another user, select the **Request on behalf of another user** check box and select the user you are making the request for.
7. Provide additional details about your request, such as the name of the dashboard and a description of the changes you want made.
   Available fields depend on the request type.
   A notification is automatically sent to the requesting user.

What to do next
After you submit the request, the Analytics team is responsible for reviewing and implementing your requested changes.

Fulfill an analytics request

Analytics service requests are assigned to the Analytics group who can review and fulfill the requests.

Before you begin
At least one user must be a member of the Analytics group.

Role required:

- Fulfiller — itil and pa_admin. The fulfilling user must be a member of the Analytics group which automatically grants these roles.
- Approver — itil and approver_user

Procedure

1. Navigate to **All** > **Service Desk** > **My Groups Work**.
2. Select a request.
3. If the request is to grant access to a dashboard, select the **Dashboard** that this request applies to.
4. Select one or more users as the **Request Approver**.
   This approver should not be a member of the Analytics group.

   Note:
   No approval is required when the request type is **Report an issue**.

5. The approver can then approve the request.
   a. Navigate to **Self-Service** > **My Approvals**.
   b. Select the request approval.
   c. Click **Approve**.

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If the approver rejects the approval, the request is closed automatically. If the approver selects an option other than approved or rejected, the fulfiller user can close the request by setting the **State** to **Closed Skipped** or **Closed Incomplete**.
After the request is approved, or if no approval was required, a task is created for the Analytics team. Navigate to the **Tasks** related list on the request record to view the task. An email notification is sent to the Analytics team.

6. After the approver approves the request, perform the requested changes to fulfill the request. Refer to the dashboards documentation for instructions on how to modify dashboards and dashboard permissions.
7. Update the task **State** to **Closed Complete**.
   The request **State** is updated automatically when the task is closed. An email notification is sent to the requesting user to inform the user that the requested changes are complete.

Related topics

Create and use dashboards

Share a responsive dashboard

Activate the Self-Service Portal for Analytics plugin

You can activate the Self-Service Portal for Analytics plugin (com.snc.pa.bi_service) if you have the admin role.

Before you begin

Role required: admin

About this task

Self-Service Portal for Analytics activates these related plugins if they are not already active.

Plugins for Self-Service Portal for Analytics

Plugin	Description
Performance Analytics [com.snc.pa]	Core Performance Analytics functionality

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the plugin using the filter criteria and search bar.

   You can search for the plugin by its name or ID. If you cannot find a plugin, you might have to request it from ServiceNow personnel.

3. Select **Install** to start the installation process.

Note:
When domain separation and delegated admin are enabled in an instance, the administrative user must be in the **global** domain. Otherwise, the following error appears:
`Application installation is unavailable because another operation is running: Plugin Activation for <plugin name>.`

You will see a message after installation is completed. For information about the components installed with a plugin, see Find components installed with an application.

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Related topics

List of plugins (Yokohama)

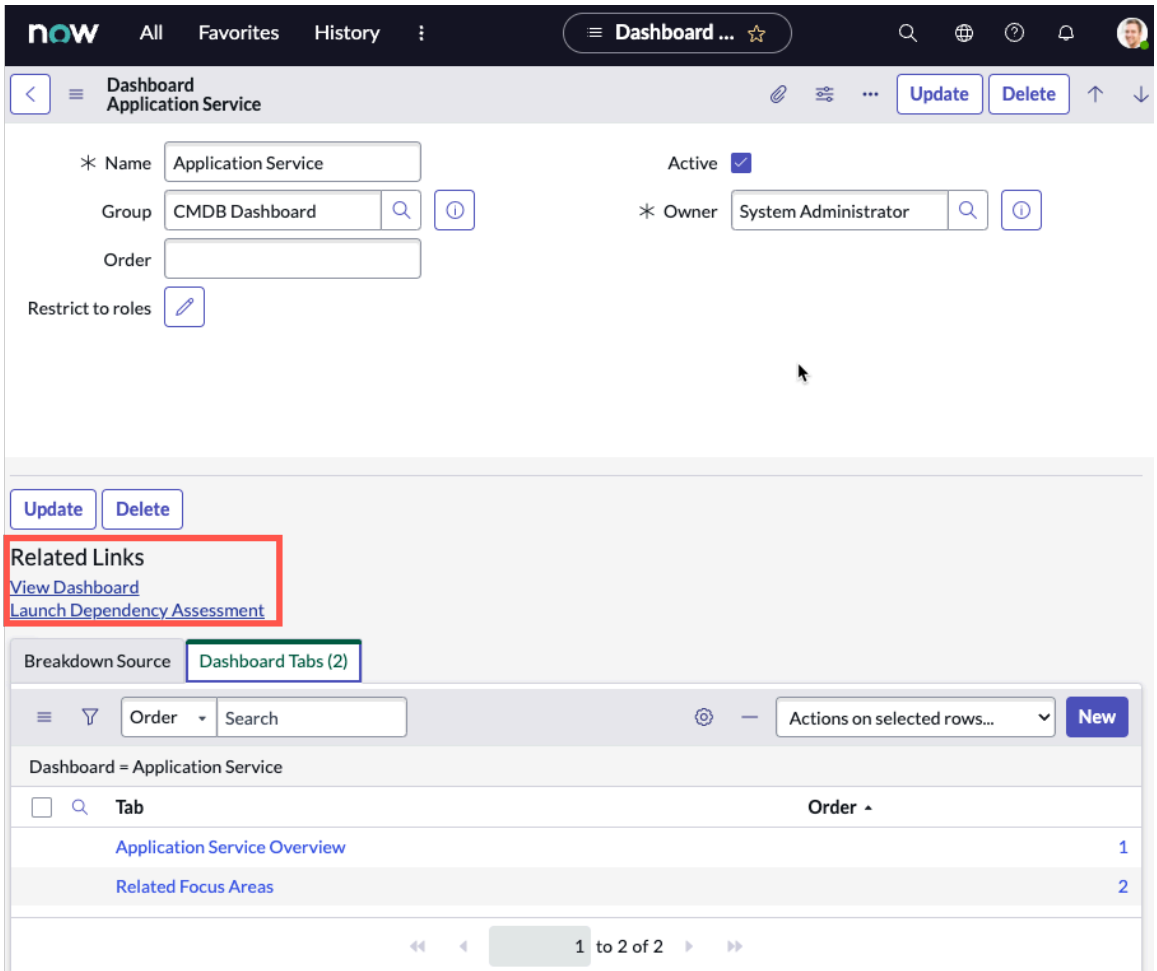
Administering dashboards

Learn about administering dashboards including how to group dashboards, how to move a dashboard with an update set, and troubleshooting permissions.

Users with the dashboard_admin role have full access including view, edit, delete, and share permissions on all dashboards in an instance, including all inactive dashboards. To view a list of all dashboards in an instance, navigate to **Performance Analytics** > **System** > **Dashboard Administration**. Click on the name of a dashboard to view its form.

The fields on the dashboard's form are described in Create or configure a responsive dashboard. Use the related links to:

- View the dashboard
- Launch Dependency Assessment



Explore and manage dashboards

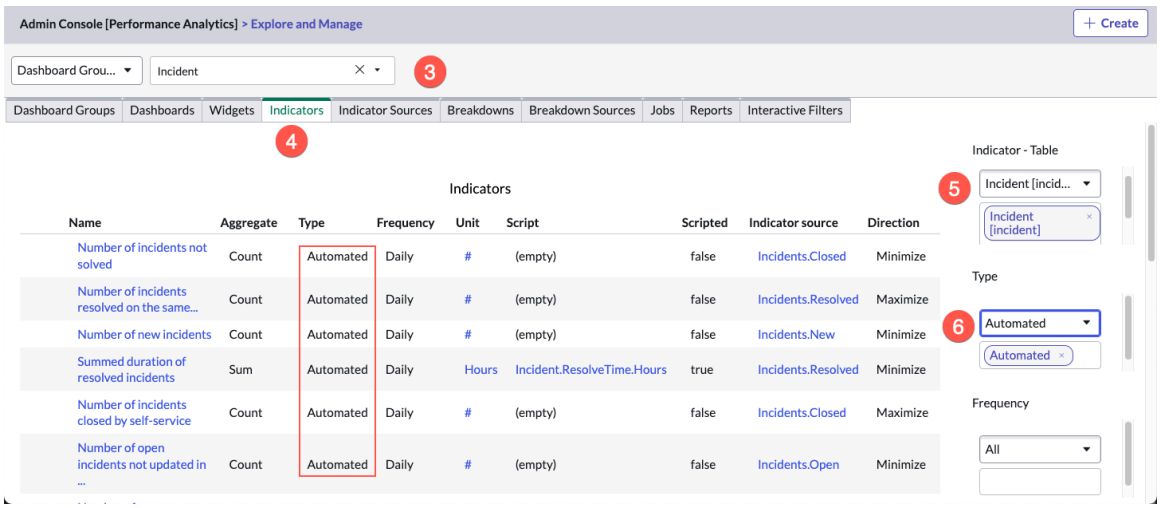
Quickly identify the relationships between Performance Analytics elements, such as dashboards, reports, and indicators. Each dashboard tab has customized interactive filters that enable you to refine the information that the dashboard shows.

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Explore dashboards example

To see all the automated indicators related to the Incident dashboard group based on the Incident table:

1. Navigate to **All** > **Performance Analytics** > **Admin Console**
2. Select **Dashboards** in the Explore and Manage tile.
3. Select Dashboard Groups and Incident from the first two lists.
4. Select the **Indicators** tab.
5. From the **Indicator — Table** list, select **Incident** to see only the indicators on the Incident table.
6. From the **Type** list, select **Automated** to see only the automated indicators on the Incident table.



Dashboard and Dashboard Groups

Click **Dashboard** or **Dashboard Groups** to view a dashboard that provides information about all the in your instance:

Dashboard groups

A list of all the dashboard groups in your instance. This tab has focus if you select **Dashboard Groups** on the Admin Console. Dashboards that do not have a group specified fall under the group **Other**.

Use the **Visibility** filter to show all dashboard groups, dashboard groups that are visible to everyone, or dashboard groups limited to specified groups and users.

Dashboards

A list of all the dashboards in your instance sorted by group. Expand the group to view the individual dashboards. Click the dashboard name to view and edit its details. This tab has focus if you select **Dashboards** on the Admin Console.

Filters:

- Active — Choose **All**, Active=**True**, or Active=**False**.
- Dashboard owner — Choose **All** or select one or more owners from a list.

Widgets

A list of all widgets used in your instance's dashboards.

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Filters:

- Type — Choose **All** or filter on one or more widget types. See Performance Analytics widgets.
- Visualization — Choose **All** or filter on one or more report visualization types from a list.

Indicators

A list of all indicators used in your instance's dashboards. Filters: You can filter the list on **Indicator Table**, **Type**, **Frequency**, **Indicator Source**, **Units**, **Direction**, **Scripted**, and **Aggregation Type**. Click the name of the **Indicator** or **Indicator Source** to view and edit its details. For more information, see Performance Analytics indicators.

Indicator Sources

A list of all indicator sources in your instance. You can filter the list on **Indicator Table** and **Frequency**. Click the name of the **Indicator Source** to view and edit its details. For more information, see Indicator sources.

Breakdowns

A list of all breakdowns in your instance. You can filter the list on one or more **Breakdown Tables**. Click the names of the breakdown and the breakdown source to view and edit their details. For more information, see Performance Analytics breakdowns.

Breakdown Sources

A list of all breakdown sources in your instance. You can filter the list on one or more **Breakdown Tables**. Click the name of the breakdown source to view and edit its details. For more information, see Define a breakdown source.

Jobs

A list of all jobs created in your instance. The **Run** column shows how often the job runs. The **Time** column shows how long the job took the last time it ran. The list also shows whether the job is **Active**. Click the name of the job to view its details. For more information, see Configure a job indicator.

Reports

A list of all reports created on your instance. You can filter the list on one or more Report Tables and one or more Report Types. Click the title of a report to view its details. For more information, see Create a report visualization.

Interactive Filters

A list of all interactive filters configured on your instance. You can filter on what tables and fields the interactive filter is based on and one or more UI control types. Click the **Look up name** to view and edit the details of the interactive filter. For more information, see Interactive Filters.

Related topics

Tree view navigation

Performance Analytics terms

Set dashboards as home for all users

While it is possible for individual users to set dashboards, rather than homepages, you can also set dashboards as home for all users. By default, the most recent dashboard a user has visited is the dashboard they see when they log in to ServiceNow.

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Before you begin
Role required: admin

Important:

The functionality found in homepages, arranging information from your instance to tell a story about your data, is found in dashboards on new instances. On upgraded instances with Next Experience enabled, users can view existing homepages if they have a direct URL, but they can't create or edit them. Responsive dashboards and Analytics Center dashboards take over homepage functionality.

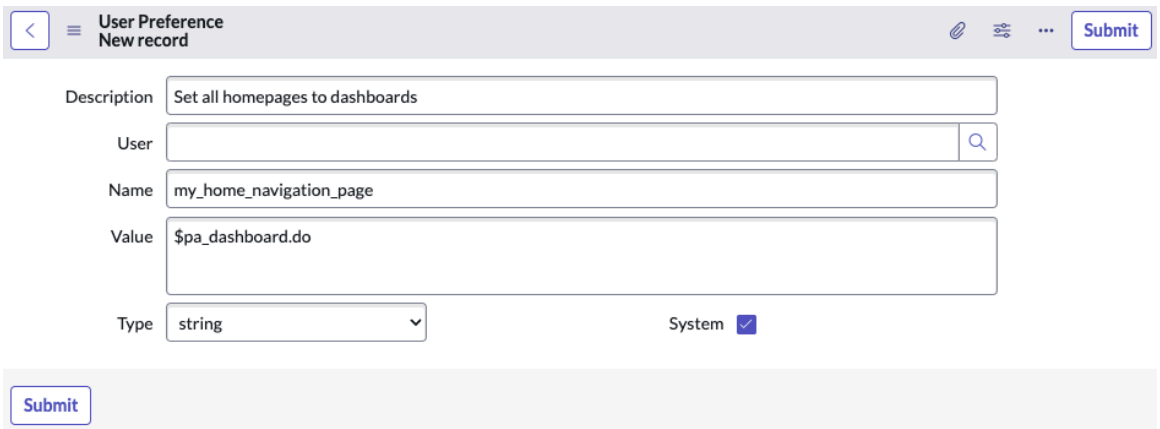
Use the Homepage deprecation help tool to convert the homepages on your instance to responsive dashboards.

For more information, see:

- Dashboards in the Analytics Center.
- Working with responsive dashboards.

Procedure

1. Navigate to **All** > **User Administration** > **User Preferences**.
2. Create a user preference with the name `my_home_navigation_page`.
3. Give the preference the description `Set all homepages to dashboards`.
4. Select the **System** check box to create an instance-wide default.
5. Leave the **User** field empty.
   Steps 4 and 5 make the preference universal.
6. Set the **Type** to `string`.
7. Set the value to `$pa_dashboard.do`.
8. Select **Submit**.



Result
All users see the last dashboard that they visited when they log in to ServiceNow.

What to do next
Set a specific dashboard as home for all users

Set a specific dashboard as home for all users

Configure ServiceNow so that all users see the same dashboard when they log in.

Before you begin
Role required: admin

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Note:
Navigate to the dashboard you want to set as home, and copy the sys_id from the URL. The sys_id is the last element after the last forward slash. For example, in this URL, the sys_id is 456CBA: `https://my-instance.service-now.com/now/platform-analytics-workspace/dashboards/params/edit/false/sys-id/456CBA`. Paste the sys_id into a text file so that you can copy it into the system preference you create.

About this task
The dashboard that you configure should be available to all users.

Procedure
1. Create a user preference with the name `my_home_navigation_page`.
2. Give the preference the description `Set all homepages to dashboards`.
3. Select the **System** check box to create an instance-wide default.
4. Leave the **User** field empty.
   Steps 3 and 4 make the preference universal.
5. Give the preference a meaningful description that you can search for.
6. Set the **Type** to `string`.
7. In the **Value** field, enter the following: `$pa_dashboard.do?sysparm_dashboard=dashboard_sys_id`, but replace `dashboard_sys_id` with the sys_id you copied before you began.
8. Select **Submit**.

Result
All users see the same dashboard when they open ServiceNow.

Set a specific dashboard as home for specific users

Configure ServiceNow so that specified users see the same dashboard when they log in.

Before you begin
Role required: admin

Note:
Navigate to the dashboard you want to set as home, and copy the sys_id from the URL. The sys_id is the last element after the last forward slash. For example, in this URL, the sys_id is 456CBA: `https://my-instance.service-now.com/now/platform-analytics-workspace/dashboards/params/edit/false/sys-id/456CBA`. Paste the sys_id into a text file so that you can copy it into the system preference you create.

About this task
The dashboard that you configure should be available to all users.

Procedure
1. Navigate to **All** > **User Administration** > **User Preferences**.
2. Create a user preference with the name `my_home_navigation_page`.
3. Give the preference a description such as `Set home dashboard for ITIL users`.
4. In the **User** field, specify one user this dashboard will be the home for.
5. Give the preference a meaningful description that you can search for.

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6. Set the **Type** to `string`.
7. In the **Value** field, enter the following: `$pa_dashboard.do?sysparm_dashboard=dashboard_sys_id`, but replace `dashboard_sys_id` with the sys_id you copied before you began.
8. Select **Submit**.
9. **Optional:** Select the context menu (☰) and choose **Insert and Stay**.
   This action duplicates the user preference so that you can specify another user this dashboard will be home for. You can also specify a different sys_ID on the duplicated record.

Result
The specified users see the specified dashboards when they open ServiceNow or select the company logo.

Organize dashboards into groups

Assign dashboards to groups so that users can find the dashboards they want more easily. Dashboard groups determine how dashboards appear in the dashboard picker when you navigate to **Self-Service** > **Dashboards**. You can also add view permissions to dashboard groups.

Before you begin
Role required: admin, pa_admin, or pa_power_user.

About this task
Permissions on dashboard groups apply to all the dashboards in that group.

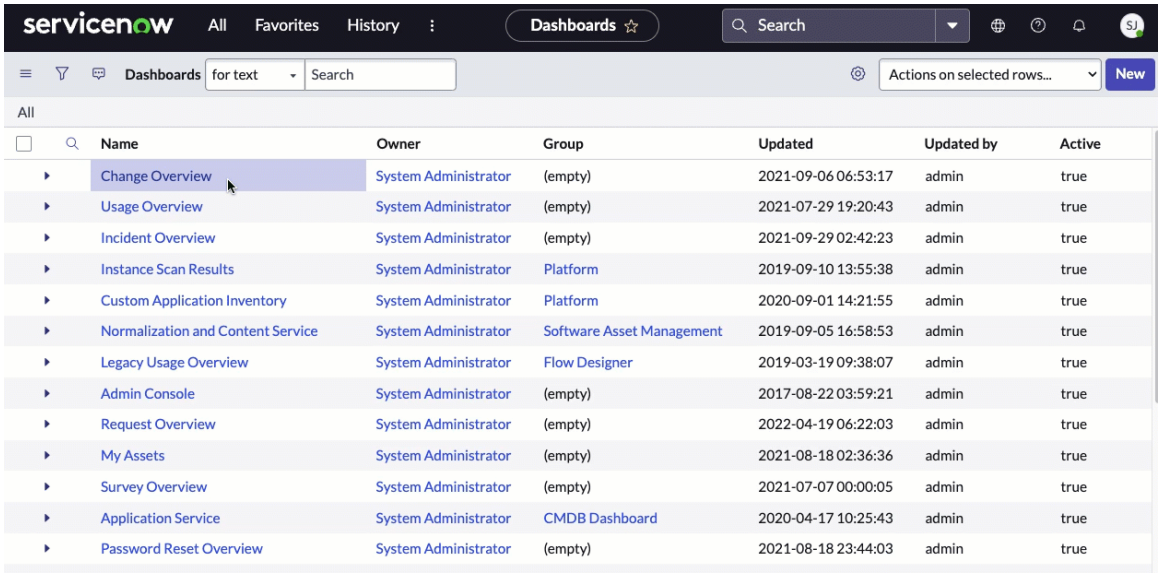
Note:

- View permissions on an individual dashboard override the permissions set at the dashboard group level.
- Edit permissions on a dashboard can affect or override the dashboard group permissions.
- Dashboard group permissions do not appear in the dashboard Sharing panel.

To show single groups in the dashboard picker, add the parameter `sysparm_group=` followed by the group name to the dashboard URL. For example, to show only a dashboard group named incident, use the URL `https://<instance>/$dashboards.do?sysparm_group=incident`.

Procedure
1. Navigate to **All** > **Performance Analytics** > **System** > **Dashboard Administration**.
   Review current dashboards groupings using the **Group** column. Dashboards without groups assigned to them show `(empty)` in the **Group** column. On the Dashboard Overview, these dashboards are grouped as Other.
2. Select the name of the dashboard that you want to add to a group to open its form.
3. In the **Group** field, use the lookup icon (🔍) to select a group to add the dashboard to.
   Select an existing dashboard group or select **New** to create a dashboard group.

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Name	Owner	Group	Updated	Updated by	Active
Change Overview	System Administrator	(empty)	2021-09-06 06:53:17	admin	true
Usage Overview	System Administrator	(empty)	2021-07-29 19:20:43	admin	true
Incident Overview	System Administrator	(empty)	2021-09-29 02:42:23	admin	true
Instance Scan Results	System Administrator	Platform	2019-09-10 13:55:38	admin	true
Custom Application Inventory	System Administrator	Platform	2020-09-01 14:21:55	admin	true
Normalization and Content Service	System Administrator	Software Asset Management	2019-09-05 16:58:53	admin	true
Legacy Usage Overview	System Administrator	Flow Designer	2019-03-19 09:38:07	admin	true
Admin Console	System Administrator	(empty)	2017-08-22 03:59:21	admin	true
Request Overview	System Administrator	(empty)	2022-04-19 06:22:03	admin	true
My Assets	System Administrator	(empty)	2021-08-18 02:36:36	admin	true
Survey Overview	System Administrator	(empty)	2021-07-07 00:00:05	admin	true
Application Service	System Administrator	CMDB Dashboard	2020-04-17 10:25:43	admin	true
Password Reset Overview	System Administrator	(empty)	2021-08-18 23:44:03	admin	true

4. **Optional:** Open the form of the dashboard group to modify its permissions.

   (Optional) Only view permissions can be set on dashboard groups.

   Dashboard groups use standard platform permissions. For more information, see Access control list rules.

5. Select **Update**.

How dashboard and dashboard group permissions interact on responsive dashboards

Dashboard group and dashboard permissions are not additive. Depending on how permissions are defined on a dashboard, dashboard group permissions may not apply.

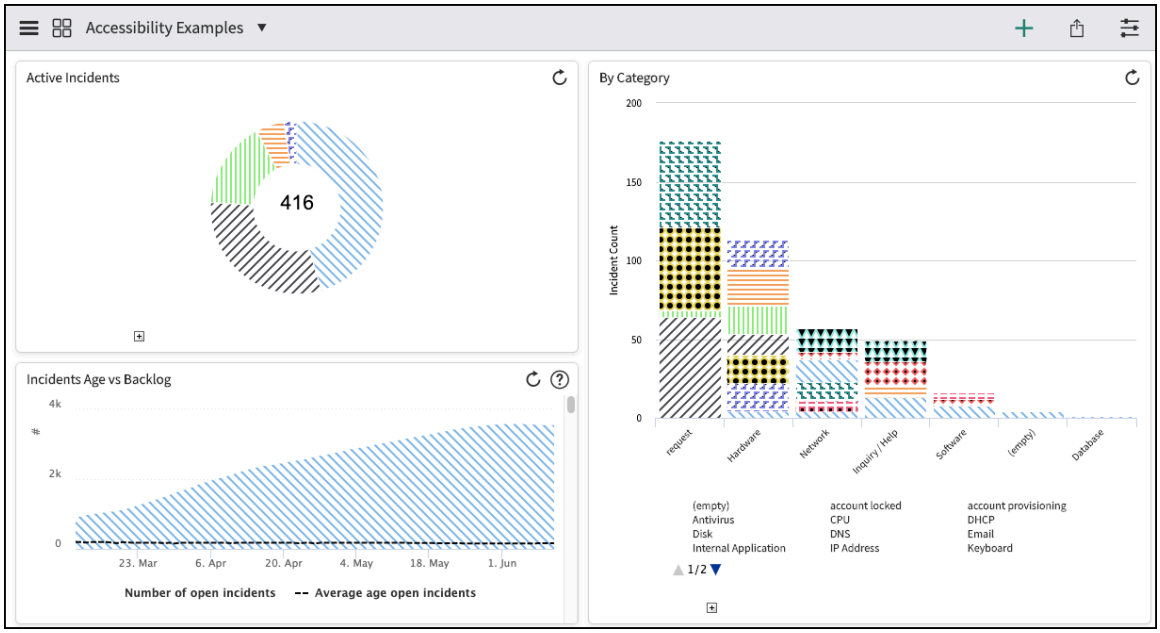
If a dashboard belongs to a dashboard group, any view permissions defined on the dashboard override all view permissions on the dashboard group. Permissions on the dashboard group level are not visible from the **Share** panel of a dashboard. When you change the view permissions of a dashboard in a group, always review the dashboard group permissions to ensure that users do not lose access. For more information, see Dashboard permissions scenarios.

For example, the dashboard group Support Dashboards contains the dashboards Open Incidents and Incident Metrics. The dashboard group has view permissions for the group Support. When you give view permissions to user John Dee for the dashboard Incident Metrics, the group Support can no longer see that dashboard. View permissions on the dashboard override all view permissions on the dashboard group.

Accessibility options on dashboards

Understand how accessibility settings affect reports and Performance Analytics widgets on dashboards. Data visualizations on a Workspace are also affected.

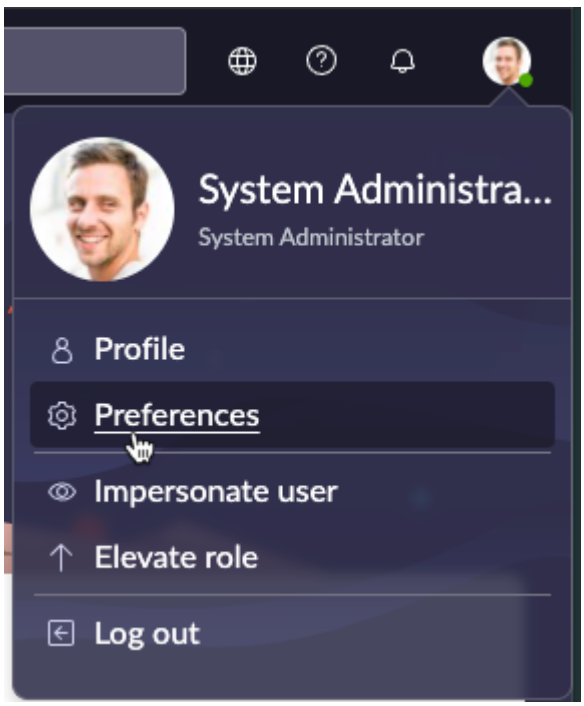
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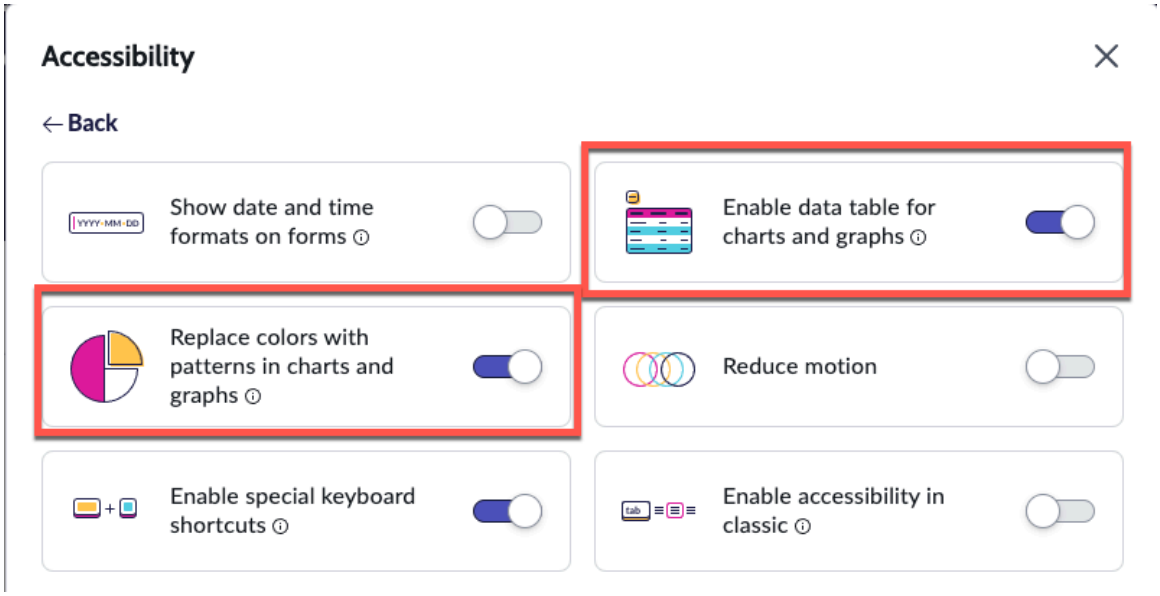
You can enable and disable these Accessibility options to make your experience in an instance more accessible:

- Replace colors and patterns in charts and graphs
- Enable data table for charts and graphs

Open your **Preferences** to access the Accessibility options. For more information, see Configure Next Experience accessibility preferences.



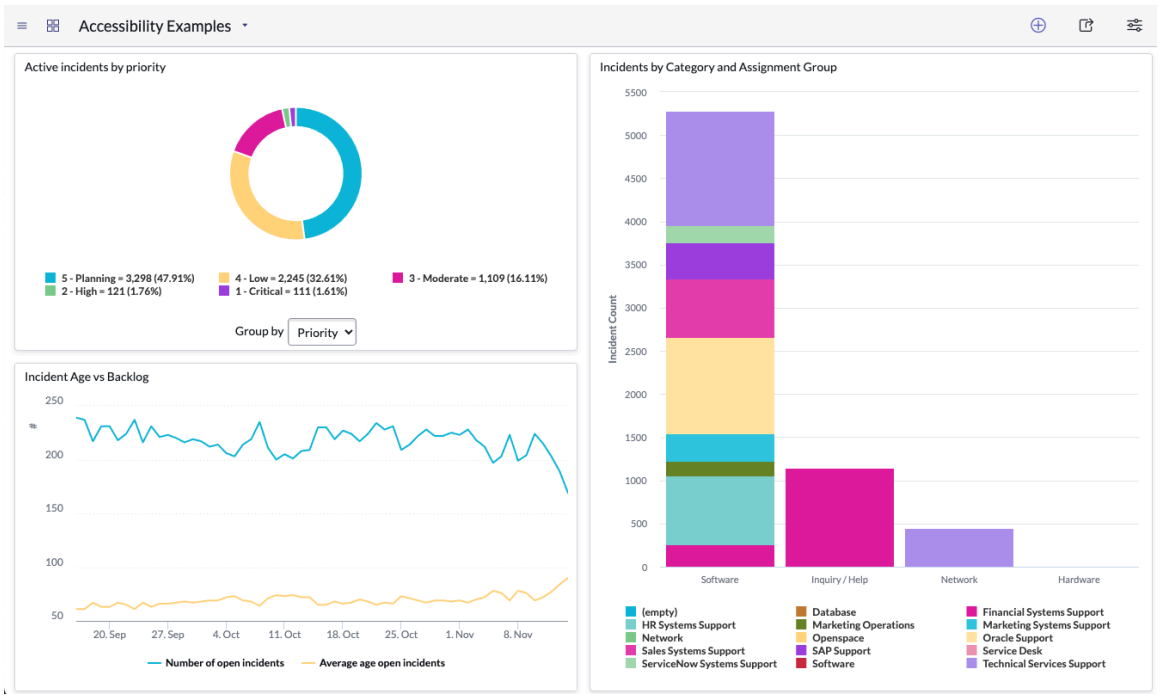
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Data visualization patterns enabled

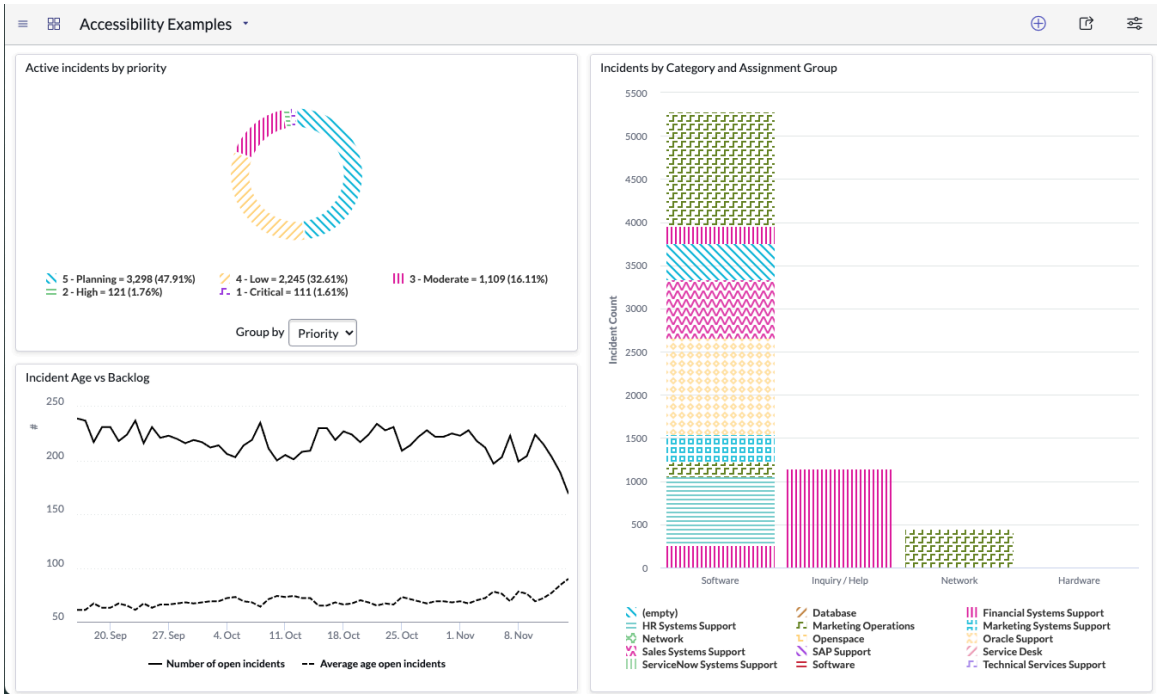
Here's an example of a dashboard showing visualizations without accessibility enabled. The dashboard shows the following visualizations:

- A donut report
- A bar report
- A time series Performance Analytics widget



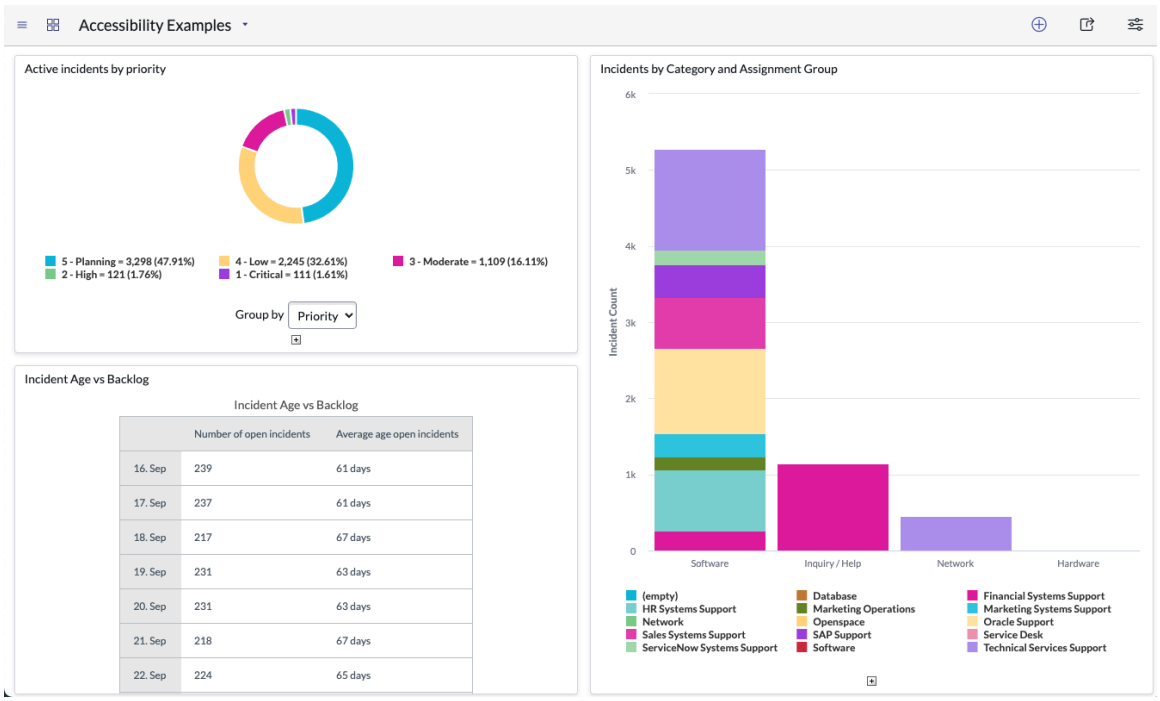
When you select **Replace colors with patterns with charts and graphs**, you can see how the visualization's solid colors become differently patterned for more accessible viewing.

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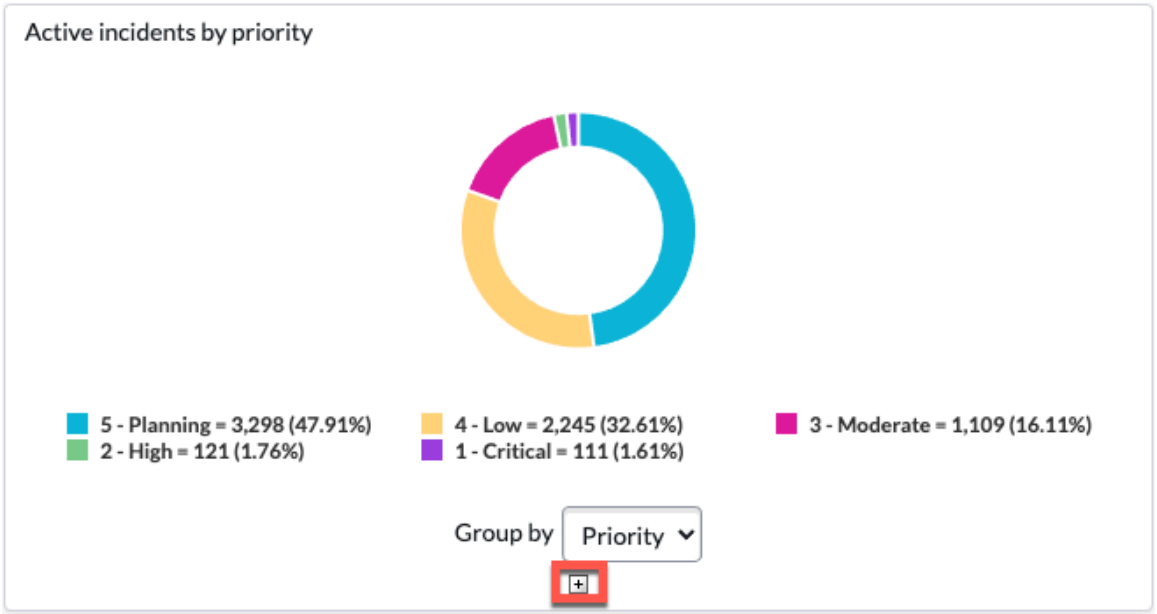
Data table enabled

When you select **Enable data table for charts and graphs**, data tables replace the charts on Performance Analytics widgets. On reports, a plus + icon appears.

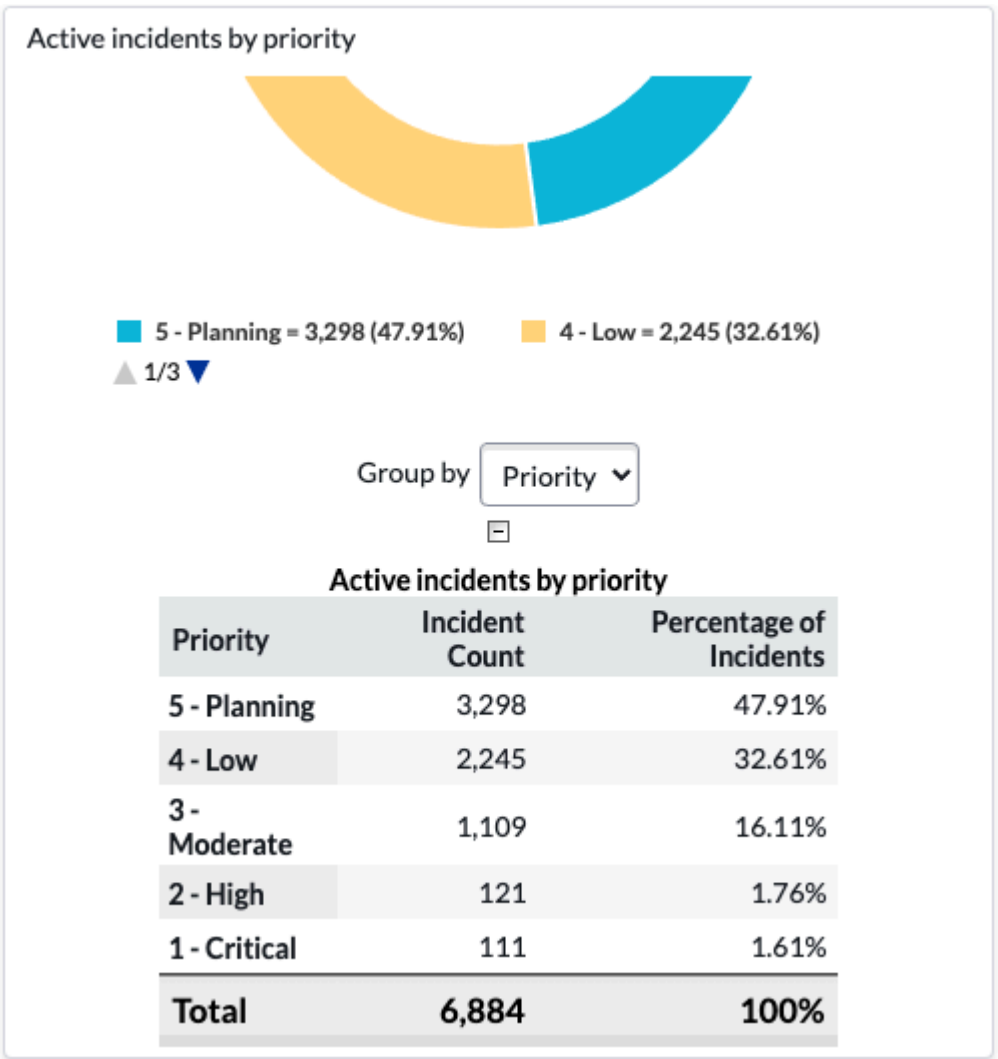


Here's a closer view of the plus icon which, when enabled, displays regardless of the data table setting set for individual reports.

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Click the plus icon to display the corresponding data table.



Active incidents by priority

Priority	Incident Count	Percentage of Incidents
5 - Planning	3,298	47.91%
4 - Low	2,245	32.61%
3 - Moderate	1,109	16.11%
2 - High	121	1.76%
1 - Critical	111	1.61%
Total	**6,884**	**100%**

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Move a Core UI dashboard with an update set

Portal pages related to dashboard tabs aren't automatically transferred in update sets. You can add portal pages to update sets from a dashboard record using the **Unload Dashboard** function. The **Unload Dashboard** function unloads the entire dashboard with all related tabs, including portal pages.

Before you begin

Role required: admin.

About this task

This procedure describes moving the dashboard structure to an update set. The dashboard structure includes the dashboard itself, tabs, the related security configuration, and dashboard-specific widget settings such as header color, and borders.

This procedure doesn't move the content of the dashboard (such as reports, PA widgets, content blocks, and other widgets) to the update set. You can add dashboard content to the update set using default platform functionality.

Important:
Make sure that the dashboard content is either in the same update set as the dashboard record or is already present in the target instance. Errors result if the moved dashboard points to content that doesn't exist on the target instance.

Additional steps may be necessary if you are moving a dashboard on a scoped application. For more information, see Update set id 'global' is different than update set scope id.

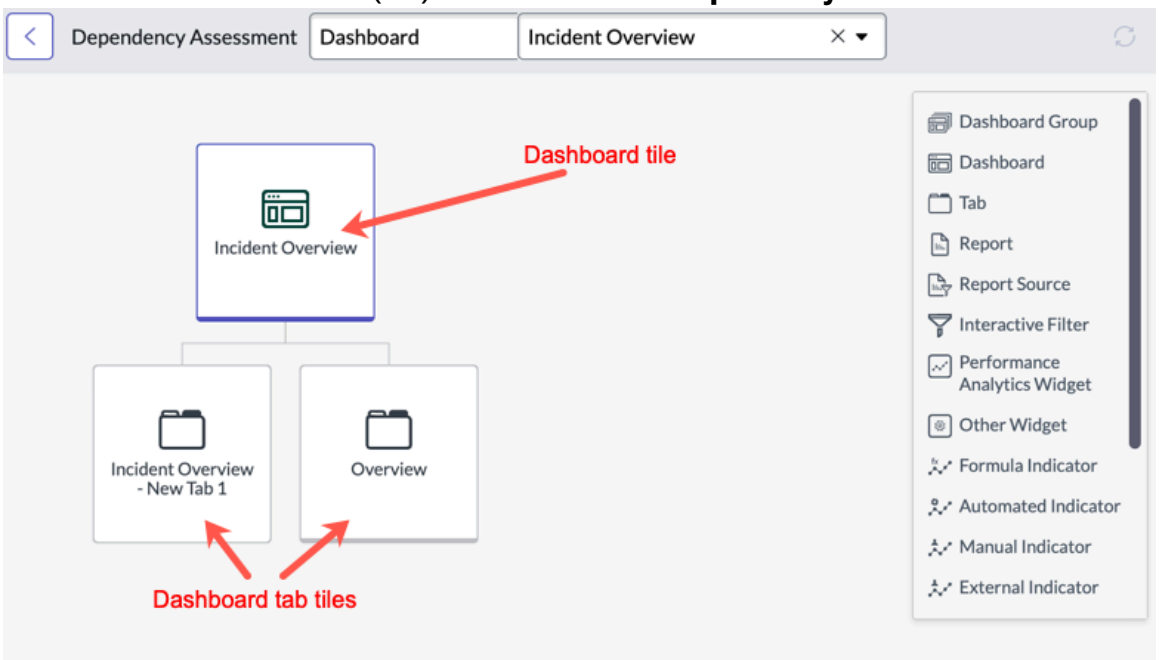
Tip:
If you have difficulty with this procedure, contact Customer Service and Support.

Procedure

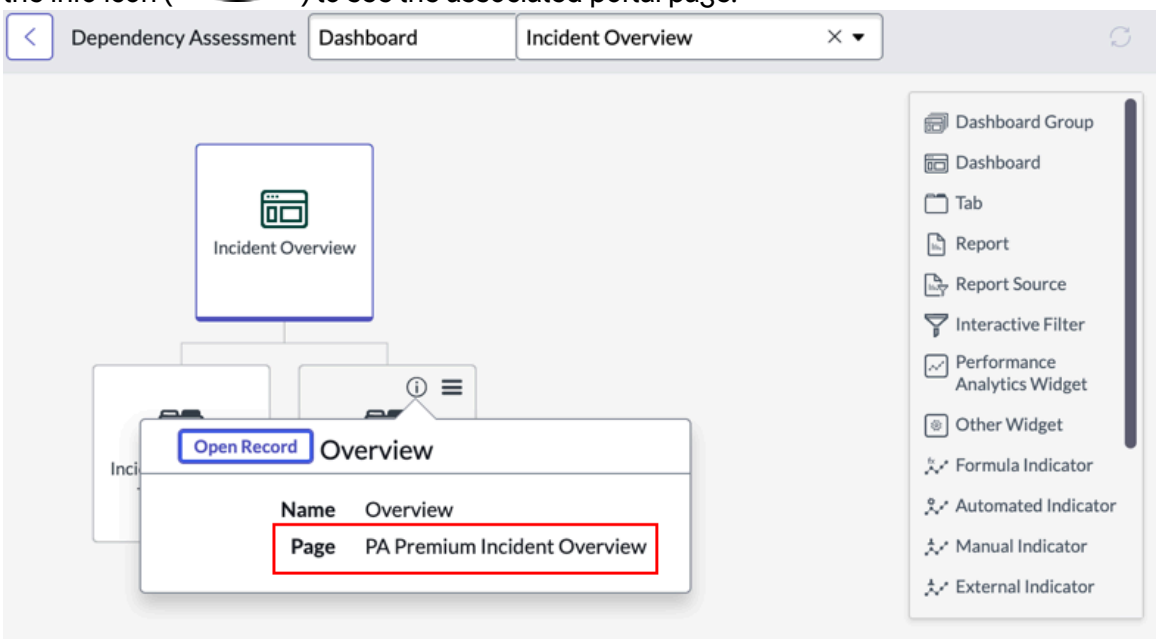
1. In the source instance, navigate to the location of the dashboard you want to unload, for example, **Self-Service** > **Dashboards**.
2. Select the dashboard that you want to unload to an update set.
3. Verify that there's a portal page record associated with each tab.

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a. Select the context menu icon ( ) and select **Launch Dependency Assessment**.



b. Point to the corner of each dashboard tab's tile and select the info icon ( ) to see the associated portal page.



4. Point to the corner of the dashboard's tile and select the info icon ( ).

Select **Open Record** to open the dashboard form.

The dashboard's tile has the same name as the dashboard itself.

5. Select the context menu icon ( ) and select **Unload Dashboard**.

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Only perform this step after the dashboard is ready to unload, meaning that you've added all content to the tabs.

6. When you're ready to move the update set, mark the update set as complete.
7. On the target instance, move the update using standard update set functionality.
   For more information, see Retrieve an update set.
   On the Remote Instance page, the **Retrieved Update Sets** related list shows all retrieved update sets. Select the update set to see if there are errors. Errors are shown on the **Retrieved Update Set** form in a related list called **Update Set Preview Problems**. See Solving errors on dashboards moved with update sets.
8. On the target instance, make sure that all the tabs of the dashboard have associated portal pages.

   Follow the procedure in Validate that tabs are moved to a target dashboard.

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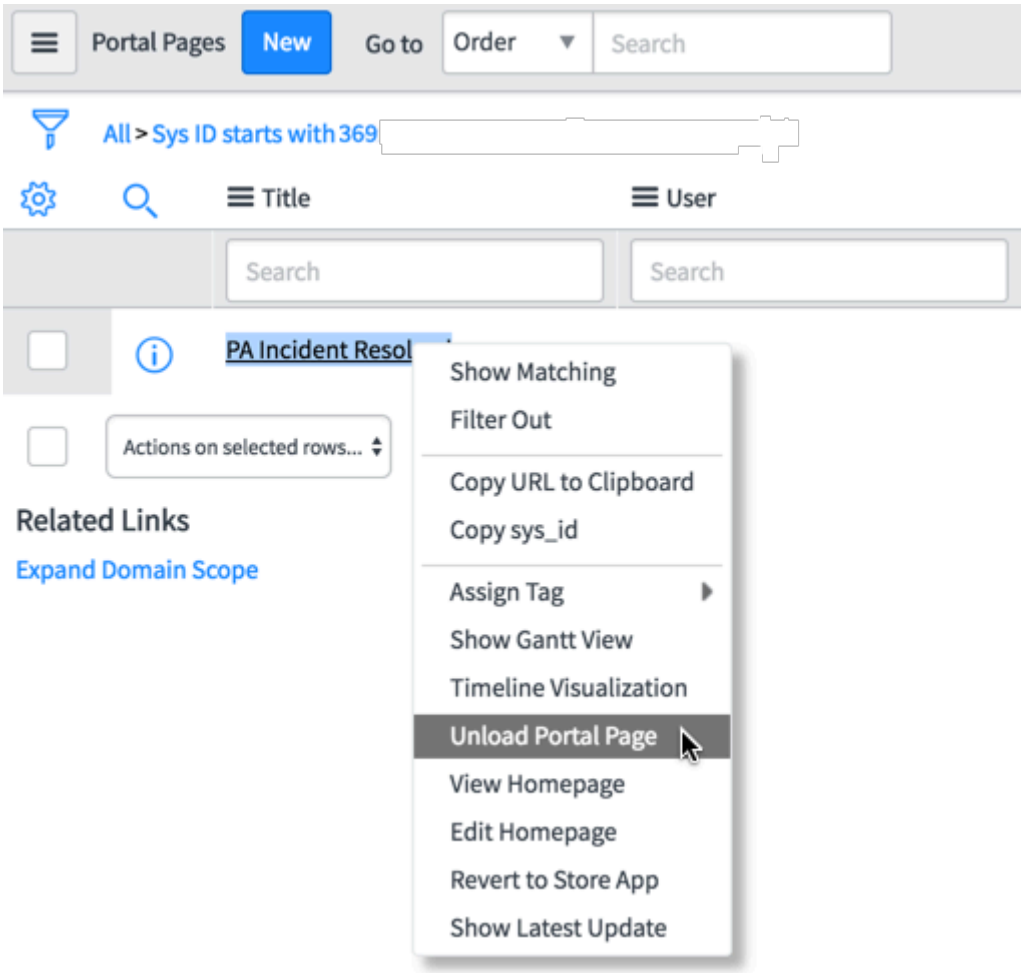
If the portal page is missing in the Tab form, select the search icon ( ) next to the **Page** field to search for the associated portal page.

Note:
If you can't find the associated portal page in the target instance, follow these steps to move each missing portal page through the update:

a. Navigate to **Homepage Admin** > **Pages**.

b. Filter the list to show only the portal page with the sys_id you copied when following the procedure in Validate that tabs are moved to a target dashboard.

c. Right-click the record and select **Unload Portal Page**.



The portal page for the current tab is added to the current update set.

d. Move the update set to another instance using standard update set functionality. For more information, see Retrieve an update set.

Result
The dashboard and its tabs are moved to the target instance.

Validate that tabs are moved to a target dashboard

When you move a dashboard with an update set, validate that the tabs are moved to the target instance and are populated.

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Before you begin
Role required: admin.

About this task
Moving dashboards from one instance to another requires associating the sys_id values of dashboard tabs with the sys_id values of the associated portal pages. This task explains how to find these values and map them to each other if there are problems with moving the dashboard. Perform this task after you Move a Core UI dashboard with an update set.

Procedure
1. In the target instance, navigate to the dashboard you have just moved.
2. Select the context menu icon ( ) and select **Dashboard Properties**.
3. For each tab in the tab form, verify that the required field **Page** (sys_portal_page reference) is there.
   If every tab has an associated portal page, then the dashboard was successfully moved.
4. If the portal page in the target instance is missing in any of the tab forms, perform these steps:

   a. Select the context menu icon ( ) in the Tab form and select **Copy sys_id**.

   b. In the filter navigator of the source instance, enter `pa_tabs.list`.

   c. Filter the list to show only the tab with the sys_id you copied in substep a.

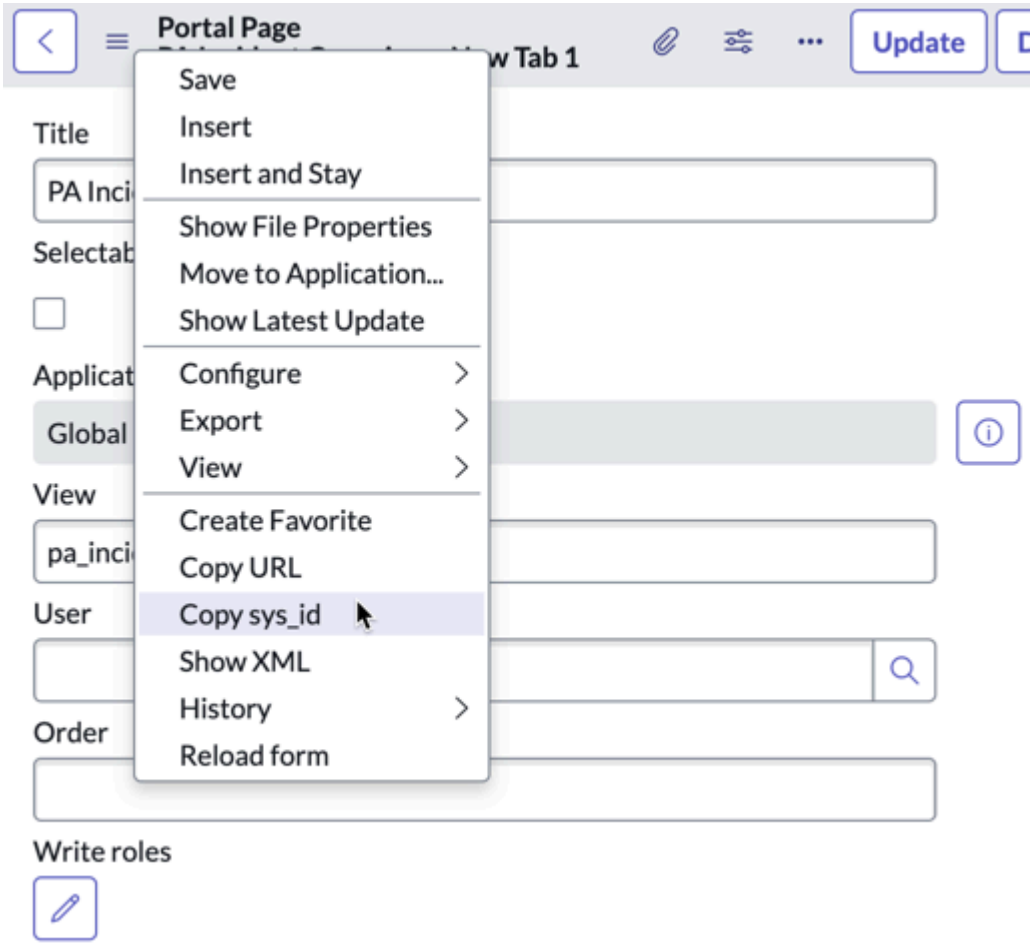
   d. Select the name of the tab to open its form.

   e. Select the information icon ( ) of the Page value for that tab.

   f. On the **Portal Page**, select the context menu icon ( ) and select **Copy sys_id**.

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Paste this value into the text



editor.

This value is the sys_id for the portal page. It is different than the sys_id for the associated tab that you have already used. These values are used together to map the tab to the portal page.

g. Select the search icon ( ) associated with the **Page** field.

h. In the pop-up window, filter on the portal page sys_id and select the returned query result.

i. Select **Update** in the Tab form to save your changes.

5. Ensure that all of the objects used in the dashboard, such as widgets, data visualizations, and content blocks are migrated to the target instance.
   The associated portal page should be visible in the target instance.
6. If you can't find the portal page in the target, perform the following:

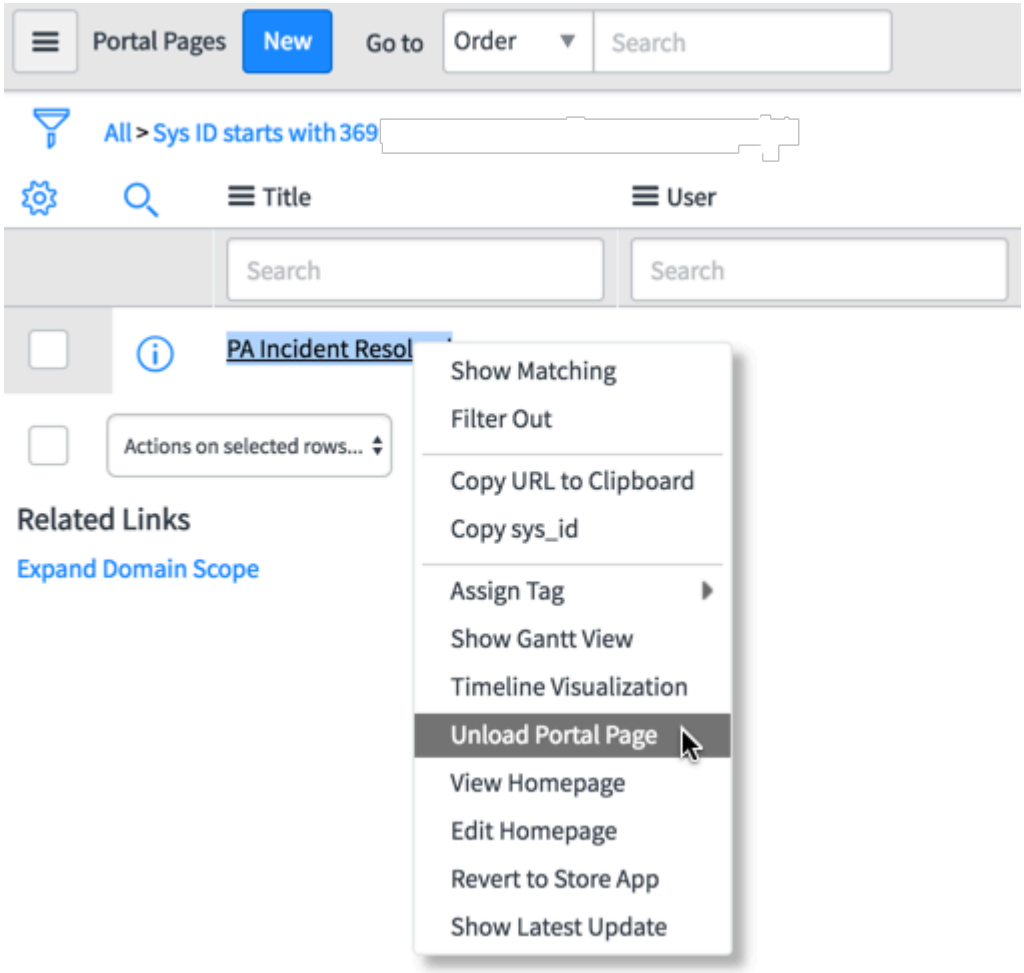
a. Follow Step 4 a-f to obtain the sys_id of the portal page on the source instance.

b. In the source instance, navigate to **Homepage Admin** > **Pages**.

c. Filter the list to show only the portal page with the sys_id you copied.

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d. Right-click the record and select **Unload Portal Page**.



e. Move the update set to another instance using standard update set functionality. For more information, see Retrieve an update set.

Solving errors on dashboards moved with update sets

When you move a dashboard with an update set, if errors are shown on the **Update Set Preview Problems** tab of the Retrieved Update Set page, follow the instructions for each error to solve these problems.

Could not find a record in sys_grid_canvas for column canvas_page referenced in this update

When you move a dashboard with an update set, the following error may occur: 'Could not find a record in sys_grid_canvas for column canvas_page referenced in this update'. To solve this error, move the canvas page from the source instance to the target instance.

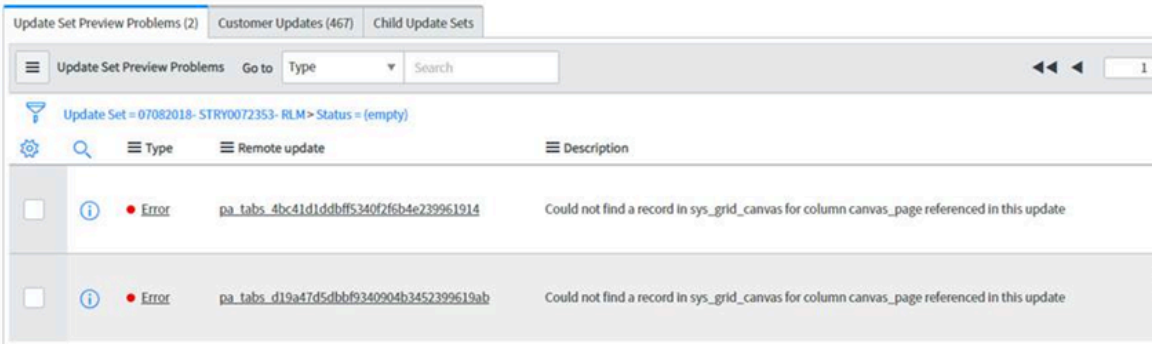
Before you begin

Role required: admin.

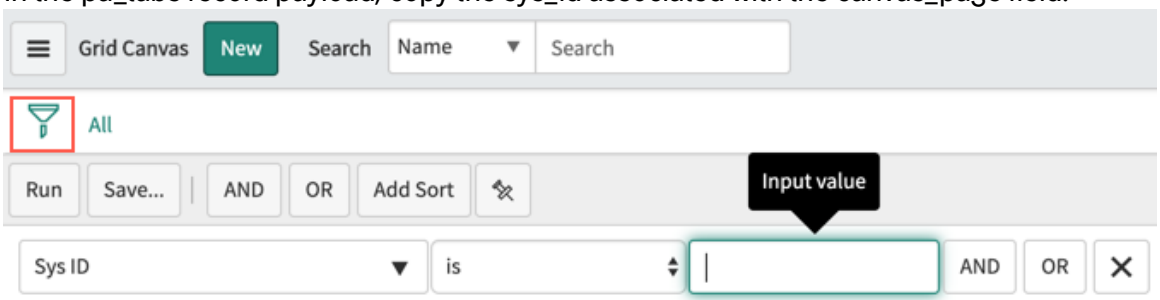
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Procedure

1. In the **Update Set Preview Problems** related list, click the information icon ( ) next to the error.



2. In the pa_tabs record payload, copy the sys_id associated with the canvas_page field.



3. In the source instance, navigate to sys_grid_canvas.list.
4. Filter the list on the sys_id copied in step 2.
5. Right-click on the returned record and select **Unload Canvas Page** to add this record to the current update set.
6. Transfer the update set to the target instance using standard update set functionality. For more information, see Retrieve an update set.
7. Repeat this task for all update set preview problems that have this error.

Result

The missing dashboard tab content is moved to the target instance.

Update set id 'global' is different than update set scope id

When you attempt to move a dashboard in a scoped app, the move fails when you try to retrieve the update set.

Before you begin

Role required: admin.

About this task

Dashboards comprise multiple tables. The ServiceNow AI Platform® does not track all of these tables. The untracked tables are always in the global scope. When you are moving a dashboard in the global scope, these tables do not present a problem. However, these tables block the move of dashboards in any other scope, because the scope of all components in an update set must be the same.

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Procedure

1. Put the global Customer Updates record, sys_update_xml, in a global update set.
2. Commit this update as its own update set, or make it a parent of the original update set and commit both at the same time.

   One update set has all Customer Updates records from the non-global scope, and the other has the sys_portal Customer Updates records from the Global scope.
3. Export both, and retrieve them in the target instance at same time.
4. Preview and commit them in sequence: First commit the update set with non-global customer updates records and then the update set with global customer updates records.

Dashboard permissions

Dashboards have special granular view and edit permissions that are managed from the Sharing pane. Access control lists (ACLs) apply to most widgets that are added to dashboards.

- Users with any role can create dashboards, share dashboards that they own with users and groups, and edit dashboards if they have been given edit permissions. Users with any role can restrict access by role to any dashboard that they have created. The user also needs whatever roles are necessary to access the specific data on the dashboards.
- Users without a role can view dashboards that have been shared with them, but cannot create or edit dashboards.
- Users with pa_admin and pa_power_user roles can manage users, groups, and roles on any dashboard that they can edit. For more information, see Performance Analytics roles.
- Users with the dashboard_admin or admin role can edit and manage users, groups, and roles for any dashboard. Admin and dashboard_admin users can also change a dashboard owner at any time.
- Only a dashboard owner and users with the dashboard_admin or admin role can delete that dashboard.
- The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.
- If Explicit Roles are activated, dashboards are treated as internal resources. Users with the snc_external role cannot view dashboards by default. For more information, see Explicit Roles.
- Domain separation can affect the ability of users to edit dashboards that have been shared with them. For more information, see Domain separation and responsive dashboards.

Dashboard permissions and roles

	View	Create	Edit	Share	Delete
No role	Only dashboards that have been shared with them.	No	No	No	No
Any role	Dashboards that they create and that have	Yes	Only dashboards they have created or	Only dashboards they have created and	Only dashboards they own or have created.

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Dashboard permissions and roles (continued)

	View	Create	Edit	Share	Delete
	been shared with them.		that have been shared with them with edit rights. Cannot add or remove Performance Analytics widgets without at least pa_power_user rights.	only with users and groups. The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.	
admin	All	Yes	Edit and manage dashboard owners, users, groups, and roles for any dashboard.	Yes	Any dashboard
dashboard_admin	All	Yes	Edit and manage dashboard owners, users, groups, and roles for any dashboard.	Yes	Any dashboard
pa_admin	Dashboards that they create and that have been shared with them.	Yes	Only dashboards they have created or that have been shared with them with edit rights. Can add or remove Performance Analytics widgets.	Only dashboards they have created and only with users and groups. The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.	Only dashboards they own or have created.
pa_power_user	Dashboards that they	Yes	Only dashboards	Only dashboards	Only dashboards

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Dashboard permissions and roles (continued)

	View	Create	Edit	Share	Delete
	create and that have been shared with them.		they have created or that have been shared with them with edit rights. Can add or remove Performance Analytics widgets.	they have created and only with users and groups. The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.	they own or have created.
Dashboard owner	Yes	N/A	Yes	Yes. The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.	Only dashboards they have created.

Widget ACLs apply when that widget is added to dashboards (except for Performance Analytics widgets). If a user can view a dashboard but does not have ACLs to view one of its widgets, an empty widget placeholder is displayed. ACLs do not apply to data visualizations that aggregate data, such as pie or bar reports. ACLs always apply to list data that is displayed in widgets. Rows in a list that a user does not have access to are not displayed.

Note:
ACLs are not applied to Performance Analytics widgets that are added to dashboards. Any user who can view a dashboard can view all its Performance Analytics widgets. Performance Analytics widgets can only be added to dashboards by users with the pa_power_user, pa_admin, and admin roles.

However, if a Performance Analytics widget displays real-time scores, the score each logged-in user sees depends on their roles and the ACLs of the facts table. For more information, see Real-time scores.

The **Restrict to role** field on the dashboard properties form and dashboard group permissions may have an impact on dashboard permissions. The dashboard owner, and users with pa_power _user, pa_admin, or admin roles can change dashboard properties. Users with the pa_power_user, pa_admin, and admin roles can change dashboard group permissions.

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For example, when you add a pie report widget with 36 records to a dashboard, users who can access to that dashboard and that report can view the report of all 36 records. However, if a user drills down into the list view for that widget, only the records the user is allowed to access are visible.

Related topics

- Restrict responsive dashboard access to specific roles
- Organize dashboards into groups
- Performance Analytics roles
- Administering reports

Solving permissions issues on a responsive dashboard

Dashboard permissions can be set in several different locations.

Before you begin

When you find problems with permissions on responsive dashboards, you can review permissions on the Dashboard Sharing panel, group permissions, and dashboard properties.

Role required: dashboard_admin, pa_admin

Procedure

- Check the permissions on the Dashboard Sharing pane.
  The dashboard owner, users with the dashboard_admin or admin role, and users with the pa_power_user or pa_admin role who can edit the dashboard can perform this step.
- Review the permissions of the group to which the dashboard belongs.

  Dashboard group permissions do not show up in the dashboard Sharing panel.

  Users with the dashboard_admin, admin, pa_power_user, or pa_admin role can perform this step.
- Compare the dashboard and dashboard group permissions.

  If permissions are specified on a dashboard, the permissions on the dashboard group are overridden and no do not apply.

  Users with the dashboard_admin, admin, pa_power_user, or pa_admin role can perform this step.
- On the dashboard properties form, review the roles specified in the **Restrict to roles** field.

  Only users with one of the roles specified in this field can view the dashboard.

  The dashboard owner, users with the dashboard_admin or admin role, and users with pa_power_user or pa_admin roles who can edit the dashboard can perform this step. Other users who can edit the dashboard can view this field but cannot edit it.

Dashboard permissions scenarios

Permissions on dashboards can be complicated. If you set a permission on a dashboard group, for example, permissions set on a dashboard within that group override it. This matrix shows what is visible based on various combinations of permissions.

The Dashboard permissions scenarios table uses these abbreviations:

- DB = Dashboard
- DG = Dashboard Group
- RTR = Restrict to Roles

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For more information, see Restrict responsive dashboard access to specific roles.

- X = Unspecified

Note:
Users with admin and dashboard_admin roles have full permissions on all dashboards.

Dashboard permissions scenarios

Scenario	DG	DG Permission	DB view permission	DB edit permission	RTR	Who can view the DB?
No DG, no DB permissions	X	X	X	X	X	Only the owner
Only RTR	X	X	X	X	asset	Only the owner
Only DB permissions	X	X	itil	X	X	Users with the itil role
DB permissions and RTR	X	X	itil	X	asset	Users with both the itil AND asset roles
Only DG without permissions	Exists	X	X	X	X	Users with either the pa_admin role OR the pa_power_user role
DG without permissions and RTR	Exists	X	X	X	asset	Users with both the asset role AND either the pa_admin role OR the pa_power_user role
Only DG and DG permissions	Exists	itil	X	X	X	Users with either the itil role OR the pa_admin role OR the pa_power_user role
DG, DG permissions, and RTR	Exists	itil	X	X	asset	Users with both the asset role AND either the itil role OR the

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Dashboard permissions scenarios (continued)

Scenario	DG	DG Permission	DB view permission	DB edit permission	RTR	Who can view the DB?
						pa_admin role OR the pa_power_user role
DG, DG permissions, and DB permissions	Exists	itil	itil_admin	X	asset	Users with both the itil_admin role AND the asset role
DG, DG permissions, DB permissions, and RTR	Exists	itil	itil_admin	X	X	Users with the itil_admin role

The default permissions for a dashboard group are pa_admin and pa_power_user. If a permission, such as itil, is specified on the dashboard group, this permission is added to the default permission. Permissions on individual dashboards override the dashboard group permission.

Solving issue with edit permissions on responsive dashboards

Users with edit permissions on a responsive dashboard may also need edit permissions on another dashboard that the tab is used in.

Before you begin

Role required: admin

About this task

A dashboard is shared with a user with edit permissions. On some tabs, the user cannot add widgets. When the user selects **Add widgets**, nothing happens. The same user is able to add widgets to other tabs and dashboards. The cause for the problem is related to how the affected dashboard tab was created. If the dashboard tab was created in a non-responsive dashboard and the tab is linked to another dashboard tab, the affected user needs editing permissions on this other linked dashboard.

Procedure

1. Navigate to the affected dashboard.
2. From the context menu ≡, select **Dashboard Properties**.
3. Select Launch Dependency Assessment.
   The results show the dashboard and all the tabs used by the dashboard.
4. Select the affected tab.
5. From the context menu ≡, choose **Show Used By**.
   The result shows the dashboards where the tab appears.
6. Open the other dashboard that uses the affected tab.
7. Edit sharing permissions on that dashboard and to give edit access to the affected user.

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Result
The affected user can now edit the dashboard tab on the responsive dashboard.

Solving issues with shared dashboards in non-global scopes

Dashboards in scoped applications may not be visible to non-admin users. Non-admin users may not be able to view the dashboard or the widgets on the dashboard don't load.

Before you begin
Role required: admin of the associated scoped application.

About this task
Users may see the message 'Dashboard hasn't been shared with user' or 'This dashboard is restricted to the following roles,' without a list of roles.

Procedure

1. Navigate to **All** > **sys_properties.list**.
2. Set the system property glide.security.scoped_administration.honor_global_acl to true.
   If this property is already set to true, no update is necessary.
3. As application administrator, switch the scope to the scope the dashboard was created in.
4. Navigate **All** > **sys_scoped_admin_acl_inheritance.list**.
5. **Optional:** If reports have the same issue, create records for these tables:
   - Reports [sys_report]
   - Report Users and Groups [sys_report_users_groups]
6. Create records for these tables:
   - Dashboard [pa_dashboards]
   - Portal Page [sys_portal_page]
   - Tabs [pa_tabs]
   - Dashboard Permissions [pa_dashboards_permissions]

Restrict responsive dashboard access to specific roles

Specify additional roles required to access the dashboard when you share a dashboard with specified users, groups, and roles. Only users who the dashboard has been shared with and who have one of the specified roles are able to access the dashboard.

Before you begin
Role required: pa_admin, pa_power_user, admin, or be the dashboard owner. Other users who edit the dashboard can see this field but cannot modify it.

Note:
Restricting access to a dashboard to specific roles is not the same as sharing the dashboard with those roles. You must share the dashboard before you can restrict access to specified roles. The best practice, however, is to use the **Share** panel to share with users, groups, and roles. Restrict to roles is not recommended.

The **Restrict to roles** field is available only after responsive dashboards have been enabled. If responsive dashboards have been enabled and then disabled, the **Restrict to roles** field remains available but does not affect dashboard access.

About this task
When dashboards are migrated between releases, this field is automatically populated with the pa_viewer and pa_contributor roles to ensure that only users who could access the dashboard before migration can access it afterward.

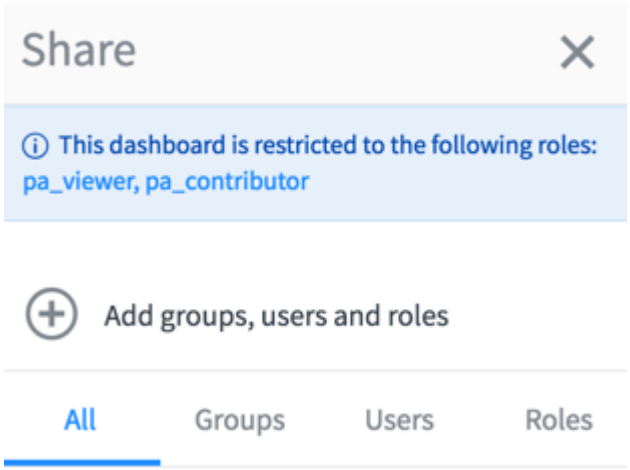
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Procedure

1. Navigate to the dashboard to restrict to specific roles.
2. Click the context menu (☰) and select **Dashboard properties**.
3. In the **Restrict to roles** field, specify the additional roles required to access the dashboard. Users with any of the specified roles can access the dashboard only if it has been shared with them first from the **Share** panel. For more information, see Share a responsive dashboard.

Result

Only users with the restricted role are able to view the dashboard. A message on the Sharing panel indicates which roles have access. Click the roles in this message to view the properties of the dashboard.



Note:
The ability of users to share dashboards may be limited by the administrator. For more information, see Responsive dashboard properties.

Restrict responsive dashboard sharing by role

You can configure responsive dashboard properties to restrict which users are able to share responsive dashboards.

Before you begin

Role required: admin.

About this task

Configure a dashboard property to specify a comma-separated list of roles that can share their own dashboards. Users with these roles can see the **Share** icon (⬆) on responsive dashboards.

Procedure

1. Navigate to **All** > **System Properties** > **Dashboard Properties**.
2. In the field labeled **List of roles (comma-separated) that can share their own dashboards**, enter the roles.

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For example, if all users with the itil, asset, and pa_admin roles can share dashboards, enter `itil, asset, pa_admin`. If this field is empty, users with any role can share their own dashboards.

Note:
If one role in this list is misspelled, that role will not be able to share dashboards. If there is only one role in this list and that role is misspelled, no user will be able to share dashboards until the value for this property is corrected.

Result
Users with the specified roles can see the **Share** panel when they view a dashboard that they own. Users with other roles are not able to see the **Share** panel.

Note:
Properties that restrict dashboard sharing do not apply to users with the admin and dashboard_admin roles. Users with these two roles can always share any dashboard.

What to do next
To apply security rules to what is visible in the **Share** panel, select the box labeled **Apply security rules to the list of users, user groups, and roles that are visible when sharing dashboards**. For more information, see Restrict responsive dashboard sharing with security rules.

Related topics
Share a responsive dashboard

Restrict responsive dashboard sharing with security rules
You can configure the users, roles, and groups that users can see on the **Share** panel when they share a responsive dashboard.

Before you begin
Role required: admin. To modify the Access Control List, the admin must elevate to the security_admin role. For information, see Elevate to a privileged role.

About this task
Users who can see the **Share** icon based on the configuration of **List of roles (comma-separated) that can share their own dashboards** may not see content in the **Share** panel based on the configuration of the property **Apply security rules to the list of users, user groups, and roles that are visible when sharing dashboards**.

Procedure
1. Navigate to **All** > **System Properties** > **Dashboard Properties**.
2. Select the box labeled **Apply security rules to the list of users, user groups, and roles that are visible when sharing dashboards** to apply security rules to what is visible in the **Share** panel.
   The existing security rule configuration for users, user groups and roles is described in their associated read access control list at the platform level. For more information, see Access control list rules.

Result
Only users whose roles are specified in the field labeled **List of roles (comma-separated) that can share their own dashboards** can share their dashboards. If this property is configured and a user's role is not specified in the property, the user does not see the **Share** panel. When **Apply security rules to the list of users, user groups, and roles that are visible when sharing**

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dashboards is enabled, security rules are applied to the list of users, groups, and roles that the user can share their dashboards with in the **Share** panel.

Related topics

Share a responsive dashboard

Responsive dashboard role examples

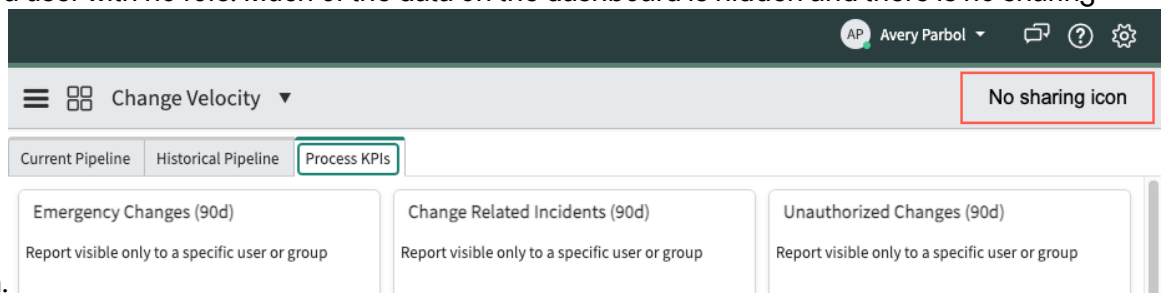
Your ability to create, edit, view, or share a dashboard depends on your roles. These examples show what you can do with a dashboard based on your roles.

These descriptions of dashboard roles assume base system functionality. It is possible to create roles and assign permissions that override this functionality.

No role

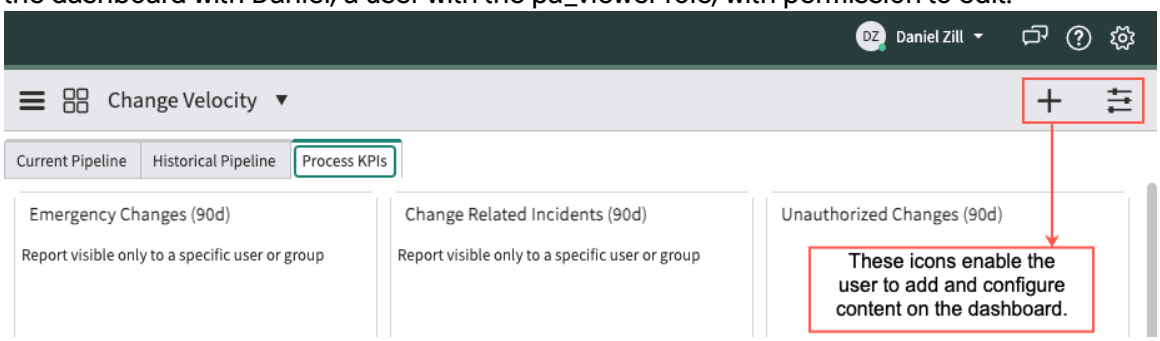
Users without a role only see dashboards that another user has shared with them. Information on the dashboard, especially list visualizations, may be hidden from the user based on ACLs.

Users without roles cannot create or share dashboards. An admin shared this dashboard with Avery, a user with no role. Much of the data on the dashboard is hidden and there is no sharing option.



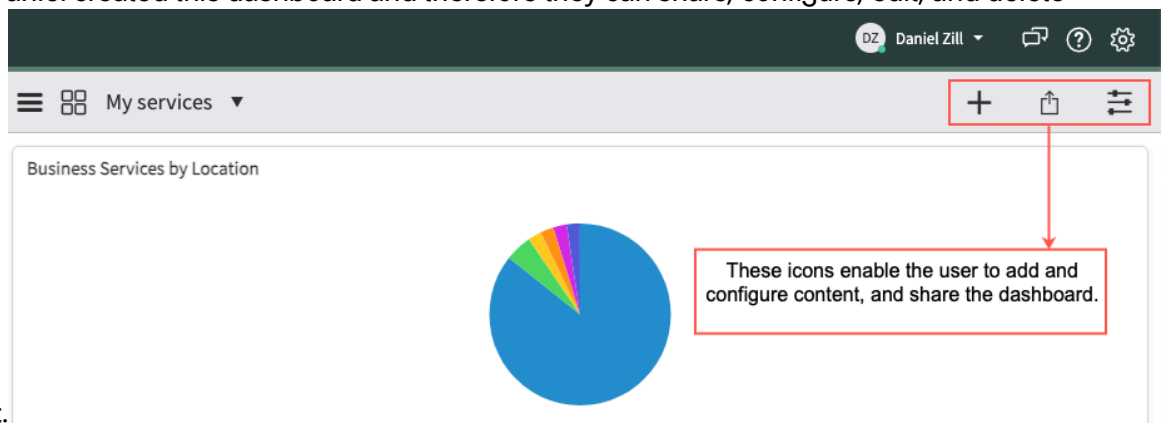
Any role

Users with any role can create dashboards and can share dashboards that they create. They can view or view and edit dashboards that are shared with them with the **Can edit** permission. ACLs still apply to what they can view in a dashboard. An admin shared the dashboard with Daniel, a user with the pa_viewer role, with permission to edit.



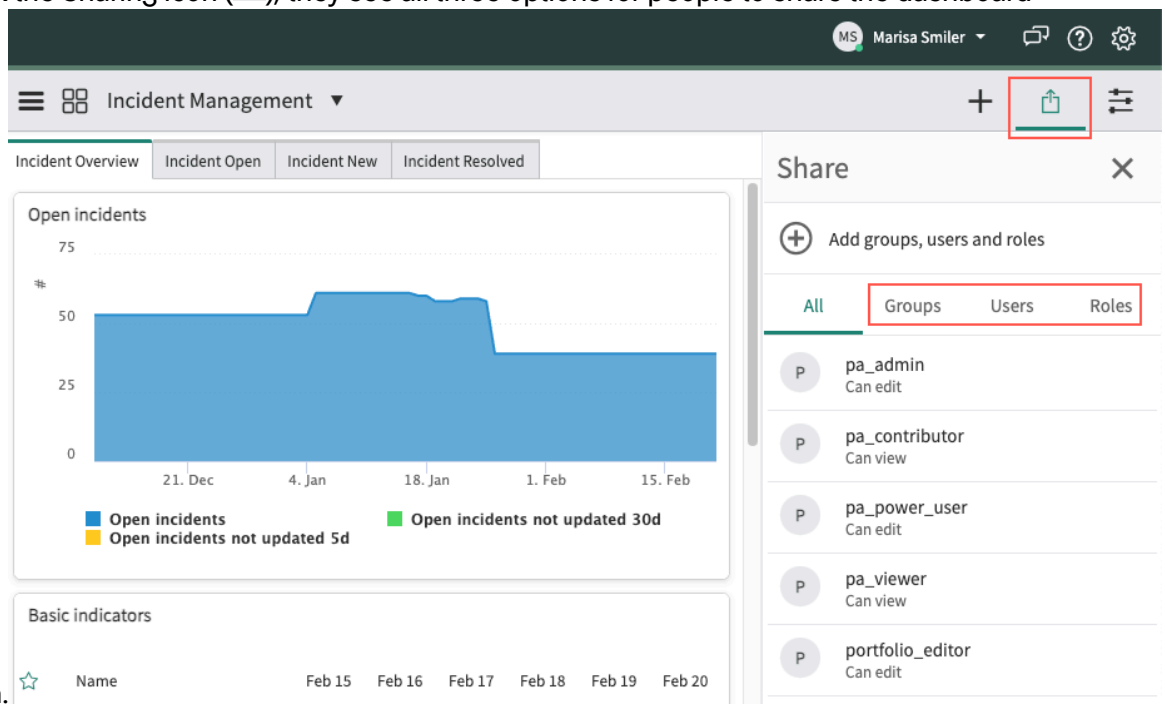
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Daniel created this dashboard and therefore they can share, configure, edit, and delete it.



pa_admin and pa_power_user

Users with pa_admin and pa_power_user roles can manage users, groups, and roles on any dashboard that they can edit. Marisa has the pa_power_user role. When they click the Sharing icon ( ), they see all three options for people to share the dashboard with.



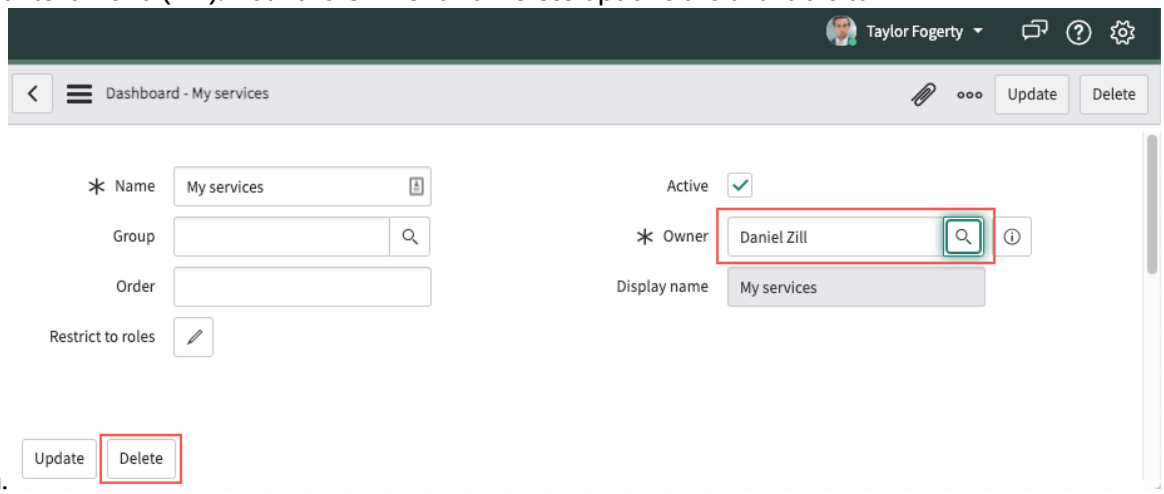
dashboard_admin or admin

Users with the dashboard_admin or admin role have these abilities:

- Edit and manage users, groups, and roles for any dashboard
- Change the owner of any dashboard
- Delete any dashboard

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Taylor has the dashboard_admin role and selected **Dashboard Properties** from the context menu ( ). Both the **Owner** and **Delete** options are available to them.



Dashboard statistics

The **Dashboard Stats** list enables you to view how often each of your Core UI dashboards is run and how long it takes to run them.

To view dashboard statistics, navigate to **All** > **dashboard_stats.list**. The admin or dashboard_admin role is required. By default, the Dashboard Statistics list displays all dashboards that have been viewed. There is one entry in this table for each dashboard on the instance that has been viewed at least once. The entries increment until an entry is deleted or the dashboard itself is deleted.

- The **Dashboard Stats** list enables you to view how often each of your Core UI dashboards is run and how long it takes to run them.
- The Dashboard executions list shows how long it takes for your Core UI dashboards to load and the ID of the user who launched it.
- The Dashboard execution statistics list how long it takes for your Core UI dashboards to load. The list includes one entry for the most recent launch of each dashboard per user.

The **Dashboard Stats** list has these columns by default:

Column	Description
Run time	The average execution time in milliseconds of all runs of the dashboards. (Runs divided by Execution time.)
Dashboard	The name of the dashboard. Select the hyperlink to view the dashboard properties.
Runs	The total number of times the dashboard has been run.
Recent run time	The average execution time of the dashboard in milliseconds based on the 25 most recent runs. Edit the *glide.dashboard.recent_executions_number* property to change the number of runs used to calculate this value.

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Column	Description
Recent No of Execution	The number of values used to calculate recent run time up to up to the value of *glide.dashboard.recent_executions_number*.
Execution time	Sum of execution time across all runs of the dashboard.

Select the **Personalize List** icon to add these columns:

Column	Description
Created	Date the dashboard was created
Created by	Dashboard's creator
Tags	Use to select tags or add new tags to enhance searchability.
Updated	Date of the dashboard's last change.
Updated by	Name of the user who made the dashboard's last change.
Updates	Total number of updates made to the dashboard.

- To view the dashboards that take the most time to run, sort **Recent run time** from z-a.
- To see the viewed dashboards, filter out the value 0 from the **Runs** column.
- To view the most viewed dashboards, sort the **Runs** column from z-a.

Dashboard executions

The **Dashboard Executions** list enables you to view how long it takes for your Core UI dashboards to load and the ID of the user who launched it. The list includes one entry for the most recent launch of each dashboard per user.

To view dashboard execution statistics, navigate to **All** > **dashboard_executions.list**. The admin or dashboard_admin role is required.

Note:

- Adding unused dashboards to this list takes some time, especially if your instance has many dashboards.
- The **Dashboard Executions** list supports the most recent 10 runs per user per dashboard. Edit the system property *glide.dashboard.log.max_user_executions_x_dashboard* to change this value.

- The Dashboard statistics list enables you to view how often each of your Core UI dashboards is run and how long it takes to run them.
- The Dashboard execution statistics list how long it takes for your Core UI dashboards to load. The list includes one entry for the most recent launch of each dashboard per user.

By default, the **Dashboard Executions** list has the following columns:

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Column	Description
Dashboard	The name of the dashboard. Select the hyperlink to view the dashboard properties.
Execution duration	The time in milliseconds that it took to run the dashboard. There is one entry per unique user.
Execution timestamp	The date and time of the launch of the dashboard.
User sys ID	The user associated with the sys ID that launched the dashboard. Select the user to view their information.

To view the dashboards that take the most time to run, sort **Execution duration** from z-a.

Dashboard execution statistics

The **Dashboard Stats Executions** list enables you to view how long it takes for your Core UI dashboards to load. The list includes one entry for each launch of a dashboard.

To view dashboard execution statistics, navigate to **All** > **dashboard_stats_executions.list**. The admin or dashboard_admin role is required.

Note:

- Adding unused dashboards to this list takes some time, especially if your instance has many dashboards.
- The **Dashboard Stats Executions** list supports the value of the property *glide.dashboard.recent_executions_number* per dashboard. The default value of this property is 25.

- The Dashboard statistics list enables you to view how often each of your Core UI dashboards is run and how long it takes to run them.
- The Dashboard executions list shows how long it takes for your Core UI dashboards to load and the ID of the user who launched it.

By default, the **Dashboard Stats Executions** list has the following columns:

Column	Description
Dashboard	The name of the dashboard. Select the hyperlink to view the dashboard properties.
Execution duration	The time in milliseconds that it took to run the dashboard.
Execution timestamp	The date and time of the launch of the dashboard.

To view the dashboards that take the most time to run, sort **Execution duration** from z-a.

Enable PDF export of dashboards

To export dashboards to PDF, a plugin and property are needed.

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Before you begin
Role required: admin.

Activate the WebKit HTML To PDF plugin and configure the plugin to export homepages, dashboards, and some reports as PDF documents.

Important:

The functionality found in homepages, arranging information from your instance to tell a story about your data, is found in dashboards on new instances. On upgraded instances with Next Experience enabled, users can view existing homepages if they have a direct URL, but they can't create or edit them. Responsive dashboards and Analytics Center dashboards take over homepage functionality.

Use the Homepage deprecation help tool to convert the homepages on your instance to responsive dashboards.

For more information, see:

- Dashboards in the Analytics Center.
- Working with responsive dashboards.

Procedure

1. Navigate to **All** > **System Definition** > **Plugins**.
2. Search for **WebKit HTML to PDF**.
   Select the plugin to open its form.
3. Click **Activate/Repair**.
   If the OAuth 2.0 plugin is not already active, the WebKit HTML To PDF plugin activates it as well.
   For more information, see Activate a plugin.

Result
Users can export dashboards to PDF to archive, print, or distribute.

Guidelines for translated dashboards

Users can only find translated dashboards under certain configurations. You can translate the dashboard name to make it searchable. When working with language plugins, refer to these guidelines to make sure users can find your translated dashboards.

Overview of translated dashboards

On instances with language plugins enabled, the application verifies the instance's database is MySQL, then it looks for the user's session language and searches for the translated dashboard. This topic assumes that at least one additional language plugin is activated.

The search function only works for translated dashboards when the instance uses the MySQL database and the dashboard translation is provided.

Learn more: Activate a language.

Translate a dashboard's title

Open the dashboard, select the target language in your preferences, and in the dashboard's properties, enter the translated name of the dashboard. Other users can now find the dashboard using its localized name.

Learn more: Solving issues on translated dashboards.

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Solving issues on translated dashboards

Users can only find translated dashboards under certain configurations. You can translate the dashboard name to make it searchable.

Before you begin

On instances with language plugins enabled, the application first determines the database behind the instance. If the database is MySQL, then it looks for the user's session language and searches for the translated dashboard. For more information about language plugins, see Activate a language.

The search function only works for translated dashboards when the instance uses the MySQL database and the dashboard translation is provided.

Role required: admin

Procedure

1. Log in to the instance in the source language.
2. Navigate to **All** > **Performance Analytics** > **Dashboards**.
3. Open the dashboard that you want to translate.
4. Select your user icon and choose **Preferences**.
5. Select the **Language & Region** tile.
6. From the **Language** menu, select the target language and close the dialog.
   Extra languages are available when there are enabled language plugins on the instance.
7. From the context menu ( ), select **Dashboard Properties**.
8. Translate the dashboard name into the target language and click **Update**.

Result

Users can search for the dashboard using the translated name when their system is set to the target language.

Domain separation and responsive dashboards

Domain separation is supported in dashboard creation and administration. Domain separation enables you to separate data, processes, and administrative tasks into logical groupings called domains. You can control several aspects of this separation, including which users can see and access data.

Support level: Standard

- Includes all aspects of **Basic** level support.
- Application properties are domain-aware as needed.
- Business logic: The service provider (SP) creates or modifies processes per customer. The use cases reflect proper use of the application by multiple SP customers in a single instance.
- The instance owner must configure the minimum viable product (MVP) business logic and data parameters per tenant as expected for the specific application.

Sample use case: An admin must be able to make comments required when a record closes for one tenant, but not for another.

For more information on support levels, see Application support for domain separation.

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Overview of domain separation

To activate the domain separation plugin, see Request domain separation.

Important:
For users in child domains to view dashboards in parent domains, both domain separation and delegated administration must be enabled.

Users in child domains cannot overwrite dashboards. Child domain users only have read access to dashboards.

How domain separation works in Dashboards

Assumptions:

- Only dashboards that have been shared are visible to other users. See Share a responsive dashboard.
- Users granted edit permissions on a dashboard can only edit that dashboard if they are in the same domain as the dashboard. For example, a user who is in the HR domain cannot edit a dashboard created in the parent of the HR domain.

Dashboard data that is domain separated includes dashboard records, dashboard tabs, and widget containers. Widget content is governed by the domain separation that applies to the content itself. For example, an admin adds a report created in the HR domain to a dashboard in the IT domain. This report is not visible to users in the IT domain, although they can see the widget container.

A dashboard defined at the global level is visible to all users with whom it has been shared. A shared dashboard created in a parent domain is visible to users in the parent and all its child domains. For example, a dashboard created in the TOP company is visible to users in:

- Joe's company
- Other companies in the TOP company
- All HR, CS, and IT child domains in those companies if it is shared with those users.

In the following figure, dashboards created in the IT, CS, and HR domains are not visible to users in the other child domains or in the parent domain.

Domains list example

Domains | Name | Search | Actions on selected rows... | New

All

Name	Active	Type	Description	Parent	Primary
IT	true		Joe's IT department	Joe's Company	false
CS	true		Joe's Customer Support department	Joe's Company	false
HR	true		Joe's HR department	Joe's Company	false
Joe's Company	true	Customer		TOP	false
Default	true	MSP	Tasks and users without a domain are pla...	TOP	false
TOP	true	MSP	Top level, process flows down from here....	(empty)	true

Important:
Administrators should not edit a domain-separated dashboard from the global domain, because additions made to the dashboard are not visible to users within the separated domain. When editing dashboards, make sure that you are logged in to the correct domain.

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Related topics

- Understanding domain separation
- Domain separation recommended practices for service providers

Quick start tests for Dashboards

Validate that Dashboards still work after you make any configuration change such as applying an upgrade. Copy and customize these quick start tests to pass when using your instance-specific data.

Dashboards quick start tests require activating the Automated Test Framework - Responsive Dashboards plugin (com.glide.automated_testing_impl.dashboards). This plugin is active on zBoot of the instance.

Dashboards quick start tests

Test	Description	Release version
Responsive Dashboard Sharing	Confirm dashboard sharing by impersonating users.	Madrid
Responsive Dashboard Visibility	Confirm dashboard visibility by impersonating users.	Madrid

Related topics

- Quick start tests

Dashboard URL parameters

Dashboard URL parameters allow you to control the visibility of headers and the breakdown sources of dashboards used in application pages.

Dashboard header

This sysparm_header URL system parameter controls the visibility of the header of the dashboard. It has the following values:

- hidden — The header is hidden on the application page.
- embedded — The dashboard header appears but only has limited options. Options to refresh, reset filters, and export to PDF are available on the context menu.
- visible (default) — The full header is visible on the application page.

```
<your-servicenow-instance.com>/$dashboards.do?sysparm_dashboard=
ABC123&sysparm_tab=123ABC&sysparm_editable=false&sysparm_active_
panel=false&sysparm_element=fed654&sysparm_element_value=def456&
sysparm_breakdown_source=ghi789&sysparm_homepage_filters=%7B
%ihg789%22:%5B%7B
%22table%22:%22incident%22,%22filter%22:%22assignment_group%jkl2
12%22%7D%5D
%7D&sysparm_ignore_default_filter=true&sysparm_header=embedded
```

Dashboard breakdown

The sysparm_breakdown URL system parameter controls the visibility of the dashboard breakdown. It has the following values:

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- visible (default) — The full breakdown is visible including source and element.
- hidden — The full breakdown is hidden.
- embedded — Only the breakdown element is visible.
- readonly — The breakdown element is visible but is read only.

```
<your-servicenow-instance.com>/$dashboards.do?sysparm_dashboard=
ABC123&sysparm_tab=123ABC&sysparm_editable=false&sysparm_active_
panel=false&sysparm_element=fed654&sysparm_element_value=def456&
sysparm_breakdown_source=ghi789&sysparm_homepage_filters=%7B
%ihg789%22:%5B%7B
%22table%22:%22incident%22,%22filter%22:%22assignment_group%jkl2
12%22%7D%5D
%7D&sysparm_ignore_default_filter=true&sysparm_breakdown=hidden
```

Dashboard group

The sysparm_group URL system parameter enables you to include a single dashboard group in the dashboard picker on the Dashboards overview page. This parameter takes only the name of the dashboard group for a value.

```
<your-servicenow-instance.com>/$dashboards.do?sysparm_dashboard=
ABC123&sysparm_tab=123ABC&sysparm_editable=false&sysparm_group=i
ncident
```

Other dashboard URL parameters

sysparm_active_panel

Indicates whether the editing panel is displayed.

sysparm_editable

Indicates whether the editing panel can be visible.

Dashboards overview URL parameter

Use the sysparm_group parameter to select the default value of the dashboard group on the Dashboards overview page.

Dashboard group

The sysparm_group URL system parameter enables you to open the **All** tab of the Dashboards overview page (pa_dashboards_overview.do) filtered by the specified dashboard group. This parameter takes as a value only the name of a dashboard group.

Note:
If the dashboard group specified in the URL does not exist, the URL returns the Dashboards overview page with the **Recent** tab selected.

The example URL shows only the dashboards in the group CMDB Overview.

```
<your-servicenow-instance.com>nav_to.do?uri=%2F
$pa_dashboards_overview.do?sysparm_group=CMDB Overview
```

Optimize widget rendering time on responsive dashboards

Large dashboards can take a long time to render, especially when widgets depend on complex queries or queries on large tables. You can use system properties to optimize how widgets load.

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Before you begin

Role required: admin

Note:
You can optimize widget rendering only for responsive dashboards.

Procedure

1. Use these two system properties to optimize dashboard widget rendering.
   The values to use for these properties depend on the performance of your instance and the contents of its dashboards.
2. You can also configure a transaction quota rule.
   Transaction quota rules enable you to set a maximum execution time for a widget or a dashboard.

Note:

There are two scenarios for a widget that takes a long time to load:

Transaction quota value is less than the performance threshold

If the widget doesn't load before the transaction quota is reached, the widget doesn't load. The following message displays: `Widget cancelled - maximum execution time exceeded`.

Performance threshold value is less than the transaction quota

The behavior is the same as if the transaction quota doesn't exist. The widget stops loading and a message is shown. You can select the widget to reload it. However, the transaction quota still applies and may halt rendering.

Related topics

Available system properties

Admin Console for Dashboards

The Performance Analytics Admin Console contains several features for dashboard management.

Explore and Manage

Navigate to **Performance Analytics** > **Admin Console**.

The Explore and Manage dashboard contains tools to find, modify, and create dashboards and indicator-related records. Click the links to manage Dashboard Groups and Dashboards.

Advanced Configuration

Navigate to **Performance Analytics** > **Admin Console**.

The **Advanced Configuration** tile on the Admin Console shows a link to Dashboard Properties.

Tree view

The Admin Console tree view enables you to identify and view the relationships between Performance Analytics and Reporting entities in a hierarchy. With the tree view, you don't have to sift through multiple pages to determine how they relate to one another. For more information, see Dependency Assessment.

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For more information on Admin Console functionality, see Performance Analytics Admin Console.

Responsive dashboard properties

Use properties to fine-tune dashboard behavior and appearance.

Navigate to **System Properties** > **Dashboard Properties** to configure the main responsive dashboard properties.

Responsive Dashboard properties

Property	Description
Enable the unified analytics workspace experience, which shows all responsive dashboards and Next Experience dashboards in the same overview in the Analytics Center. com.glide.par.unified_analytics.enabled	• Type: true | false • Default value: false • Location: **System Properties** > **Dashboard Properties** When enabled, users see both Platform Analytics and core UI (responsive) dashboards in the Analytics Center. Users can still drill down to KPI details from responsive dashboard indicator visualizations.
Apply security rules to the list of users, user groups, and roles that are visible when sharing dashboards. glide.cms.dashboards.sharing_with_secure_search	• Type: true | false • Default value: false • Location: **System Properties** > **Dashboard Properties** When enabled, the list of users, user groups, and roles that are visible in the sharing panel is restricted. The restriction is based on the configuration of the sys_user, sys_user_group, and sys_user_role ACLs. For more information, see Access control list rules. There is a performance penalty associated with enabling this property. Performance degradation may be based on the number and complexity of business rules and ACLs on your instance.
Specify a comma-separated list of roles that can share their own dashboards. glide.cms.share_dashboards.role	• Type: string • Default value: Empty When this property is empty, all users can share their own dashboards. • Location: **System Properties** > **Dashboard Properties**

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Property	Description
	Note: Properties that restrict dashboard sharing do not apply to users with the admin and dashboard_admin roles. Users with these two roles can always share any dashboard.
Maximum number of seconds for a widget to render on a responsive dashboard. glide.canvas.grid.widget_performance_threshold	• Type: integer • Default value: none • Location: **System Properties** > **Dashboard Properties** For more information, see Optimize widget rendering time on responsive dashboards.
Maximum number of widgets that can render simultaneously on a responsive dashboard. glide.canvas.grid.widget_render_concurrent_max	• Type: integer • Default value: 3 • Location: **System Properties** > **Dashboard Properties** For more information, see Optimize widget rendering time on responsive dashboards.
Number of seconds that responsive dashboard widgets are cached in the browser. glide.canvas.grid.widget_cache_ttl	• Type: integer • Default value: 2 • Location: **System Properties** > **Dashboard Properties**
Number of users, groups, and roles returned when searching for a name in the Share panel of a Responsive Dashboard. The value of this property is per category, so the default value of 100 may yield 300 results - 100 users, 100 groups, and 100 roles. glide.cms.dashboards.sharing.search.maxRecords	• Type: integer • Default value: 100 • Location: sys_properties.list Setting the value too low can cause the expected results not to be found. The minimum value is 5. Setting the value too high can cause performance issues.

Custom content PDF export limitations

When you create custom content to be placed as widgets on dashboards and home pages, you must perform extra tests before you export the content to PDF.

Outside of ServiceNow support

As with any custom implementations, several actions have limited or no support when they are beyond the control of ServiceNow.

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- Custom content blocks: Content blocks that are not part of the base system or part of a plugin.
- Custom content blocks: The number of content blocks containing report visualizations may affect export success. Successful export may also be intermittent.
- Custom interactive filters (dynamic content blocks).
- Custom Iframes, including Iframes that link back to existing UI pages and scripts.
- Custom widgets: widgets not created by ServiceNow.
- Custom Global UI scripts: UI scripts that are not part of the base system.
- Custom UI pages: UI pages that are not part of the base system.
- Custom script includes: Script includes that are not part of the base system.

PDF export engines do not render pages the same way a browser does. PDF export functionality supports the following web technologies: HTML 4, CSS2, and JavaScript 1.5. Content block developers are responsible for testing their code against PDF export and for adjusting their implementation to these limitations.

Homepage deprecation help tool

Support for homepage functionality is being phased out, and is not possible to create or edit homepages at all when Next Experience is enabled. Find all of your homepages in one place and convert them to dashboards, retire them, and restore retired homepages as dashboards.

The Homepage deprecation help tool enables system and dashboard administrators to retire homepages or convert homepages to responsive dashboards using workflows. You can track migration status and assign tasks to users and groups. Retiring personal homepages includes a request sent to the owner for approval. The Homepage deprecation help tool is a store app for users with the admin and dashboard_admin roles. To use this application, see Install the Homepage deprecation help tool.

To find the dashboard versions of converted homepages, navigate to **All** > **Self Service** > **Dashboards**.

To access the Homepage deprecation dashboard, navigate to **All** > **Homepage deprecation help tool** > **Overview**.

Homepage deprecation help tool features

Use the Homepage deprecation help tool to find all of your homepages in one place and convert them to dashboards, retire them, and restore retired homepages as dashboards.

To access the Homepage deprecation dashboard, navigate to **All** > **Homepage deprecation help tool** > **Overview**.

Before you use the homepage deprecation help tool, perform these two steps. A user with the admin role must change the system property. A user with the admin role or a user with both the dashboard_admin and flow_designer roles can populate the homepage migration status table.

1. Disable the creation of new homepages: Set the system property *com.glideapp.home.deprecate_homepages* to true.

   Important:
   When set to true, this property disables the creation of new homepages and sets the default start page or landing page to Dashboards. Menu items and URLs that open homepages will continue to point to those homepages. Otherwise, homepages are unavailable and should be migrated using this tool.

2. Populate the homepage migration status table.

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The Homepage deprecation dashboard has four tabs:

Overview

The overview enables you to start the deprecation process and view the general status of the homepages on your instance.

Personal homepages

A list of all the homepages that are owned by individuals who are inactive or locked out of the instance. Personal homepages are different than Global homepages, which are accessible to all users.

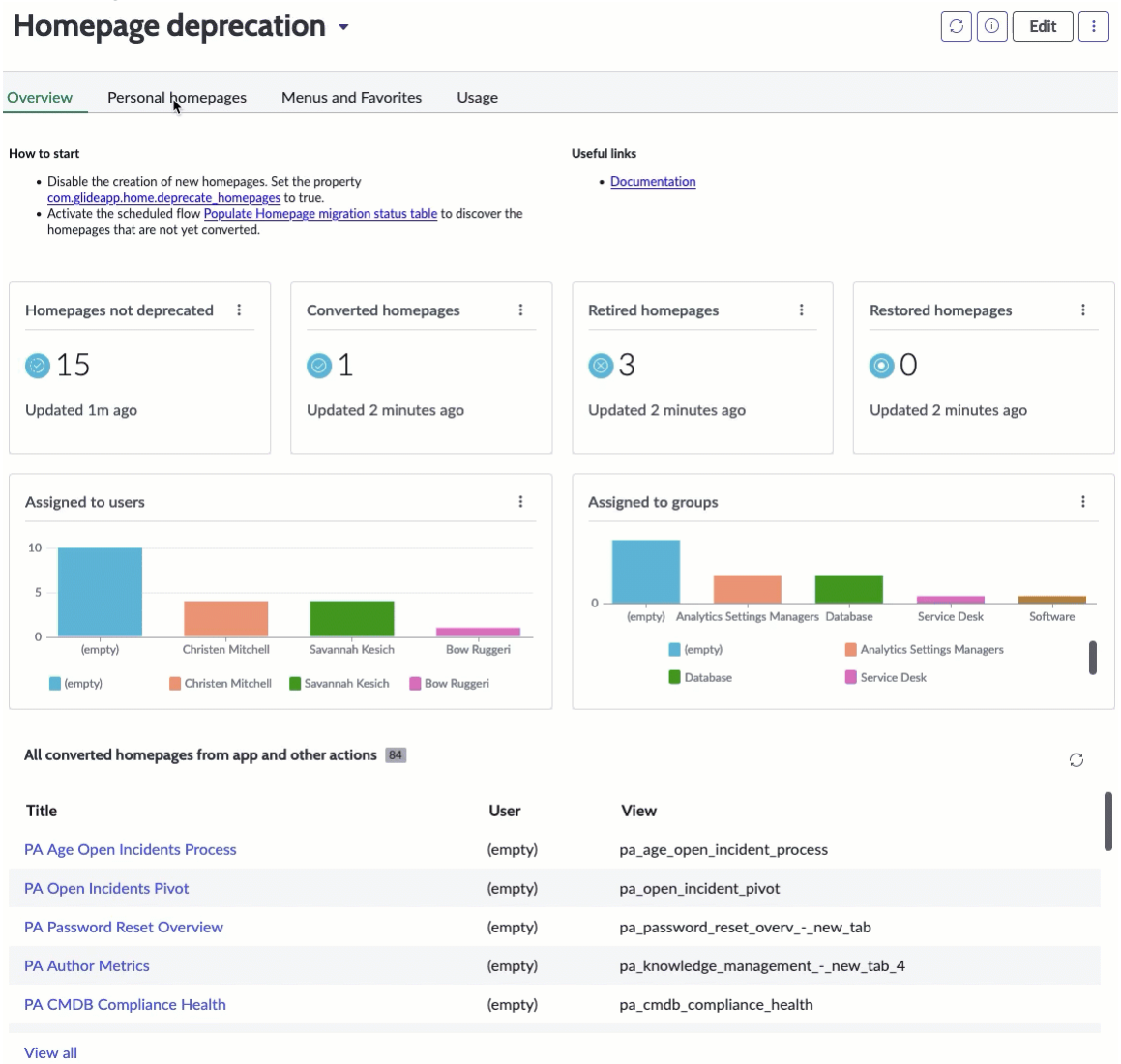
Menus and Favorites

Lists of homepages that appear on configured menus and homepages that are marked as favorites by users. In the first case, you must reconfigure the menu item to point to the converted dashboard. In the second case, you must alert users to mark the new converted dashboard as a favorite.

Usage

A list of all the homepages that have not been viewed in the last 30 days.

Homepage deprecation dashboard



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Overview tab

The **Overview** tab includes links for getting started and several reports that enable you to choose homepages that need attention.

In the **How to start** section, admins have links to disable creation of new homepages and to populate the homepage migration status table.

Report	Type	Description
Homepages not deprecated	42 Single score	Number of homepages that you have not converted or retired. Select this report to see the associated homepages on the Homepage migration status table.
Converted homepages	42 Single score	Number of homepages that you've converted to responsive dashboards. Select this report to see the associated homepages on the Homepage migration status table.
Retired homepages	42 Single score	Number of homepages that you've retired. Select this report to see the associated homepages on the Homepage migration status table.
Restored homepages	42 Single score	Number of retired dashboards that you've restored as responsive dashboards. Select this report to see the associated homepages on the Homepage migration status table.
Assigned to users	Bar report	Homepages that are assigned to users. The bar labeled **empty** accounts for homepages that don't have any assigned users. Select any bar in this report to see the associated homepages on the Homepage migration status table.
Assigned to groups	Bar report	Homepages that are assigned to groups. The bar labeled **empty** accounts for homepages that don't have any assigned groups. Select any bar in this report to see the associated homepages

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(continued)

Report	Type	Description
		on the Homepage migration status table.
All converted homepages from app and other actions	List report	All dashboards that have been converted from homepages, whether in the help tool, or by other means.

Personal homepages

This tab shows a list of the homepages whose owners are inactive or otherwise locked out. These homepages may be good candidates for retirement. Select the link to open a filtered list containing only the personal homepages to retire or convert them.

Menus and Favorites

The Menus and Favorites tab has three lists.

Homepages connected to menus

Shows the homepages that are connected to menus in the filter navigator. When you convert or retire these homepages, you must point the menu item to the converted dashboard or remove the menu item.

Homepages connected to favorites

Shows homepages that users identify as a favorite. When you convert or retire these homepages, tell them that they should mark the converted dashboard as a favorite.

Menus and Modules connected to Homepages

Shows homepages that appear in the filter navigator as either menu items or modules. Edit the menu and module items to open the converted dashboard. Remove menu or module items that open retired homepages.

Usage

The Usage tab shows a list of all homepages not viewed in the last 30 days. These homepages may be good candidates for retirement.

Install the Homepage deprecation help tool

To convert, retire, and restore homepages, install the Homepage deprecation help tool.

Before you begin

Role required: admin.

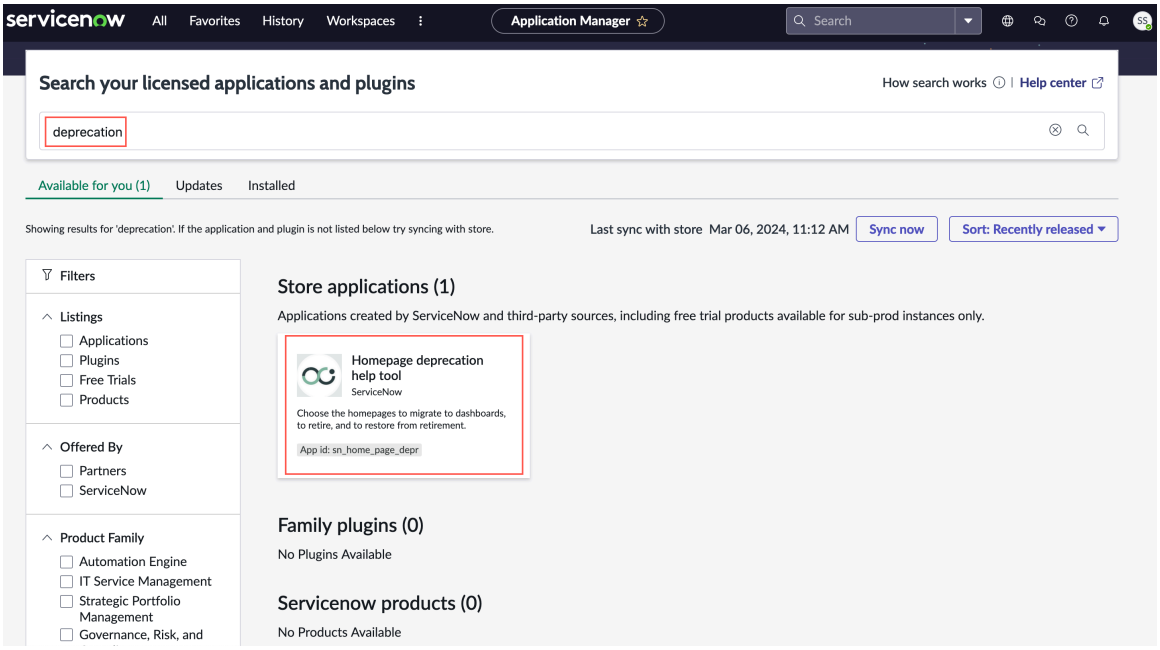
About this task

The Homepage deprecation help tool is a store app. For more information about installing store apps, see Install a ServiceNow Store application.

Procedure

1. Navigate to **All** > **System Definition** > **Plugins**.
2. Find the Homepage deprecation help tool application using the filter criteria and search bar. You can search for the application by its name or ID. If you can't find an application, you may have to request it from the ServiceNow Store.

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3. Select the help tool's button to open the summary page for the application.
4. Select a version from the list and select **Install**.

   In the Review Installation Details dialog box, any dependencies installed with your application are listed.
5. If you're prompted, follow the links to the ServiceNow Store to get any additional entitlements for dependencies.
6. Select a version from the list and select **Install**.

   In the Review Installation Details dialog box, any dependencies installed with your application are listed.

Convert homepages to individual dashboards

Populate the Homepage migration status table and then determine which homepages to convert to dashboards. You can convert homepages to individual dashboards or you can convert multiple homepages to tabs on the same dashboard.

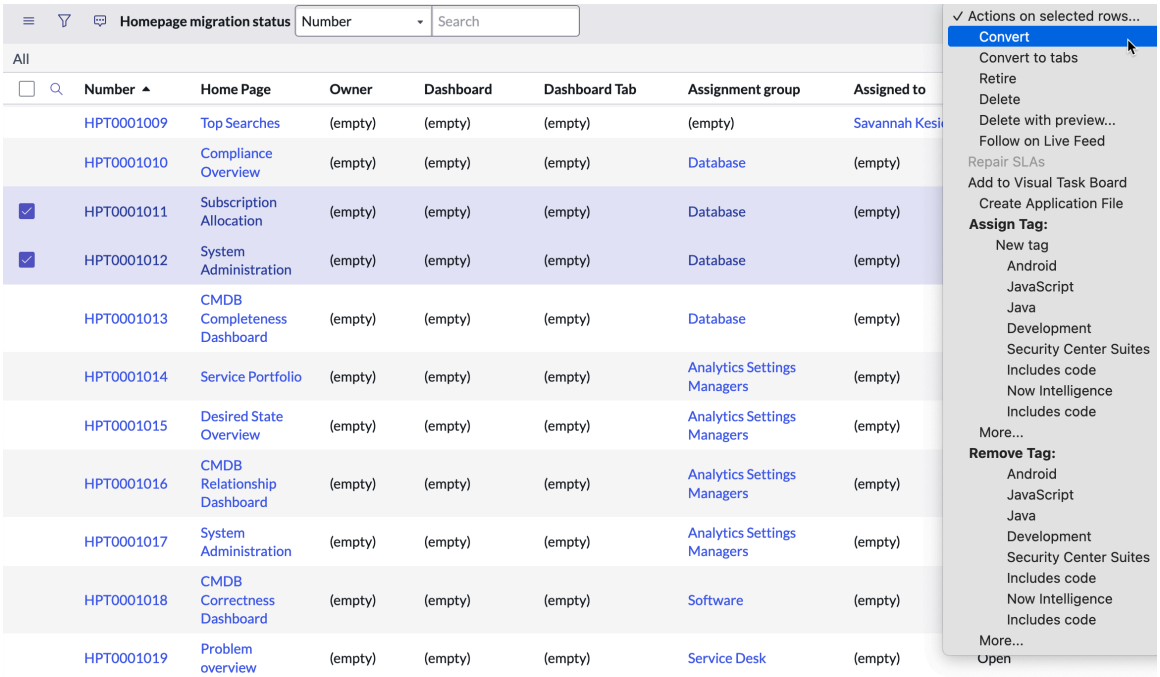
Before you begin

Role required: admin or dashboard_admin.

Procedure

1. Navigate to **All** > **Homepage deprecation help tool** > **Homepage migration status**.
   All unaddressed homepages have the state **Open**.
2. Select the boxes next to the homepages that you want to convert.
3. From the **Actions on selected rows** menu, select `Convert`.

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The Convert flow triggers the script to create a separate dashboard and move the permissions canRead and canWrite to the dashboard's permission.

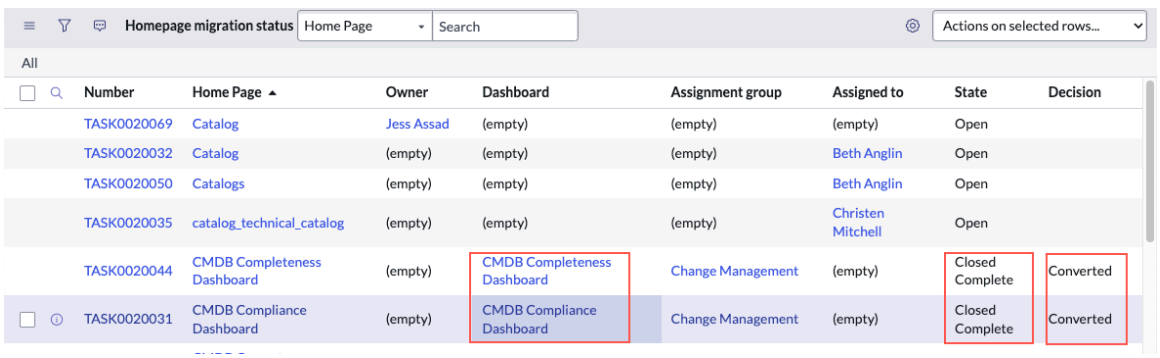
The Retire flow automatically retires personal homepages, and sets the **Selectable** field to false and assigns the read/write permission to the admin user.

The flow asks permission of owners of non-personal homepages to retire them. The permission flow includes a 14-day waiting period for permission.

Result

Users no longer have access to converted homepages. They can find the dashboard versions of their homepages on the Dashboards overview. Navigate to **All** > **Self Service** > **Dashboards**. Select the **All** tab to show all dashboards that you have permission to view.

- The Dashboard column is populated with the names of the new dashboards and links to the dashboards' forms.
- Entries in the **State** column for the converted dashboards are changed to Closed complete.
- Entries in the **Decision** column are changed to Converted.



What to do next

Update menus that open converted homepages to open the new dashboards.

Navigate to **All** > **Self Service** > **Dashboards**. Open the **All** tab to see the tiles for the converted dashboards.

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Retire a homepage.

Convert homepages to dashboard tabs

After you populate the Homepage migration status table, you can convert one or more homepages to tabs on new or existing dashboards.

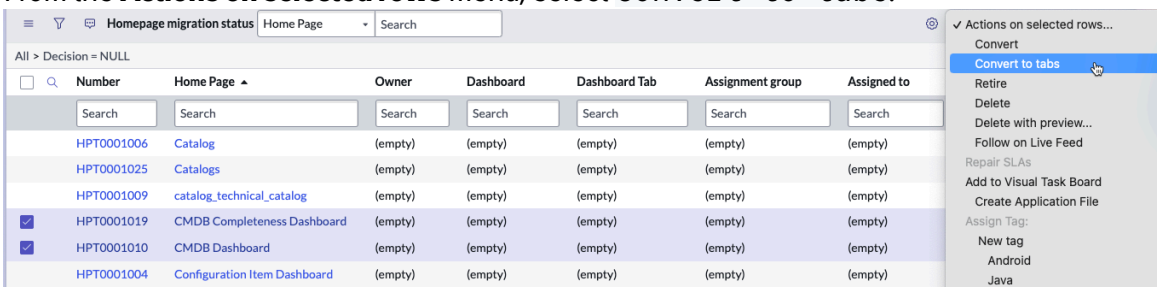
Before you begin

Role required: admin or dashboard_admin.

> **Note:**
> To convert one or more homepages to dashboard tabs, the homepages must have the same owner.

Procedure

1. Navigate to **All** > **Homepage deprecation help tool** > **Homepage migration status**.
   All unaddressed homepages have the state Open.
2. Select the boxes next to the homepages that you want to convert.
3. From the **Actions on selected rows** menu, select `Convert to tabs`.



4. Select an existing dashboard or set the title for a new dashboard.
   If you select an existing dashboard, the homepages are added as tabs after the existing tabs. If you set a title for a new dashboard, the new dashboard includes tabs for each of the homepages that you added.

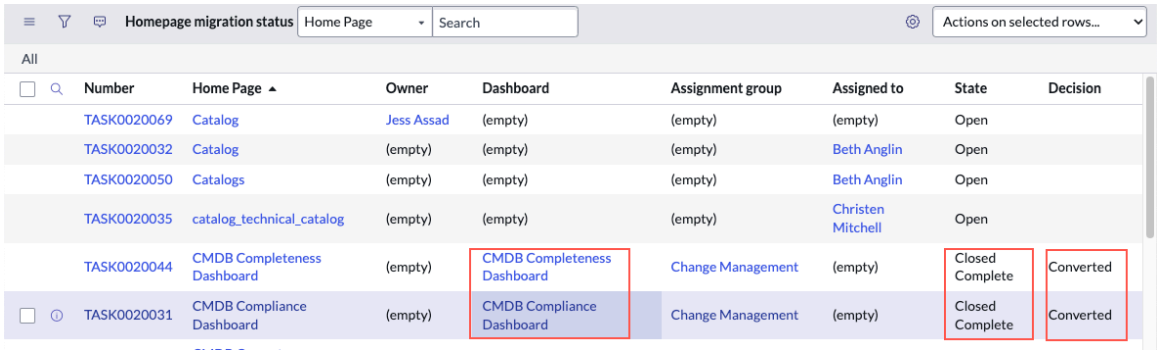
   The convert flow triggers the script to create a new separate dashboard and move the permissions canRead and canWrite to the dashboard's permission.

Result

Users no longer have access to converted homepages. They can find the dashboard versions of their homepages on the Dashboards overview. Navigate to **All** > **Self Service** > **Dashboards**. Select the **All** tab to show all dashboards that you have permission to view.

- The Dashboard column is populated with the names of the new dashboards and links to the dashboards' forms.
- The Dashboard Tab column is populated with the names of the new dashboard tabs and links to the dashboard tabs' forms.
- Entries in the State column for the converted dashboards are changed to Closed complete.
- Entries in the Decision column are changed to Converted.

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What to do next

Update menus that point to the converted homepages to point to the new dashboards.

Navigate to **All** > **Self Service** > **Dashboards**. Open the **All** tab to see the tiles for the converted dashboards.

Retire a homepage.

Retire a homepage

Use the homepage migration status table to retire homepages. When you retire a homepage, you remove visibility and editing options from all but the admin.

Before you begin

Role required: admin or dashboard_admin.

1. Disable the creation of new homepages: Set the system property *com.glideapp.home.deprecate_homepages* to true.

> **Important:**
> When set to true, this property disables the creation of new homepages and sets the default start page or landing page to Dashboards. Menu items and URLs that open homepages will continue to point to those homepages. Otherwise, homepages are unavailable and should be migrated using this tool.

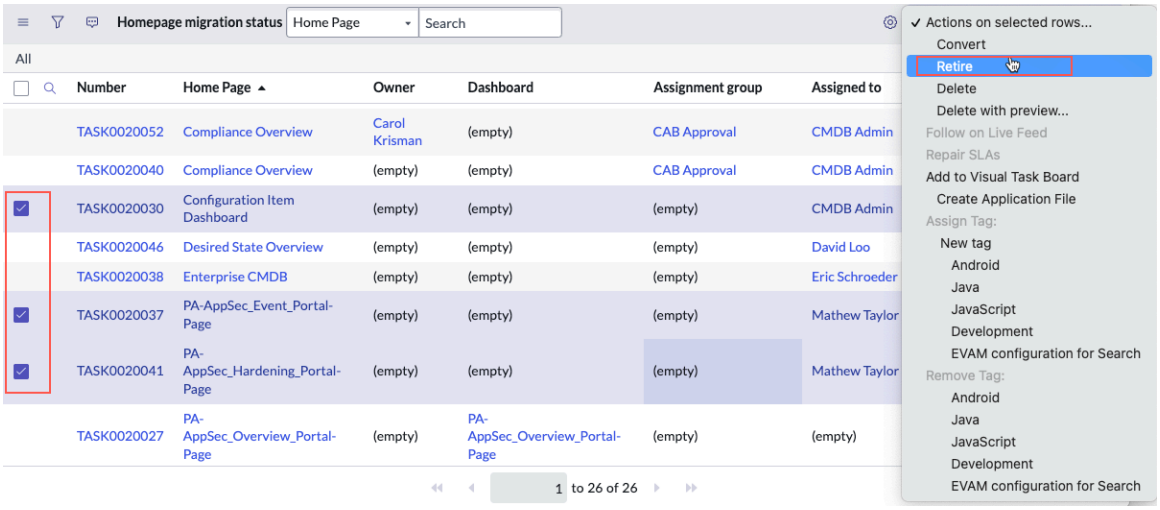
2. Populate the homepage migration status table.

> **Note:**
>
> When you retire a homepage, users can no longer select the associated portal pages and only the admin has read and write permissions on the pages.
>
> To configure the time limit to respond to a retirement request, edit the system property *sn_home_page_depr.approval_due_date*.

Procedure

1. Navigate to **All** > **Homepage deprecation help tool** > **Homepage migration status**.
2. Check the boxes next to the homepages that you want to retire.
3. From the **Actions on selected rows** menu, select `Retire`.

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- If the homepage is a Global homepage, meaning one with no specified owner, it is retired and the task state is set to **Closed complete** immediately.
- If there is no response from the owner of a personal homepage within the time limit, the homepage is retired and the task state is set to **Closed complete**.
- If the owner rejects the retirement request, the homepage is converted to a dashboard.

Result

Changes are made on the homepage migration status table.

- Entries in the State column for the converted homepages are changed to **Closed complete**.
- Entries in the Decision column for retired homepages are changed to **Retired**.
- Entries in the Decision column for homepages the owner rejects for retirement are changed to **Converted**.
- Personal homepages of users who are inactive or locked out no longer appear on the **Personal homepages** tab of the Homepage deprecation dashboard.
- Read and write permissions for retired homepages are limited to admin.

What to do next

Restore a homepage

Restore a homepage

Restore retired homepages as dashboards.

Before you begin

You may find that the stakeholders of a retired homepage still want its information. You can restore that retired homepage as a responsive dashboard.

Role required: admin or dashboard_admin.

Procedure

1. Navigate to **All** > **Self Service** > **Service Catalog**.
2. Select **Can we help you**.
3. Select **Restore Homepage**.

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4. Enter the name of the retired homepage or use the search icon () to find the retired homepage.
5. Select **Submit**.

Result

The retired homepage is converted to a dashboard. The Homepage Migration Status table shows these changes.

- The Dashboard column is populated with the name of the new dashboard.
- The entry in the State column for the restored homepage is changed to Closed complete.
- The entry in the Decision column is changed to Restored.

Homepage migration status table

Use the Homepage migration status table to address homepage retirement and conversion.

The homepage migration status table lists the homepages on your instance that are not associated with dashboards or dashboard tabs. It also shows the decisions made by an administrator about the status of each one. You can access the homepage migration status table from most of the visualizations on the Overview tab or you can navigate to **All** > **Homepage deprecation help tool** > **Homepage migration status**. For more information, see Homepage deprecation help tool.

The table contains the following columns.

Column	Description
Task	Shows the number for the task associated with migrating the homepage. Choose the hyperlink to view the task form.
Home Page	Shows the title of the homepage with a link to its form
Owner	This field is populated with the name of the owner if the homepage is personal. Otherwise, this field is labeled empty.
Dashboard	Populated if there is a dashboard version of the homepage.
Assignment group	Populated when one or more homepages are assigned to a group to address in the tool.
Assigned to	Populated when one or more homepages are assigned to a single user to address in the tool.
State	There are two possible states. • Open, if the admin hasn't addressed the homepage. • Closed Complete, if the homepage is converted, retired, or restored.
Decision	Converted, Retired, or Restored

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Populate the homepage migration status table

The Homepage migration status table enables you to address homepage retirement and conversion. Run a scheduled workflow to populate the homepage migration status table with information about the homepages on your instance.

Before you begin

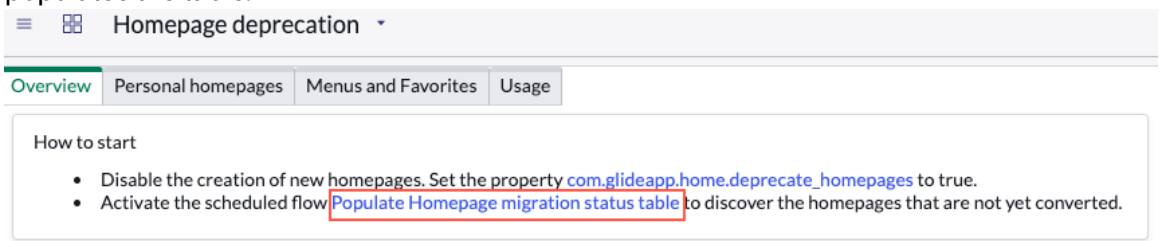
Role required: admin.

The populate flow has a limit of 1000 sys_portal_pages per execution. You can leave the populate flow running for multiple days. The flow adds more records to the Homepage migration status table in batches of 1000.

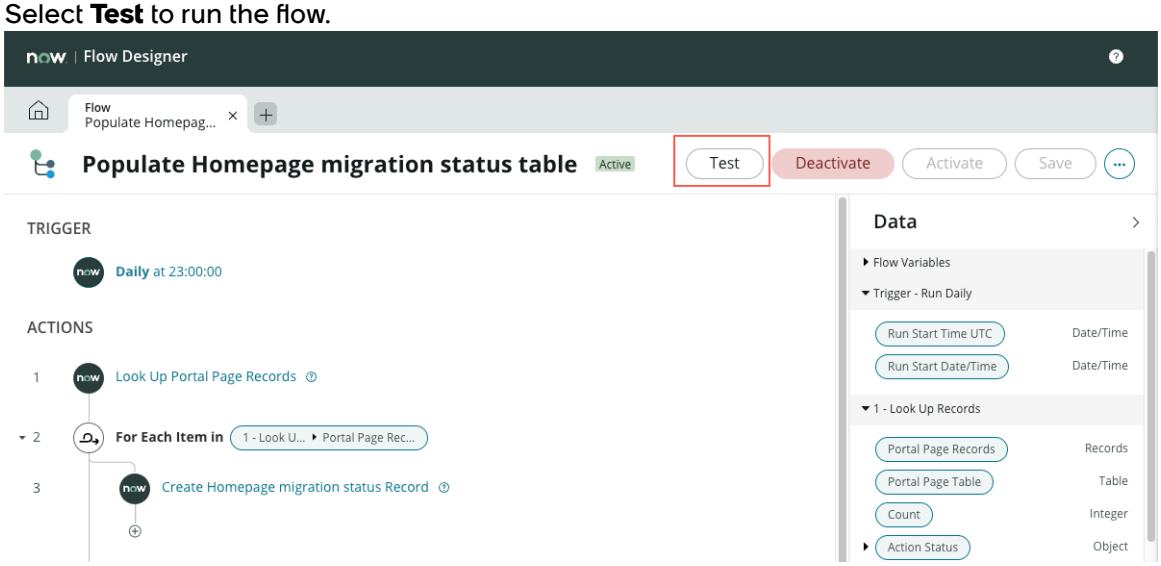
Note:
In domain separated instances, the flow to populate the homepage migration status table runs only on the global instance.

Procedure

1. Navigate to **All** > **Homepage deprecation help tool** > **Overview**.
2. Select the link labeled **Populate Homepage migration status table** to open the flow that populates the table.



3. In the Flow Designer, select the trigger to specify when you want the populate flow to run. The default trigger is daily at 23:00:00.
4. Select **Activate**.
5. Select **Test** to run the flow.

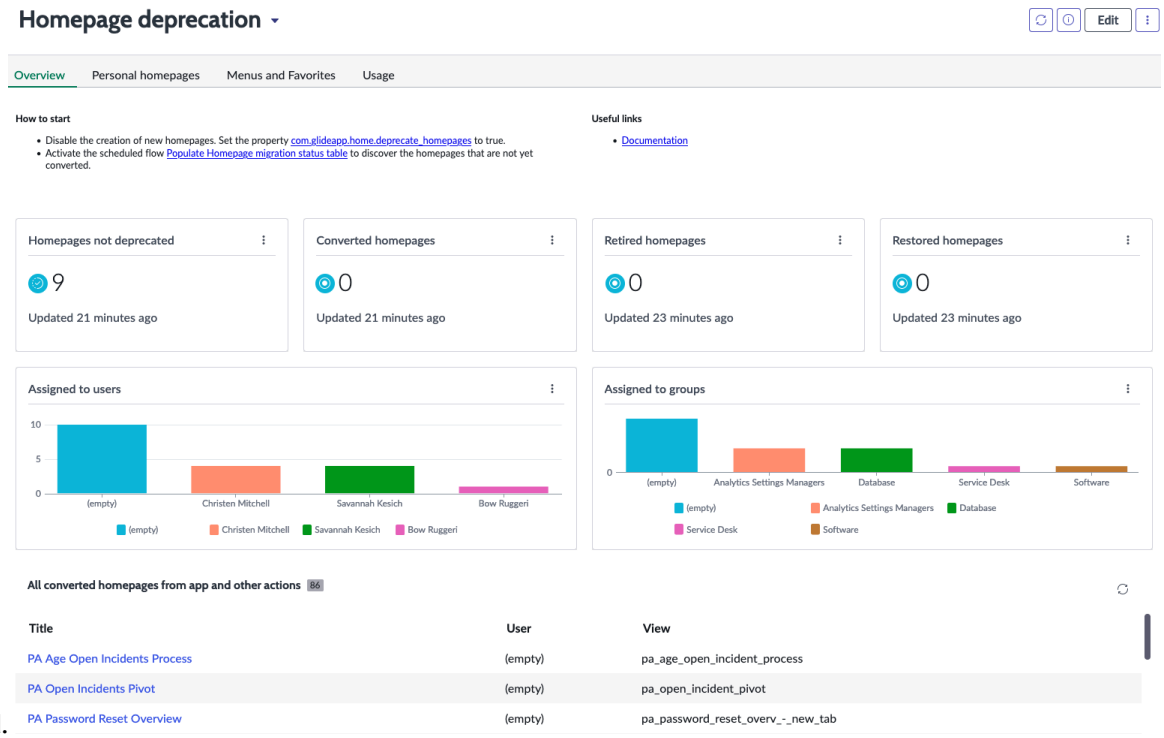


6. Select **Run Test**.
When you see the message `Your test has finished running`, close the Test Flow window and return to the **Overview** tab.

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Result

The Overview tab of the Homepage deprecation help tool is populated with the number of homepages not deprecated.



Populate the homepage migration status table for multiple domains

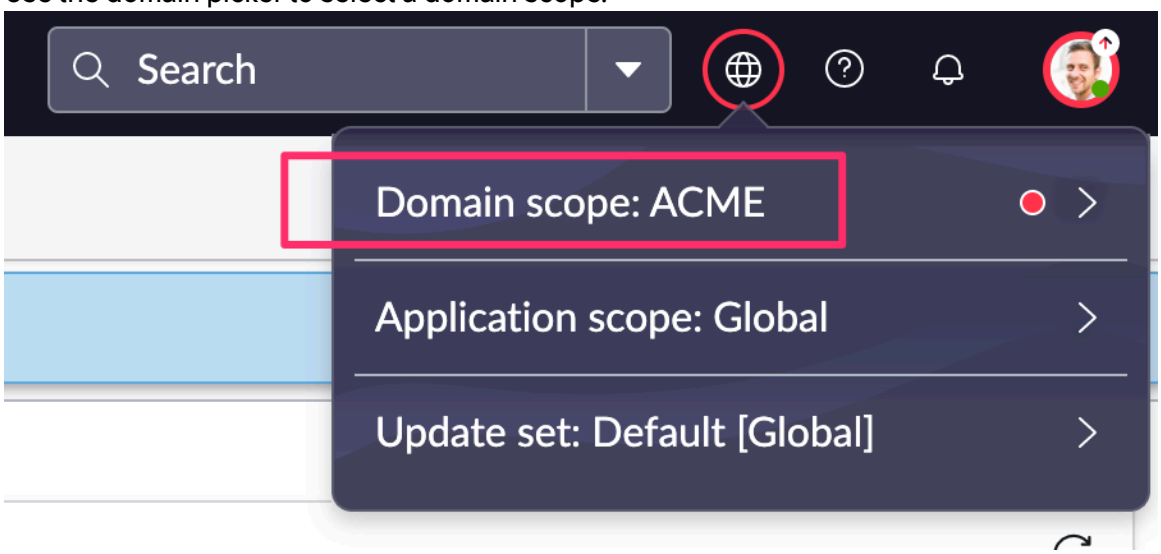
By default, the flow to populate the homepage migration status table applies only to the global domain. You can create a flow to apply to the other domains in your instance.

Before you begin

Role required: admin

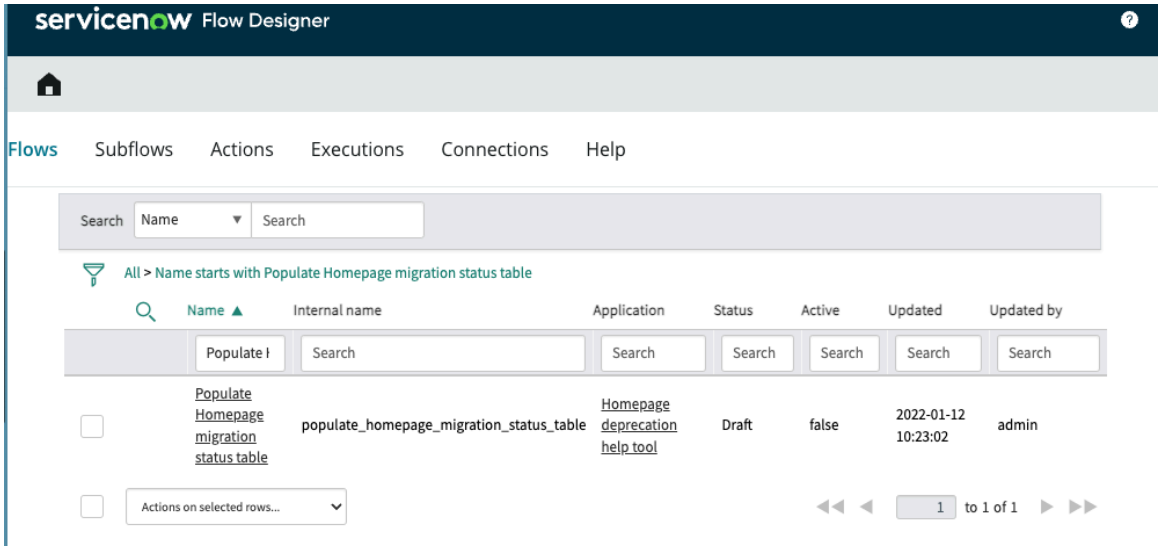
Procedure

1. Use the domain picker to select a domain scope.

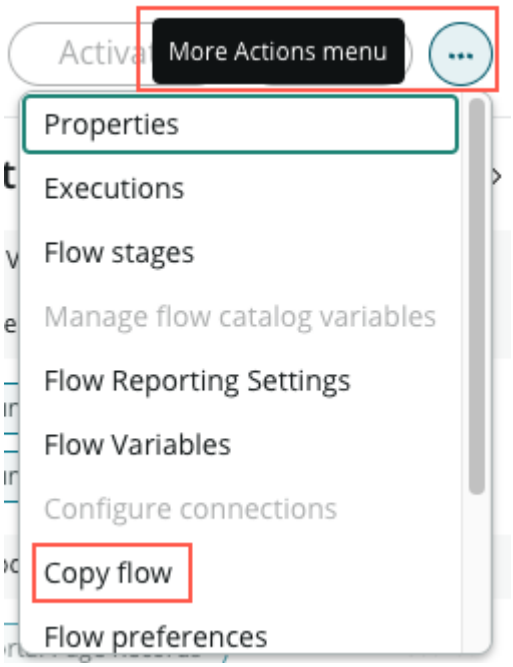


2. Navigate to **All** > **Flow Designer**.
3. Find the Populate Homepage migration status table flow and open it.

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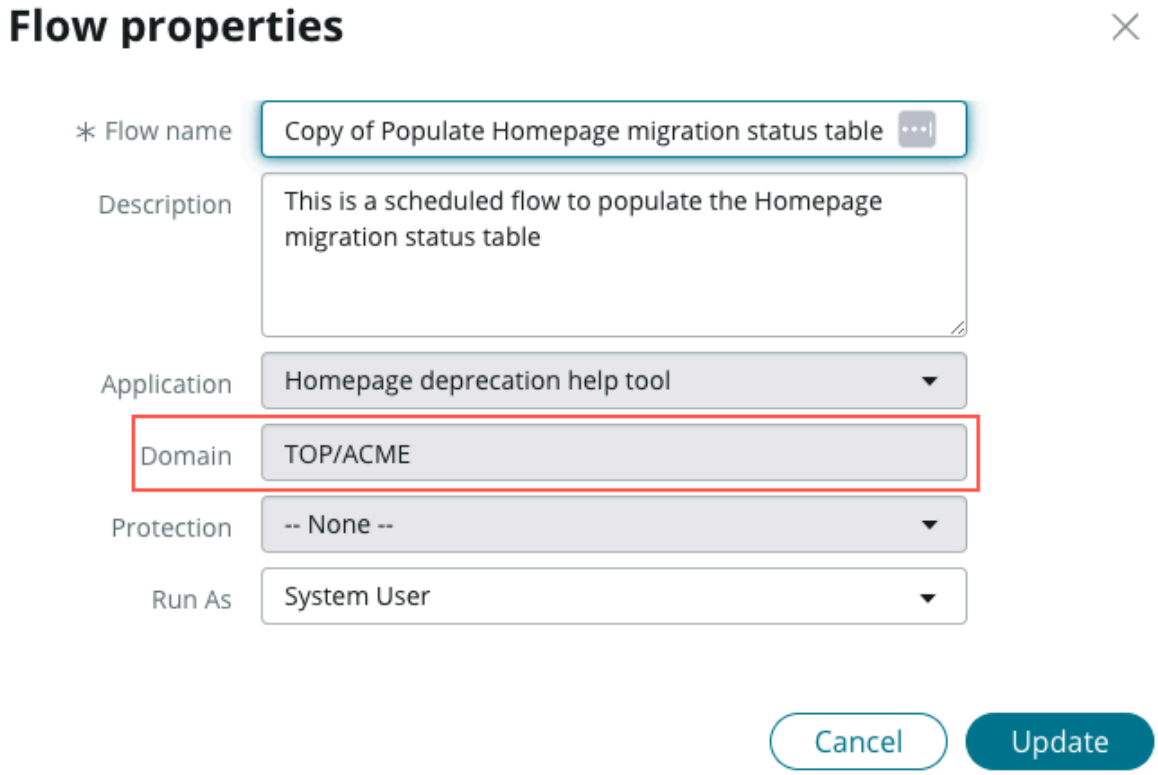
4. Select the **More Actions** menu and choose **Copy Flow**.



5. Select the application `Homepage deprecation help tool` and select **Copy**.
6. Select the **More Actions** menu and choose **Flow properties**.

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The flow points to the selected domain scope.



Widgets

Objects that have been added to dashboards in Core UI are called widgets. You can create and manage widgets. Many applications have their own widgets. See an application's documentation for information about the widgets included with the application.

Each widget type enables you to do something different on a dashboard. Follow the links for each type to learn how to create and edit the widgets on your dashboard.

Widgets are not available for Platform Analytics experience dashboards. Widgets are iframed on Core UI dashboards that are migrated to Platform Analytics experience.

Note:
Responsive dashboards do not support the Sticky Notes widget.

Widget types include:

Reports

Report visualizations are snapshots of your data that show the state of your information in real time. For more information, see Reporting.

Performance Analytics

Performance Analytics widgets visualize information based on indicator data collected over time. For more information, see Performance Analytics widgets.

Interactive Filters

Interactive Filters allow you to filter all reports on a dashboard dynamically, without modifying the original reports. For more information, see Interactive Filters.

Content Blocks

Content blocks are pieces of information that you can reuse across your instance. For more information, see Configure a content block.

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Create a widget that displays a ServiceNow UI page

You can create a ServiceNow UI page that displays a web page. You can then add that UI page to a widget that can be added to dashboards.

Before you begin

Role required: admin

About this task

A UI page is a ServiceNow page that is not a list or a form. Not every UI page will fit in a widget. Some UI pages, such as external site widgets or gadgets, don't display properly when placed in a dashboard.

To learn how to make a UI page without using a framework page template, see the Making a UI page without using the framework page template blog posting by a developer in the ServiceNow Community.

Note:
This functionality requires a knowledge of JavaScript.

Procedure

1. Create or find a ServiceNow UI page that you want to display as a widget.
   Note the name of this UI page, to use in Step 4. The UI page name is the value of the name field in the form where you define the content of the UI page.
2. Navigate to **System UI** > **Widgets** and click **New**.
   Widgets records are widget category records, not records for individual widgets. When adding a widget to the dashboard, first select the category and then the widget. The JavaScript you specify in step 4 includes the list of widgets to include in that category.
3. Fill in the following fields.
4. Add the following JavaScript in the **Script** field, making replacements as specified.
   The return statement contains the widgets listed in this widget category.

Note:
The code snippet in this step works in non-scoped applications. Use the code snippet in step 5 for scoped applications.

widget_name	The name of the widget that the user selects in the widget picker when adding the widget to a dashboard. This string also appears on the widget header. This value is the Name that you configure in step 3.
UI_page_name	The name of the UI page from step 1 to show in the widget.

```
function sections() {
    return {
        'widget_name': { 'uiPageName' : 'UI_page_name'},
        'widget_name2': {'uiPageName': 'UI_page_name_2'}
    };
}

function render() {
```

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```
    var uiPageName =
 renderer.getPreferences().get("uiPageName");
    return renderer.getRenderedPage(uiPageName);
}

function getEditLink() {
    var uiPageName = renderer.getPreference('uiPageName');
    return 'sys_ui_page.do?sysparm_query=' +
 encodeURIComponent('name=' + uiPageName);
}
```

5. **Optional:** Use this code example for scoped applications:

```
function sections() {
    return {
    'Widget': {
    'type': 'widgetname'
    }
    };
}

function render() {
    var scope = gs.getCurrentScopeName();
    scope = (scope == "rhino.global" ? "" : scope + "_");
    var page = renderer.getPreference('type');
    return renderer.getRenderedPage(scope + page);
}

function getEditLink() {
    var scope = gs.getCurrentScopeName();
    scope = (scope == "rhino.global" ? "" : scope + "_");
    var page = renderer.getPreference('type');
    return "sys_ui_page.do?sysparm_query=name=" + scope + page;
}
```

6. Click **Submit**.

What to do next

Edit a responsive dashboard

Interactive Filters

Interactive Filters allow you to filter all reports on a dashboard dynamically, without modifying the original reports.

You can create an interactive filter and add it to a dashboard as a widget. Selecting a value in the Interactive Filter widget filters the data in reports on the dashboard. On dashboards, selected filters are saved for each user and applied automatically the next time that user views the dashboard.

Core UI interactive filter functionality is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed. For updated filtering functionality, see Filters in Platform Analytics.

To create an interactive filter, see Creating Interactive Filters of different types and choose the filter type.

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Interactive filters on homepages do not retain default values or retain values across logins or page refreshes. This functionality is available on dashboards. For more information, see Convert homepages to individual dashboards.

Important:

- Performance Analytics widgets on the dashboard do not follow interactive filters. Separately filter those widgets on the same breakdown source by using the breakdown dashboard controls. For more information, see Using breakdowns on dashboards and Make a breakdown act as an interactive filter.
- Interactive filters are not supported for reports that are based on a MetricBase source. For more information, see MetricBase.

For information about unified filters in Platform Analytics, see Filters in Platform Analytics.

Creating Interactive Filters of different types

You can create and configure Interactive Filters for multiple field types.

Before you create an interactive filter, choose which type of filter to create.

Interactive filter types

Type	Description
Choice list	Allows you to filter data based on the value of a specific choice list. You must select the table and choice list field. The filter affects reports on the specified table.
Reference	Allows you to filter data based on the value of one or more reference fields. You must select the referenced table, as well as reference fields from other tables. The filter affects reports on tables that have the specified reference fields. **Note:** Reference interactive filters do not support string fields.
Date	Allows you to filter data based on the value of one or more date fields. You must select the tables and date fields. The filter affects reports on the specified tables.
Boolean	Allows you to filter data based on the value in a specific true/false field. You must select the table and the true/false field. The filter affects reports on the specified table.
Group	Allows you to display multiple interactive filters in a single widget on a dashboard. Users viewing the dashboard can select which grouped filters to apply.
Empty/ non-empty	Filter based on whether a field contains a value.
Cascading	Allow you to filter based on multiple values in a hierarchy, such as by region, country, and city.

Create a choice list interactive filter

A choice list interactive filter enables users to filter report widgets based on the value of a choice list.

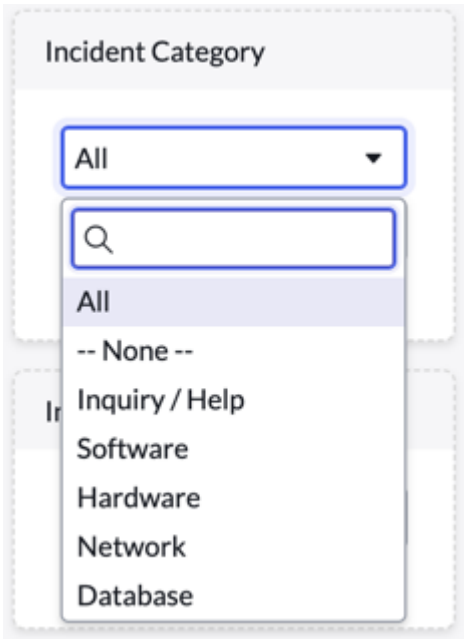
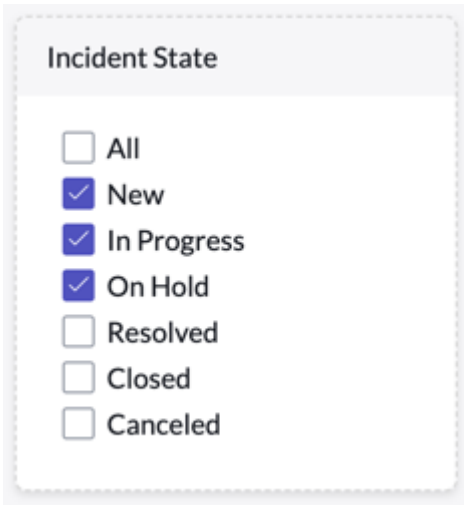
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Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

Choice lists contain a limited number of specified values to choose from. Status and Priority are two examples of choice lists. User and location are not usually choice list selections. For more information, see Choice list field type.

When a user selects `All`, they do not see a report with all filter options applied, they see the unfiltered report.

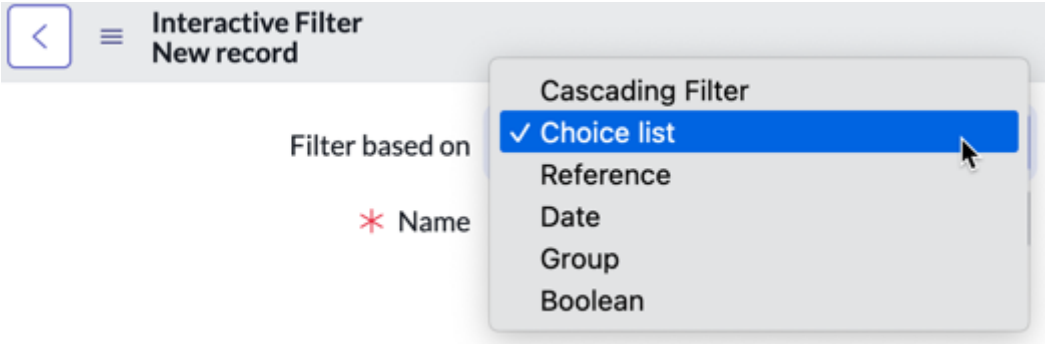
Choice list filter - single select	Choice list filter - Check boxes
	

Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

Procedure

1. **Optional:** Check the existing interactive filters on the same table.
   a. Navigate to **sys_ui_hp_publisher.list** and select an interactive filter based on the same table you want to filter.
   b. Under Related Links, select **Other filters on Table**.
   c. Review the other filters that are available on the same table to see if the filter you want already exists.
2. Navigate to **sys_ui_hp_publisher.list**.
3. Select **New**.
4. In the **Filter based on** list, select **Choice list**.

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5. Set the following fields:

Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.
UI control type	Select how the available filtering options for this filter appear on the dashboard widget. See Available interactive filter UI control types.

6. **Optional:** Select **Apply to all tables in hierarchy** to apply the filter to parent, child, and sibling tables of an extended table.
7. **Optional:** Select **Apply filter to database views and tables** to apply the filter to widgets based on both database views and tables.

   Note:
   It is not possible to apply filters to tables that extend the database view's tables. For more information, see Interactive filters on database views and table hierarchies.

8. **Optional:** Exclude specific elements from appearing on the filter using the **Exclusion list**. However, data for excluded choices is included when you select **All** on the interactive filter.
9. In the **Table** list, select the table that contains the choice list to filter on.
10. In the **Field** list, select the field to filter on.
11. **Optional:** Add any list elements you want to exclude from the filter to the **Exclusion list** field.
12. **Optional:** Select a **Default value** for the filter.
    This default is applied automatically for all users. Values that a user selects override the global default for that user. You can specify more than one default value when using a UI control type that enables multiple selections, such as **Select Multiple Input**.

    Note:
    To pass more than 50 default values, or if you see the error `This is exceeding the GET call limitation`, create multiple interactive filters.

13. Select **Submit**.

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What to do next

1. After you create the filter, add it to a dashboard.
2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

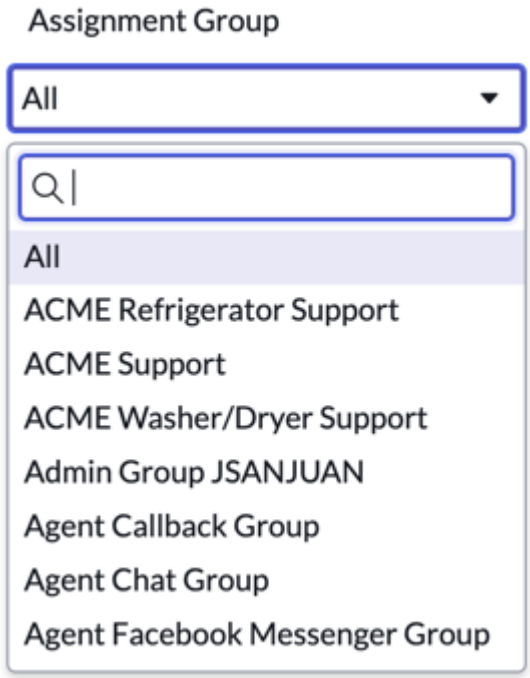
Create a reference field interactive filter

A reference field interactive filter allows users to filter report widgets based on the value of a reference field.

Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

When a user selects `All`, they do not see a report with all filter options applied, they see the unfiltered report. This example of reference filter provides filter options from the Assignment Group field on the Group [sys_user_group] table.



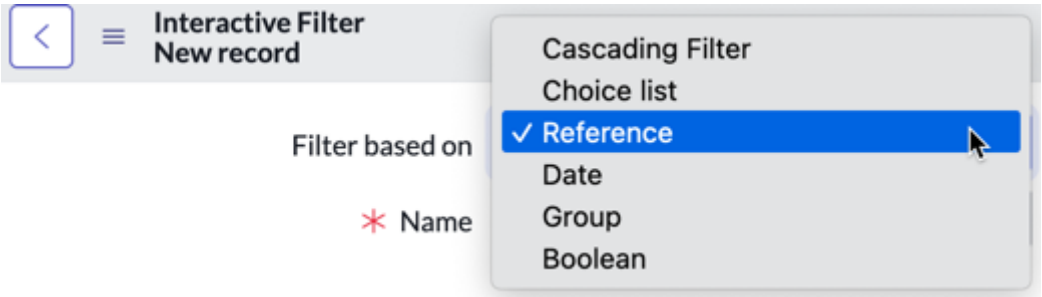
Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

Procedure

1. **Optional:** Check the existing interactive filters on the same table.
   a. Navigate to **sys_ui_hp_publisher.list** and select an interactive filter based on the same table you want to filter.
   b. Under Related Links, select **Other filters on Table**.
   c. Review the other filters that are available on the same table to see if the filter you want already exists.
2. Navigate to **sys_ui_hp_publisher.list**.

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3. Click **New**.
4. In the **Filter based on** list, select **Reference**.



5. In the **Reference table** list, select the table that stores the referenced records you want to filter on.
6. **Optional:** Select a **Default value** for the filter.
   This default is applied automatically for all users. Values that a user selects override the global default for that user. You can specify more than one default value when using a UI control type that enables multiple selections, such as **Select Multiple Input**.

   Note:
   To pass more than 50 default values, or if you see the error `This is exceeding the GET call limitation`, create multiple interactive filters.

7. Set the following fields:

Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.
UI control type	Select how the available filtering options for this filter appear on the dashboard widget. See Available interactive filter UI control types.
Show only search results that start with keyword	When selected, searches return only the results that start with the search term. Otherwise, searches return results that contain the search term anywhere. Consider this option when you are setting up a reference filter on a very large table, for example one with millions of records. A search on a common term may return too many records to be managed.

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8. **Optional:** Select **Apply filter to database views and tables** to apply the filter to widgets based on both database views and tables.

   Note:
   It is not possible to apply filters to tables that extend the database view's tables. For more information, see Interactive filters on database views and table hierarchies.

9. Right-click on the form header and select **Save**.
10. **Optional:** If the UI control type is `Select Single Input`, select **Remove All option** to configure the interactive filter without the All option.
    When a user selects `All`, they do not see a report with all filter options applied, they see the unfiltered report.
11. In the **Interactive filter references** related list, select **New**.
    This related list does not appear until you save the filter.
12. In the **Reference table** field, select a table that has reports that you want to filter.
13. Select the **Reference field** to filter on.

    The field must reference the table specified in the parent filter **Reference table** field.

    You can dot-walk from fields that reference other tables. For example, if the parent filter **Reference table** is Department [cmn_department], you can select Incident as the reference **Reference table**, then select **Caller Department** as the **Reference field**.

    Note:
    Reference interactive filters do not support string fields.

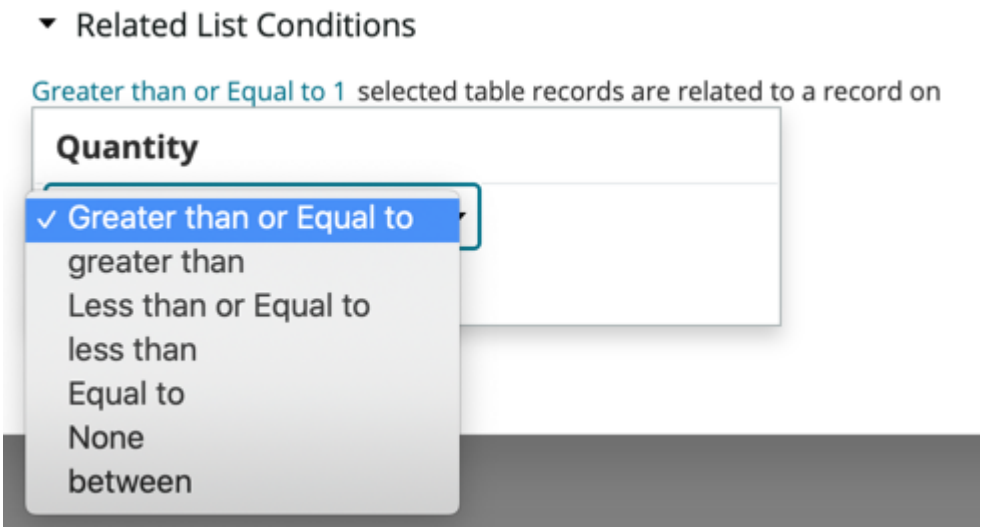
14. **Optional:** Add a related list condition.
    You can add a condition to your filter based on the records in one related table.

    a. Click the link labeled **Greater than or Equal to 1**.
    From the list, select the number of records on the source table that must be related to a record on the target table.

    The options are:

    - Greater than or Equal to
    - Greater than
    - Less than or Equal to
    - Less than
    - Equal to
    - None
    - Between

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b. Choose the related table.

c. Specify the conditions on that table that must be met for the filter to be valid.

15. Click **Submit**.

What to do next

Repeat steps 10–13 as needed for each reference field you want to filter on. After you create the filter, add it to a dashboard.

Note:
A filter may be converted from the **Check boxes** control type to the **Select Multiple Input** control type for performance reasons.

1. After you create the filter, add it to a dashboard.

2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

Related topics

Reference field type

Creating Interactive Filters of different types

Add related list conditions

Create a date interactive filter

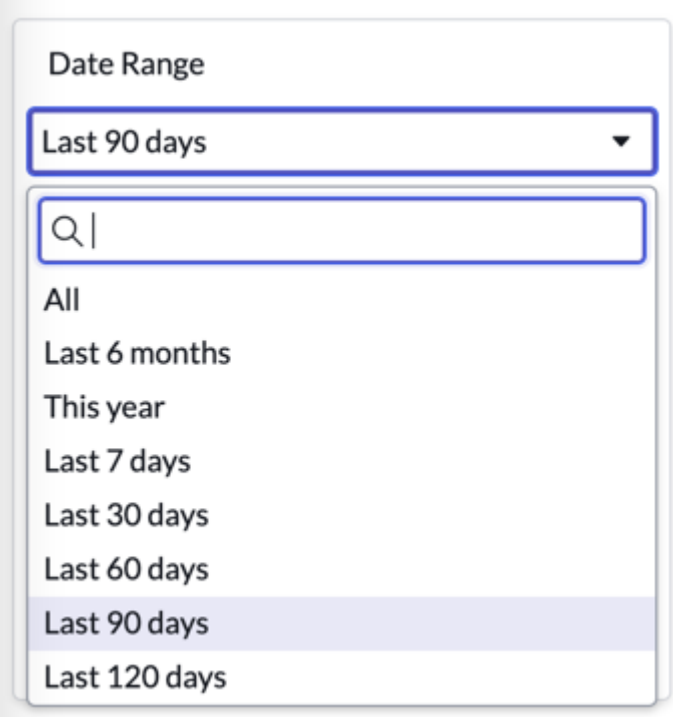
A date interactive filter allows users to filter report widgets based on the value in a date field.

Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

When a user selects `All`, they do not see a report with all filter options applied, they see the unfiltered report. This example of date filter shows a number of date ranges you can filter on.

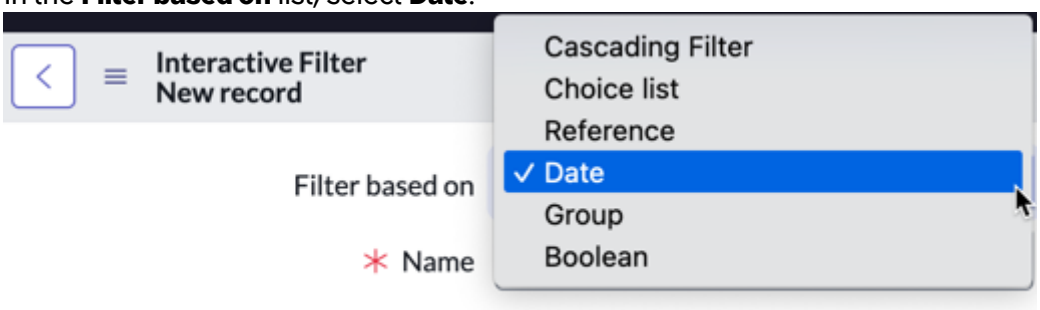
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Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

Procedure

1. **Optional:** Check the existing interactive filters on the same table.
   a. Navigate to **sys_ui_hp_publisher.list** and select an interactive filter based on the same table you want to filter.
   b. Under Related Links, select **Other filters on Table**.
   c. Review the other filters that are available on the same table to see if the filter you want already exists.
2. Navigate to **sys_ui_hp_publisher.list**.
3. Select **New**.
4. In the **Filter based on** list, select **Date**.



5. Set the following fields:

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Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.
UI control type	Select how the available filtering options for this filter appear on the dashboard widget. See Available interactive filter UI control types.

6. **Optional:** Select **Apply to all tables in hierarchy** to apply the filter to parent, child, and sibling tables of an extended table.
7. **Optional:** Select **Apply filter to database views and tables** to apply the filter to widgets based on both database views and tables.

   Note:
   It is not possible to apply filters to tables that extend the database view's tables. For more information, see Interactive filters on database views and table hierarchies.

8. In the **Date** section, use the slushbucket to select one or more date ranges that users can filter on.
   Available date filters are defined in the *`Get Date Filter options for Date Filters`* business rule. Customize this business rule to add or remove filter options.
9. **Optional:** Select a **Default value** for the filter.
   This default is applied automatically for all users. Values that a user selects override the global default for that user. You can specify more than one default value when using a UI control type that enables multiple selections, such as **Select Multiple Input**.

   Note:
   To pass more than 50 default values, or if you see the error `This is exceeding the GET call limitation`, create multiple interactive filters.

10. Right-click on the form header and select **Save**.
11. In the **Interactive filter Dates** related list, select **New**.
12. In the **Table** field, select a table that has reports you want to filter.
13. In the **Field** field, select a date field to filter on.
14. Click **Submit**.

What to do next

Repeat steps 8-11 as needed for each date field you want to filter on.

1. After you create the filter, add it to a dashboard.
2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

Create a Boolean interactive filter

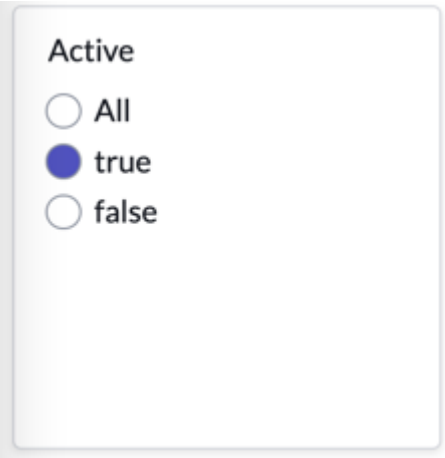
A Boolean interactive filter allows users to filter report widgets based on the value of a true/false field.

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Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

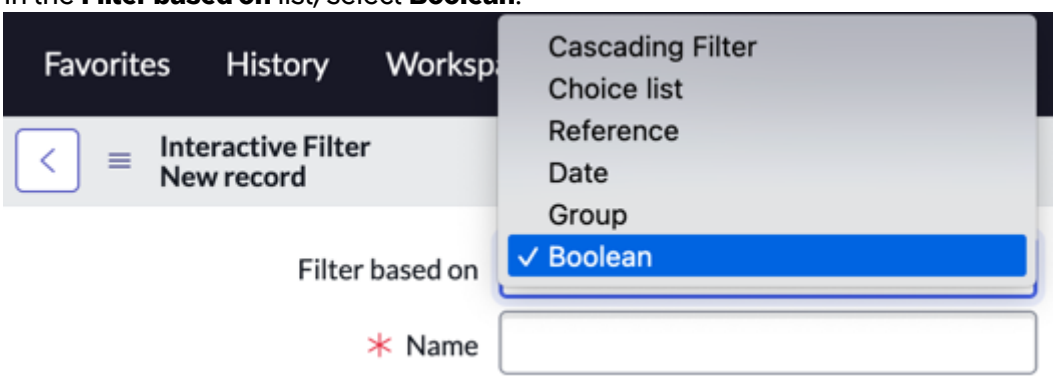
When a user selects `All`, they do not see a report with all filter options applied, they see the unfiltered report. This example of Boolean filter shows three options you can filter on: true, false, and All.



Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

Procedure

1. **Optional:** Check the existing interactive filters on the same table.
   a. Navigate to **sys_ui_hp_publisher.list** and select an interactive filter based on the same table you want to filter.
   b. Under Related Links, select **Other filters on Table**.
   c. Review the other filters that are available on the same table to see if the filter you want already exists.
2. Navigate to **sys_ui_hp_publisher.list**.
3. Select **New**.
4. In the **Filter based on** list, select **Boolean**.



5. Set the following fields:

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Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.
UI control type	Select how the available filtering options for this filter appear on the dashboard widget. See Available interactive filter UI control types.

6. **Optional:** Select **Apply to all tables in hierarchy** to apply the filter to parent, child, and sibling tables of an extended table.
7. **Optional:** Select **Apply filter to database views and tables** to apply the filter to widgets based on both database views and tables.

   Note:
   It is not possible to apply filters to tables that extend the database view's tables. For more information, see Interactive filters on database views and table hierarchies.

8. In the **Table** list, select the table that includes the true/false field to filter on.
9. In the **Field** list, select the true/false field to filter on.
10. **Optional:** Select a **Default value** for the filter.
    This default is applied automatically for all users. If a user selects a different value, that value is saved as the user's default and overrides the global default.
11. Select **Submit**.

What to do next

1. After you create the filter, add it to a dashboard.
2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

Create a group interactive filter

A group interactive filter allows users to select multiple interactive filters to apply to reports on a dashboard.

Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

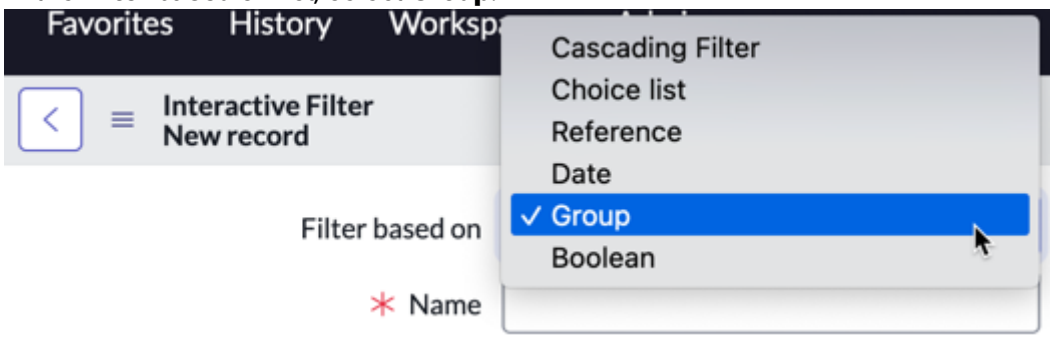
Before starting this procedure, create several choice list, reference field, boolean, or date filters to group.

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Default values selected for child filters are not applied when using a group filter. Selected values in a group filter are not saved when you reload the dashboard.

Procedure

1. **Optional:** Check the existing interactive filters on the same table.
   a. Navigate to **sys_ui_hp_publisher.list** and select an interactive filter based on the same table you want to filter.
   b. Under Related Links, select **Other filters on Table**.
   c. Review the other filters that are available on the same table to see if the filter you want already exists.
2. Navigate to **sys_ui_hp_publisher.list**.
3. Select **New**.
4. In the **Filter based on** list, select **Group**.



5. Set the following fields:

Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.

6. In the **Group** section, select **Insert a new row**.
7. Select an interactive filter to add to this group.
   You cannot add a group filter to another group filter.
8. Repeat the previous two steps as needed for each filter you want to group.
9. Click **Submit**.

What to do next

1. After you create the filter, add it to a dashboard.
2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

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Create an interactive filter for whether a field is empty or populated

You can create a Boolean interactive filter that lets users filter report widgets based on whether a specific field is empty or populated.

Before you begin

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

Note:
If the interactive filter has a default value or specifies the last selected value, non-responsive dashboards do not apply this value automatically. This feature is only available on Responsive dashboards.

About this task

Create this filter for a field where **Yes** filters for records where the specified field is populated and **No** filters for records where the field is empty. Name the filter to represent this logical relationship. For example, you can use the name "Incident generated problem" for a filter based on the Incident table and the Problem field.

Procedure

1. Navigate to **sys_ui_hp_publisher.list**.
2. Select **New**.
3. In the **Filter based on** list, select **Boolean**.
4. Set the following fields:

Name	Description
Name	Enter a name for the filter. This name appears on the dashboard widget for the filter.
Look up name	Enter a lookup name for the filter. This name appears in the **Add content** menu for users adding a filter to a dashboard. Use this name to help organize your filters. If you do not specify a lookup name, the **Name** value is used instead.
Description	Enter a description of the filter.
UI control type	Select how the available filtering options for this filter appear on the dashboard widget. See Available interactive filter UI control types.

5. **Optional:** Select **Apply to all tables in hierarchy** to apply the filter to parent, child, and sibling tables of an extended table.
6. **Optional:** Select **Apply filter to database views and tables** to apply the filter to widgets based on both database views and tables.

   Note:
   It is not possible to apply filters to tables that extend the database view's tables. For more information, see Interactive filters on database views and table hierarchies.

7. In the **Table** list, select the table that contains the field to filter on.
8. In the **Field** list, select the field to filter on.
9. Select **Submit**.

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What to do next
After you create the filter, add it to a dashboard.

Create a cascading filter

Cascading filters allow you to filter based on multiple values in a hierarchy, such as by region, country, and city. Lower-level choices are filtered by the values selected at higher levels.

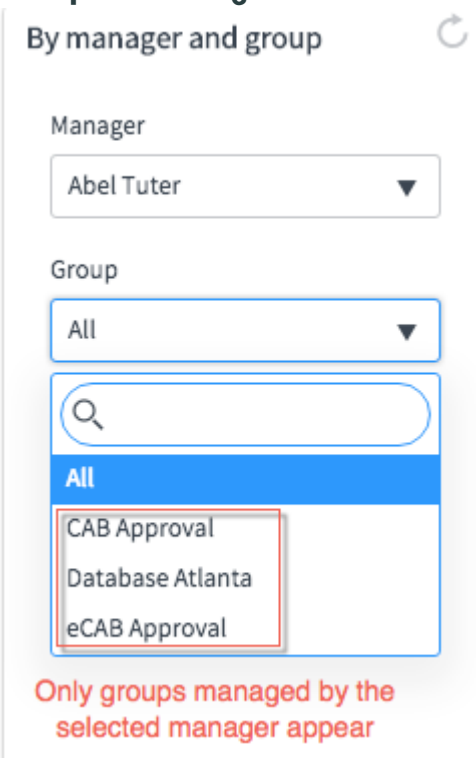
Before you begin
You can create a cascading filter that allows users to select from a list of managers, then select from groups that report to that manager. Report data is then filtered to show only records assigned to that group. Alternatively, you can leave lower levels of the filter unselected, such as by selecting only a manager but no group. Report data is then filtered to show records assigned to any group managed by that manager. Cascading filters retain the last elements selected on a dashboard.

Ensure that the structure of the data that you use to create the filter is consistent. For example, in a cascading filter based on location, ensure that the top-level choices are all regions, and the second-level choices are all countries. You can define filter conditions to ensure that only appropriate choices for each level are available.

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

About this task
This procedure includes examples based on a cascading interactive filter using managers and groups. In this example, the top-level choice allows users to select a manager and the second-level choice allows users to select a user group managed by that manager.

Example cascading filter



Note:
You can filter reports based on the values in reference fields only. Cascading filters support only the **Single Select UI control type**.

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Procedure

1. Navigate to **sys_ui_hp_publisher.list**.
2. Click **New**.
3. In the **Filter based on** list, select **Cascading Filters**.
4. Right-click the form header and select **Save**.
5. Define the first level of the cascading filter.
   a. In the **Cascading Filter** related list, click **New**.
   b. Select the **Table** and the **Display field** from the table that contains the values you want to use as the top-level filter choices. The **Display Field** is limited to the types boolean, choice, reference, and string.
   To define the top level of a hierarchy based on managers and the groups they manage, select **Group [sys_user_group]** as the **Table** and **Manager** as the **Display field.**
   c. **Optional:** Use the **Filters** field to limit which choices are available to users.
   Filter conditions are especially useful when you create a cascading filter based on a self-referencing table, such as Location [cmn_location]. Filter the data to ensure that each level of the cascading filter only has options appropriate for that level.
   d. Right-click the form header and select **Save**.
6. Define the next level of the hierarchy.
   Cascading filters use a one-to-many relationship between higher-level filters and lower-level filters. One higher-level filter can affect the choices available in any number of lower-level filters.
   a. From the manager filter, in the **Cascading Filter** related list, click **New**.
   b. Select the **Table** and the **Display field** from the table that contains the values you want to use as the second-level filter choices. The **Display Field** is limited to the types boolean, choice, reference, and string.
   In the managers and groups example, select **Group [sys_user_group]** as the **Table** and **Name** as the **Display field.**
   c. In the **Parent Reference Field** field, select the field that contains the value selected from the higher-level filter.
   For example, when you create the Group filter, the **Parent Reference Field** value is **Manager**. In this example, the manager selected in the first filter is used to filter the list of available groups based on the **Manager** field value of each group.
   d. Right-click the form header and select **Save**.
   e. Repeat these substeps for each additional filter you want to add.
   To add another level to the filter hierarchy, add a new record in the **Cascading Filter** related list of the lowest-level filter. For example, add the Group filter instead of a top-level filter such as the Manager filter.
7. Define how each filter level applies the filter to reports on a dashboard.

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a. In the **Target Tables** related list, click **New**.

b. Select the **Target table** that contains the data you want to filter, such as **Incident**.

c. Select the **Field** to filter on.
The field must reference the table specified in the filter. For example when filtering incident data, the **Field** for the top-level manager filter is **Assignment group.Manager**. In this example, the **Field** for the second-level group filter is **Assignment group**.

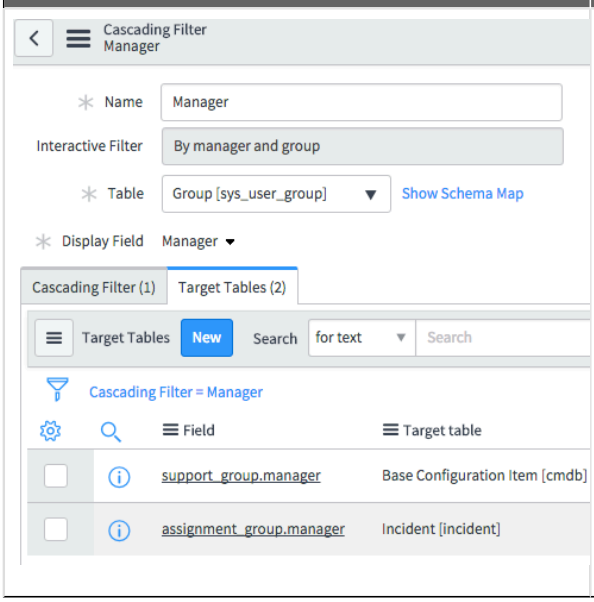
d. Click **Submit**.

e. Repeat these substeps to add targets for each level of the filter.
You can define multiple targets for each filter level. For example, filter incident data by assignment group or CMDB CIs by support group using the same Groups [sys_user_group] filter.

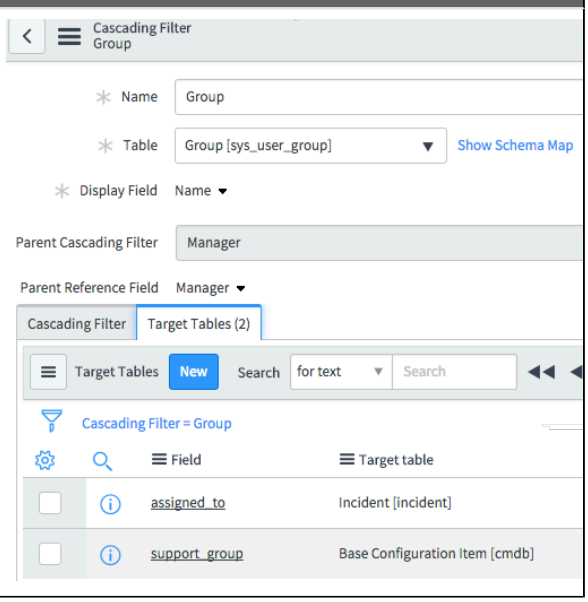
Note:
A cascading filter hierarchy must specify at least one target. You can define a cascading filter that skips levels in a hierarchy, or a cascading filter that only specifies targets for certain levels in a hierarchy. For example, define a target only for the Group-level filter and not the Manager-level filter. In this example, reports are filtered only when a user selects a specific group and not just a manager.

The following images demonstrate the completed configuration for the example cascading filter. The **Cascading Filter** related list (not shown) in the top-level filter contains the second-level filter.

Top-level filter



Second-level filter



What to do next

1. After you create all levels of the filter, add it to a dashboard.

2. On the dashboard, select the **Edit widget** icon ( ) on each visualization on the dashboard that should follow the filter and select **Follow interactive filter**.

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Cascading filters deduplication

So that you do not have to clean up the filter panel, duplicate filters are removed automatically.

Duplicate filters are removed according to the following criteria:

- If the configuration is the same, the last edited filter is retained.
- If the configuration is the same, except that some filters have only one target and others have multiple targets, then only the last updated filter is retained.
- If the configuration is the same, but some filters have multiple target columns in the same target table, then all the filters are considered as separate filters and retained. An example of multiple target columns in the same target table is the **Date opened** and **Date escalated** columns in the incident table.
- If the configuration and the UI control are the same, but the base condition is different for any two filters, then they are considered separate filters and retained.

Interactive filters on database views and table hierarchies

When you create an interactive filter on an extended table, you can also apply the filter to database views and to the other tables in the hierarchy. The hierarchy includes all parent, child, and sibling tables.

When you create an interactive filter, you can:

Select All tables in the hierarchy.

If the source table is incident, then the interactive filter applies to incident; its parent table, task; and to all of its sibling tables, including problem and change.

Specify any possible targets in the **Interactive Filter References** section for this selection to be respected.

Select Apply filter to both database views and tables.

If the source table is incident, then the interactive filter applies to both incident and, for example, the [incident_sla] database view.

Specify any possible targets in the **Interactive Filter References** section for this selection to be respected.

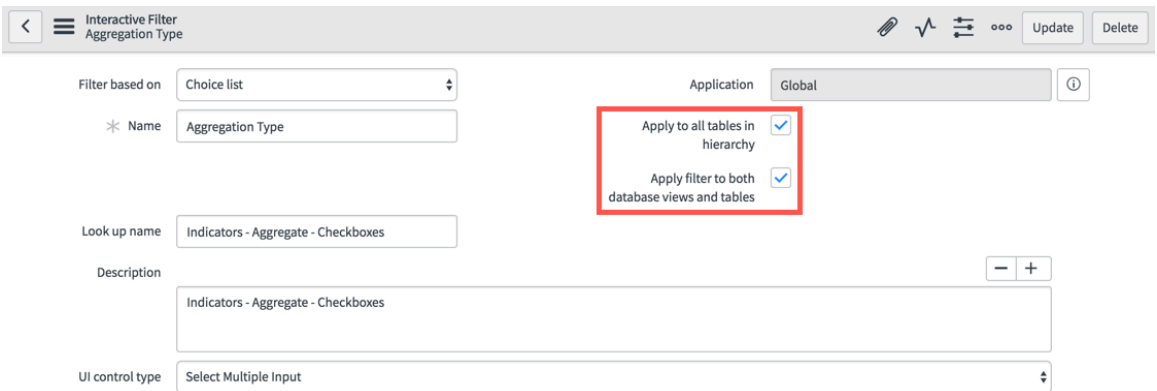
Select both check boxes.

The interactive filter applies to all tables in the hierarchy and to database views.

Select neither check box.

Interactive filters apply only to the source table, such as incident.

Note:
This is the default setting when you create an interactive filter.



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Interactive filters applied to extended tables also apply to the other tables in the hierarchy.

Note:
Interactive filters on a database view do not apply automatically to the siblings of the database view's source table. For example, [problem_sla] is a database view created on the table [task_problem]. Interactive filters applied to [problem_sla] do not apply automatically to widgets based on the [task_change] table, a sibling of [task_problem], even if you have selected both options.

Available interactive filter UI control types

The interactive filter **UI control type** field provides several options for displaying the filter.

Available UI control types

UI control type	Description
Radio Buttons	Displays each filtering option as a radio button. Users can select only one radio button at a time.
Check boxes	Displays each filtering option as a check box. Users can select any number of check boxes at a time.
Select Single Input	Displays the filtering options as a choice list. Users can select only one choice at a time.
Select Multiple Input	Displays the filtering options as a choice list. Users can select any number of choices at a time. Click the X next to a selected choice to deselect that choice.

Note:

Filtering behavior depends on the filter type when selecting multiple values using the **Check boxes** or **Select Multiple Input** control types. Choice filters use an AND query, meaning records must match all conditions. Date and reference filters use an OR query, meaning records must match at least one of the specified conditions.

A filter may be converted from the **Check boxes** to the **Select Multiple Input** control type for performance reasons.

Interactive Filters on dashboards

You can make an Interactive Filter available to users by adding the filter to a dashboard.

To be effective, interactive filters must be based on the same tables as the reports they filter. Reports based on the user table, for example, do not follow Interactive Filters that are based on the incident table. For more information, see Make a report follow interactive filters.

Performance Analytics widgets on the dashboard do not follow interactive filters. Separately filter those widgets on the same breakdown source by using the breakdown dashboard controls. For more information, see Using breakdowns on dashboards.

Add an interactive filter widget to a responsive dashboard

Add an interactive filter to a dashboard to filter reports on that dashboard.

Before you begin
Role required: pa_power_user. You must have edit access to the dashboard you want to add the widget to.

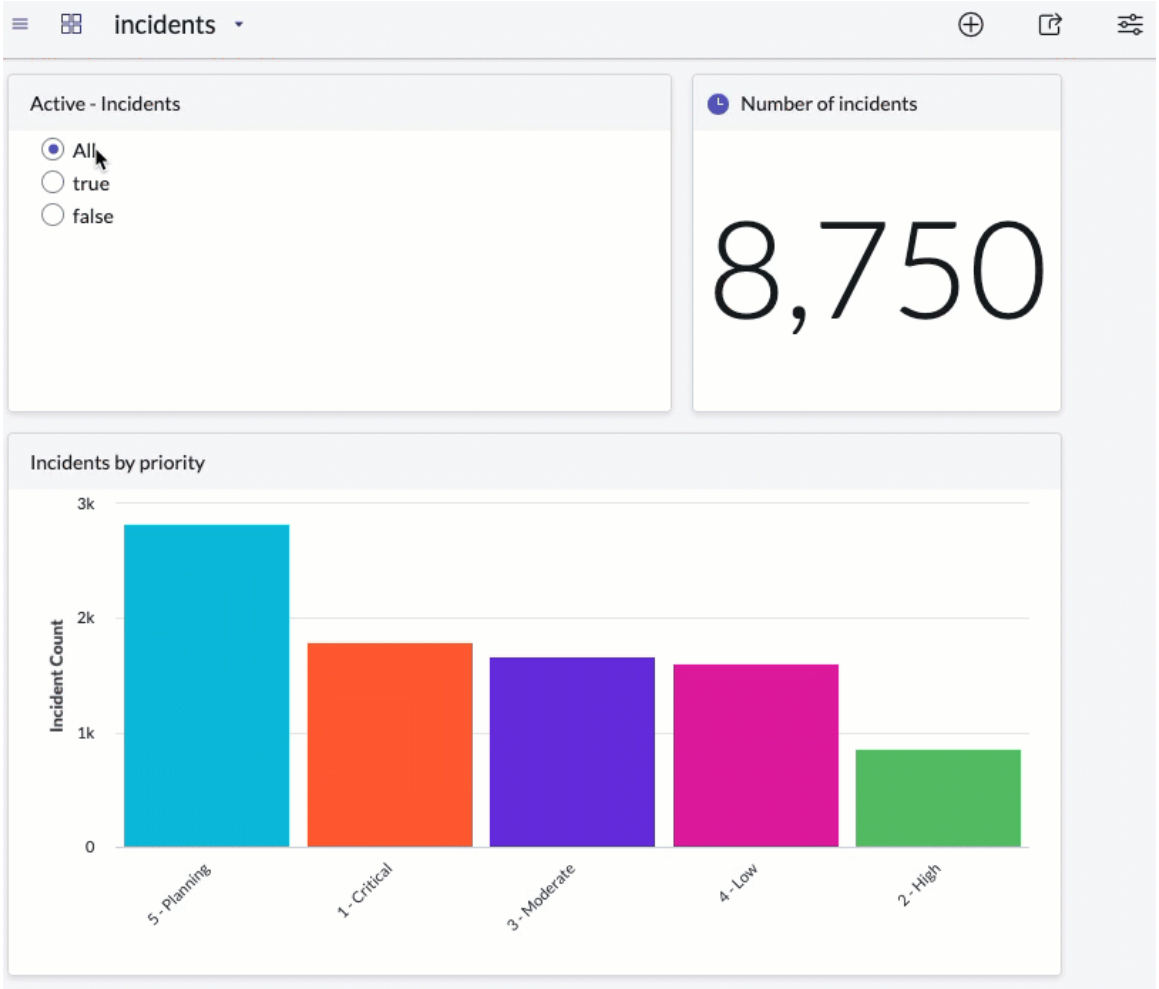
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About this task

To be effective, interactive filters must be based on the same tables as the reports they filter. Reports based on the user table, for example, do not follow Interactive Filters that are based on the incident table. For more information, see Make a report follow interactive filters.

For more information on which interactive filters are available, see Creating Interactive Filters of different types. From this topic you can learn more about creating and configuring the different filters.

In this animation, the two visualizations and the interactive filter are all based on the incident table. Both visualizations are configured to follow filters. When you select one of the filter options, in this case, Active is true, Active is False, or All, both visualizations refresh to follow the choice.

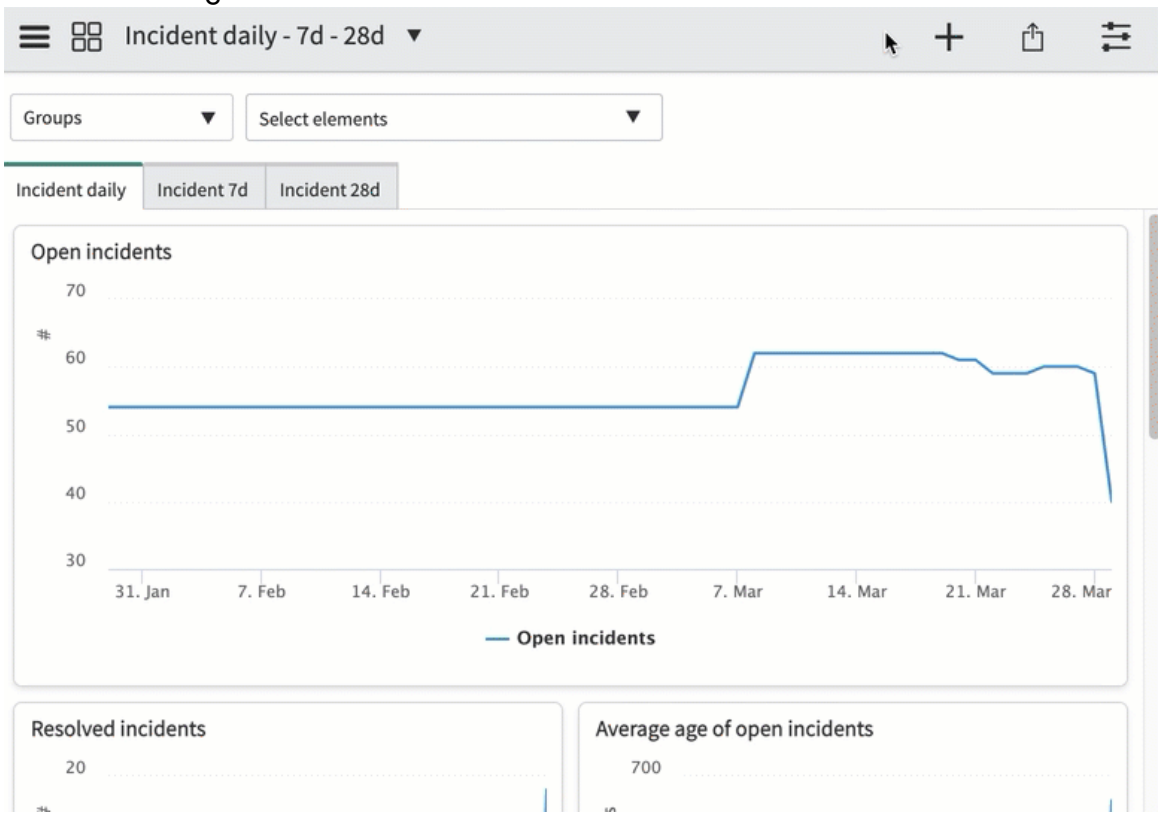


Procedure

1. Navigate to a dashboard.
2. Click the add content icon (+).
3. Select **Interactive filters**.
4. Select the type of filter to add, such as **Choice list** or **Reference**.
   You can also add a new filter. For more information, see Creating Interactive Filters of different types.
5. Select the filter you want to add.

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6. Click **Add** or drag the filter onto the dashboard.



Make a breakdown act as an interactive filter

You can configure a Performance Analytics breakdown on a dashboard to act as an interactive filter for reports on the dashboard. The dashboard must be configured as a breakdown dashboard.

Before you begin

The dashboard should be configured with both reports and Performance Analytics widgets. The dashboard must be configured with at least one breakdown source for the Performance Analytics widgets to follow, as described in Add breakdown sources to a dashboard. Finally, the dashboard must have an interactive filter that is based on the same table as one of the breakdown sources.

Role required: pa_power_user, pa_admin, or admin

About this task

When you select a breakdown and breakdown element on a dashboard, that element can be used to filter reports on the dashboard based on the filtering rules defined in an interactive filter.

Procedure

1. Navigate to **All** > **Performance Analytics** > **Dashboards**.
2. Select the dashboard with the breakdown you want to make act as an interactive filter.
3. Click the context menu icon and select **Dashboard Properties**.
4. In the **Breakdown sources** related list, locate the breakdown sources that you want to use as interactive filters.
5. In the **Act as filter** field for each breakdown source, select the interactive filter you want to use that breakdown source for.

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Note:
If the **Breakdown sources** list does not have an **Act as filter** column, personalize the list to add one. For more information, see Personal lists.

The breakdown source **Facts table** must match the table that the interactive filter is based on.

For example, for the breakdown source HR.Groups.Active, use a reference field interactive filter for the Groups [sys_user_group] table. Breakdown elements from the HR.Groups.Active breakdown source are not valid selections for interactive filters on other tables, such as interactive filters based on a choice or date field.

Note:
You cannot use a breakdown source that is based on a bucket group as an interactive filter.

6. Click **Update**.
7. On the dashboard's record, click **View Dashboard**.
8. Click the + icon to put the dashboard in edit mode.
9. For each report that you want to follow the interactive filters, follow these steps:
   a. Click the cog icon to open the Edit Widget window.
   b. Select **Follow interactive filter**.
   c. **Optional:** Select **Show when following filter** to show a filter icon next to the widget title when the widget is following an interactive filter.
10. Click **Done**.

Result
The selected breakdown acts as an interactive filter on the dashboard's reports.

Note:
Performance Analytics widgets on the dashboard do not follow interactive filters. Separately filter those widgets on the same breakdown source by using the breakdown dashboard controls. For more information, see Using breakdowns on dashboards.

Make a report follow interactive filters

When you add interactive filters to a dashboard, you can configure the reports on the dashboard to accept input from interactive filters. For example, you add a filter on the Incident table's Active field. Reports on the Incident table can reflect the user's choice from that filter.

Before you begin
Role required: itil, report_user

About this task
Interactive Filters allow you to filter all reports on a dashboard dynamically, without modifying the original reports. To be effective, interactive filters must be based on the same tables as the reports they filter. Reports based on the user table, for example, do not follow Interactive Filters that are based on the incident table.

Procedure
1. Navigate to a dashboard.
2. Put the dashboard in edit mode.
3. In the report widget, select the Edit widget icon ().

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4. Select **Follow interactive filter**.
   This option is available for all report widgets. If you don't see the **Follow interactive filter** option, the widget is a list, PA, or other non-report widget.
5. To show a filter icon ( ) on the top-left corner of the report when it's following an interactive filter, select **Show when following**.
6. Select **Done**.
7. Refresh the current browser page to apply the change.

What to do next
Add one or more interactive filters to the dashboard.

Related topics
Edit a responsive dashboard

Make a report act as an interactive filter

You can configure an existing report widget to filter other report widgets on the same dashboard.

Before you begin
Role required: itil, report_user.
Only reports with a **Type** value of pie, donut, semi donut, funnel, or pyramid can act as interactive filters.

Note:

- When a report is acting as an interactive filter, it is not possible to drill down into the report's segments.
- This documentation refers to Core UI reports and interactive dashboards. For information about making Platform Analytics data visualizations act as filters on dashboards, see Make a data visualization act as a filter.

Procedure
1. Navigate to a dashboard.
2. Put the dashboard into Edit mode.
   - On a non-responsive dashboard, select **Edit**.
   - On a responsive dashboard, click the sharing icon ( ).
3. Point to the top of the report widget, and click the Edit widget icon ( ).
4. Select **Act as interactive filter**.
   This field is only available on reports that can act as filters. Only reports with a **Type** value of pie, donut, semi donut, funnel, or pyramid can act as filters.

   Note:
   When responsive canvas functionality is inactive, there's no delay in filtering when a user clicks segments of a report that acts an interactive filter in quick succession.

5. Select **Done**.
6. Refresh the current browser page to apply the change.

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What to do next

Select a subset of data in the report, such as a slice of pie in a pie chart, to filter all subscriber reports for the same table. All reports on the dashboard that are based on the same table show information about that subset of data only.

Reset all interactive filters on a dashboard tab

Reset all applied filters on a dashboard tab to view the default value or the unfiltered data.

Before you begin

Role required: none. You must have access to the dashboard.

About this task

Note:

If there is a default value on a filter, resetting the filters returns that filter to the default setting rather than clearing it entirely.

Procedure

1. Navigate to **All** > **Self-Service** > **Dashboards**.
2. Select the dashboard and tab that you want to reset.
3. Click the context menu (☰) and select **Reset Filters**.

Custom interactive filters

As an administrator, you can create scripted interactive filter widgets to provide advanced filtering options on dashboard reports.

With a custom interactive filter, you can control aspects of the filter interface and filtering logic. Create filters that fit your specific needs. Custom interactive filters include filters that perform multiple, common filtering operations with a single click.

Custom filters are scripted **System UI Widgets** that use the `DashboardMessageHandler` JavaScript class to define and publish report filters.

Role required: hp_publisher_admin and report_admin. The hp_publisher_admin role exists only for managing interactive filters in Core UI. By default, it contains the role analytics_filter_admin for managing Core UI filters that are migrated to Platform Analytics experience.

Note:

The exposed API for custom interactive filters is limited and does not provide parity with standard interactive filters. Before implementing any custom interactive filters, review the Custom interactive filter limitations.

Access control lists on the Table API may restrict the records shown when a dashboard is filtered. To alleviate this problem, add users or roles to the Table API access control list. For more information, see Access control list rules.

The code that publishes the filter must call the `SNC.canvas.interactiveFilters.setDefaultValue()` method and it must call the `dashboardMessageHandler.publishFilter()` method to publish the filter.

Define the appearance of the widget, such as available buttons, using Jelly.

You can add multiple custom interactive filters to the same dashboard. The filters must have unique IDs in the filter object and unique IDs for the DashboardMessageHandler.

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Custom interactive filter examples

As an administrator, you can create custom interactive filter widgets to provide advanced filtering options on dashboards.

Use case

This example details how to create a custom filter to filter reports on the Task table, or its child tables. The filter only shows records where the current user is the caller. The filter exposes two buttons to the user, one button to add the filter and one to remove the filter.

Related topics

- Configure a content block
- UI scripts
- Jelly tags
- DashboardMessageHandler

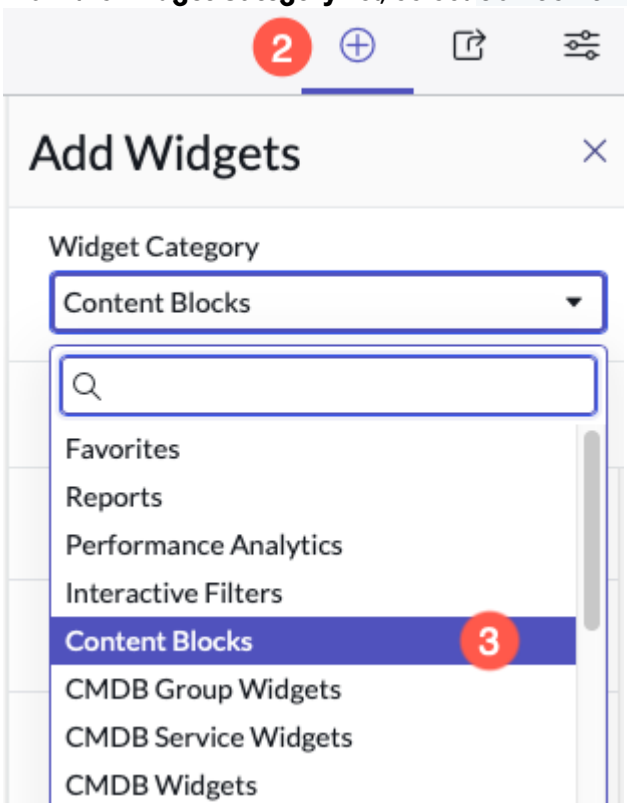
Create a custom interactive filter widget

Create custom interactive filter widgets to provide advanced filtering options on dashboards.

Before you begin
Role required: admin

Procedure

1. Open a dashboard that you want to add the custom interactive filter to.
2. Click the add content icon (⊕).
3. From the **Widget Category** list, select `Content Blocks`.



4. From the list of content blocks, select `New Dynamic Content`.

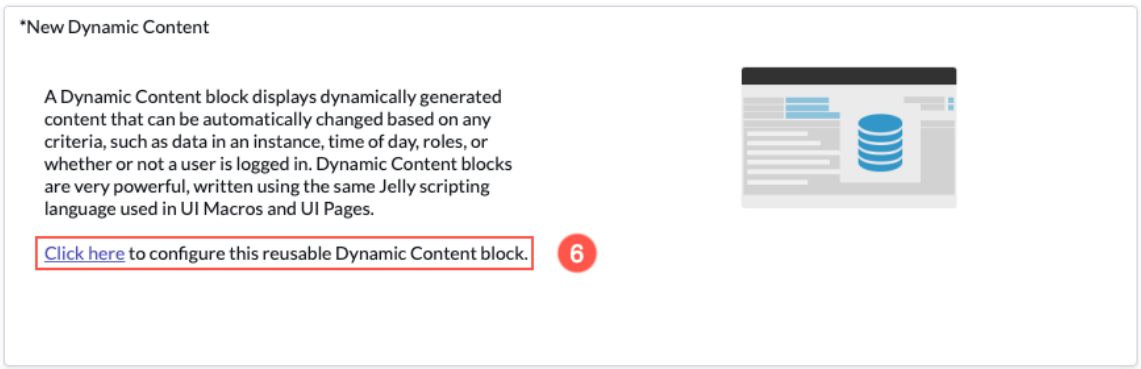
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5. In the New Dynamic Content panel, click **Add**.

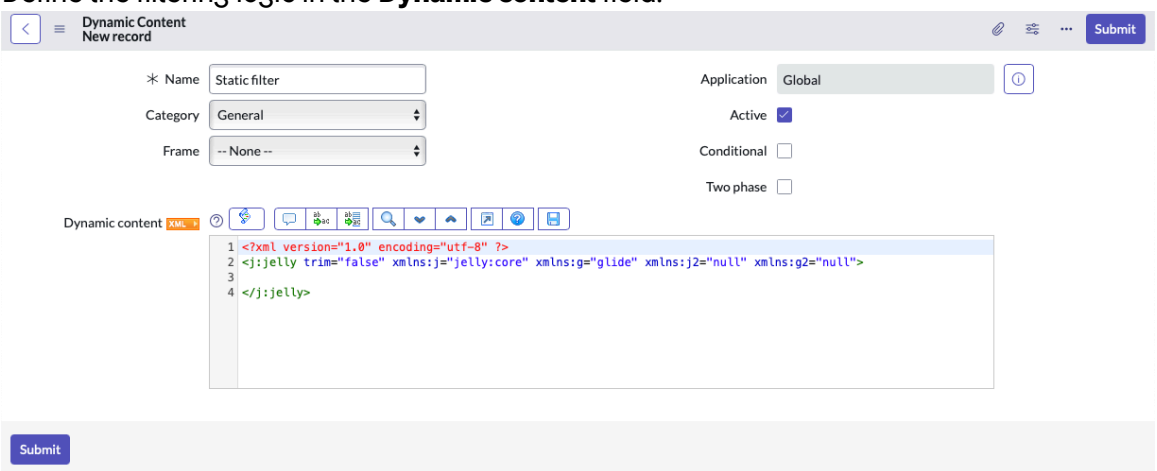


A new Dynamic Content block is added to the dashboard.

6. On the dashboard, click the link that says **Click here to configure this reusable Dynamic Content block**.



7. Define the filtering logic in the **Dynamic content** field.



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What to do next
Define the filtering logic.

Define filtering logic - example

After you create the interactive filter, add the filtering logic.

Before you begin
Role required: admin

Filters use the `DashboardMessageHandler` class to manage active filters. Instantiate `DashboardMessageHandler` with a unique value.

> **Note:**
> The ID of the custom interactive filter must be unique. If it has the same ID as another interactive filter or custom interactive filter, the filtering logic does work properly.

Procedure

1. In the dynamic content record, add the filtering logic to the Dynamic content XML block.
2. The **Only mine** button publishes a filter on Task table reports using the encoded query `caller_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe`.
   The **All tasks** button removes the filter.
3. You can then add buttons or other interface elements to the dynamic content. In this example, the code for the `clearFilter()` function and the buttons in the filter are added below the `publishFilter()` function.

```
<?xml version="1.0" encoding="utf-8" ?>
<j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
 <script>
     var my_dashboardMessageHandler = new
 DashboardMessageHandler("my_unique_id");

    function publishFilter () {
        var filter_message = {};
        filter_message.id = "my_unique_id";
        filter_message.table = "task";

    <!--     Add your own filter query logic here -->
        filter_message.filter =
"assigned_toDYNAMIC90d1921e5f510100a9ad2572f2b477fe";
        SNC.canvas.interactiveFilters.setDefaultValue({
                id: filter_message.id,
                filters: [filter_message]
            }, false);

my_dashboardMessageHandler.publishFilter(filter_message.table,
filter_message.filter);
    }

    function clearFilter() {
        var filter_message = {};
        filter_message.id = "my_unique_id";
        filter_message.table = "task";
        filter_message.filter = "";
        SNC.canvas.interactiveFilters.setDefaultValue({
```

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```
                id: filter_message.id,
                filters: [filter_message]
            }, false);
        my_dashboardMessageHandler.removeFilter();
    }
 </script>

Example of a filter that generates a static filter on 'task'
 table reports, or removes it <br/>
    <input id="allTasks" type="button" value="All tasks"
 onclick="clearFilter();" />
    <input id="onlyMine" type="button" value="Only mine"
 onclick="publishFilter();" />

</j:jelly>
```

4. Select **Submit**.

Result

The custom interactive filter appears on the dashboard you added the dynamic content block to. It is also in the list of content blocks in the **Add Widgets** panel.

Create a custom date/time filter option

When the standard selection of date/time filter options doesn't meet your needs, you can create a custom option.

Before you begin

Follow these steps to create a custom Date/Time filter option that can then be included in any Date/Time-based interactive filter for use on a Dashboard. In this example, you create a filter option for the period of a two weeks, a fortnight.

Role required: admin.

Procedure

1. Navigate to **All** > **System Definition** > **Business Rules**.
2. Open the business rule Get Date Filter Options for Date Filters.
   This rule populates the list of selectable options in forms for new or existing date type interactive filters.
3. On the **Advanced** tab, modify the **Script** field to include the JavaScript needed to add the new option.
   Add the following line:

```
answer.add('<Time_Period_Name>@javascript:<Beginning_Time_Perio
d>@javascript:<Ending_Time_Period>',
 gs.getMessage('<Textual_Representation_Of_Time_Period>'));
```

4. In the line you added, make the following substitutions.

Option	Description
<Time_Period_Name>	A unique name for the time period selected. This string is used internally by the system to identify the option and is set to something that can be descriptive of the time period de scribed.

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Option	Description
	Enter the value `112_Last Fortnight`.
<Beginning_Time_Period>	The specific date and time on which this filter starts. This value can use absolute or relative values. It's much more common to use a rel ative value that uses the JavaScript URL syn tax. Enter the value `gs.daysAgoStart(14)` to indicate that the time interval for this selec tion should be exactly two weeks ago.
<Ending_Time_Period>	The specific date and time on which the time period for this filter option should end. This value can also use absolute or relative values. Similar to the *`Beginning_Time_Period`* this value is usually a relative time period to use the JavaScript URL syntax. Enter the value `gs.daysAgoStart(0)` to indicate that the time period ends at the cur rent date and time.
<Textual_Representation_Of_Time_Peri od>	A short text string that displays in the list of Date/Time filter options, which appear in as cending alphabetical order. Enter `Last fortnight`, to indicate that this selection specifies a time period from one fortnight before the current date and time.

The complete statement now reads:

```
answer.add('112_Last
 Fortnight@javascript:gs.daysAgoStart(14)@javascript:gs.daysAgo
End(0)', gs.getMessage('Last fortnight'));
```

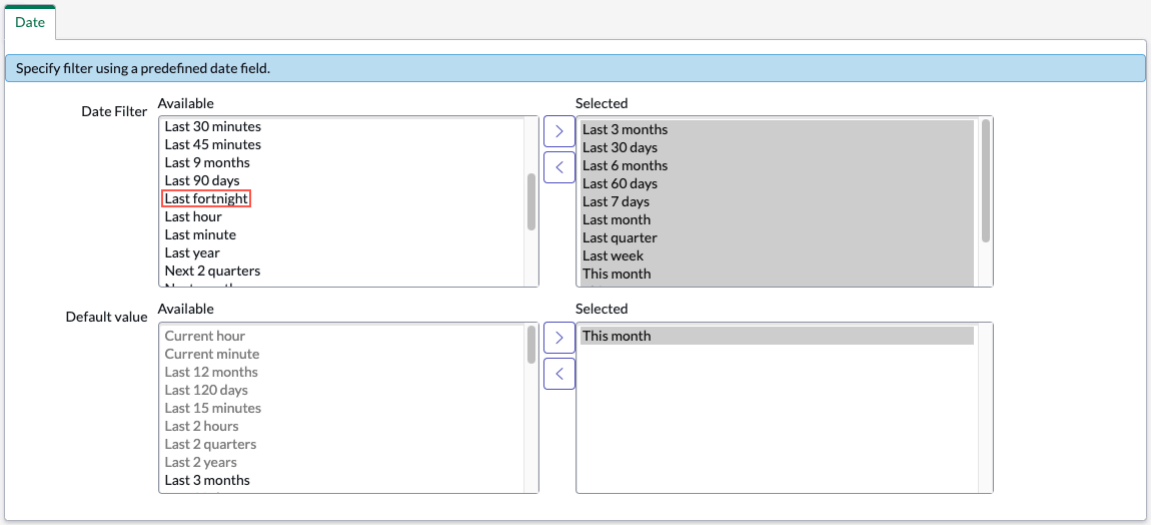
5. Select **Update** to save your changes to the business rule.
6. Check that the new option is available when you edit or create a Date/Time filter.

   a. Navigate to **All** > **Reports** > **Administration** > **Interactive Filters**.

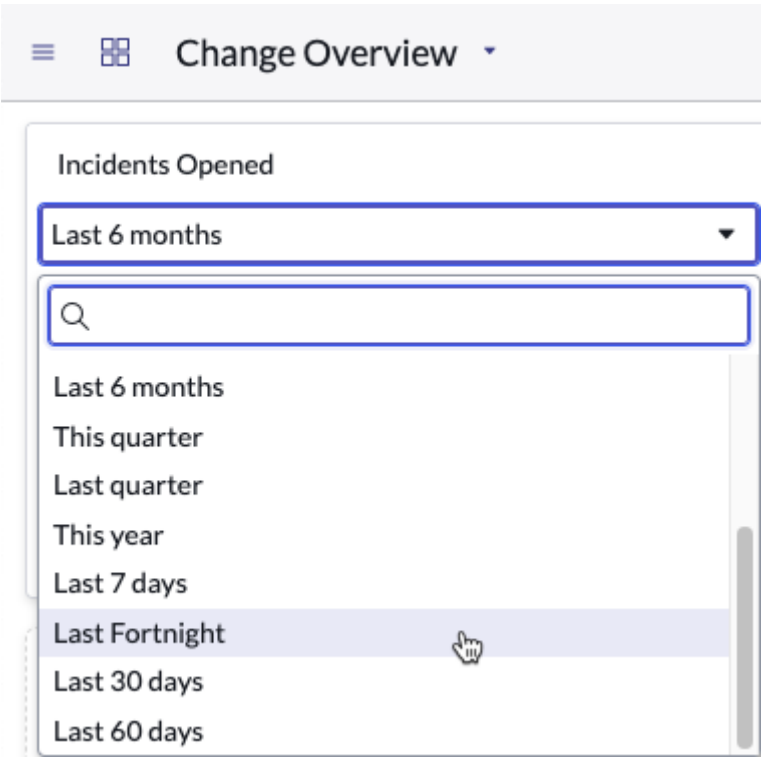
   b. Select a Date filter.

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The available filters include **Last fortnight**.



7. Edit a date filter to include the new value and add the filter to a dashboard.



Custom interactive filter example - Multiple reports

You can use a custom interactive filter to filter multiple reports using different tables. There are two different APIs to publish an interactive filter for a single table or multiple tables. This example filters a report on the incident and problem tables by assignment group using a custom interactive filter.

About custom interactive filters on multiple tables

Keep the following in mind when you create a custom interactive filter:

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- Custom interactive filters that apply to only one table use the function *DashboardMessageHandler.publishFilter()*.
- Custom interactive filters that apply to multiple tables use the function *DashboardMessageHandler.publishMessage()*.
- Before you publish, an interactive filter call to the *SNC.canvas.interactiveFilters.setDefaultValue()* function is required.
- A call to either the *SNC.canvas.interactiveFilters.removeDefaultValue()* or the *DashboardMessageHandler.removeFilter()* function is required before you reset the filter.

A custom interactive filter that calls the *publishFilter()* method multiple times refreshes the associated report the same number of times. Repeated calls to this method can cause performance issues.

How to apply Custom Interactive Filter to multiple tables

The following example filters the report by assignment group on the Incident [incident] and Problem [problem] tables.

DashboardMessageHandler.publishMessage() accepts multiple filters as an array. Construct the filter array and then create a single instance of *DashboardMessageHandler* which calls *DashboardMessageHandler.publishMessage([filters])*. This method refreshes the widget only once.

```
<?xml version="1.0" encoding="UTF-8"?>
<j:jelly xmlns:j="jelly:core" xmlns:g="glide" xmlns:g2="null"
 xmlns:j2="null" trim="false">
   <script>
      var my_dashboardMessageHandler = new
 DashboardMessageHandler("my_unique_id");

function publishMultipleFilter() {
      <!-- Mutliple filters can be passed as an array -->
      var finalFilter =
 [{"table":"incident","filter":"assignment_group=6fcd3b573b33130
0ad3cc9bb34efc447"},
 {"table":"problem","filter":"assignment_group=6fcd3b573b331300a
d3cc9bb34efc447"}];
      <!-- call setDefaultValue first -->
      SNC.canvas.interactiveFilters.setDefaultValue({
id: my_dashboardMessageHandler._unique_id,
filters: finalFilter,
}, false);
      <!-- then call Publishmessage to publish filters-->
      my_dashboardMessageHandler.publishMessage(finalFilter);
}

function clearFilter() {
SNC.canvas.interactiveFilters.removeDefaultValue(my_dashboardMes
sageHandler._unique_id, false);
my_dashboardMessageHandler.removeFilter();
}
   </script>
```

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```
Example of a filter that filters incident and problem table
 where the assignment group is Problem solving
   <input id="allTasks" type="button" value="All"
 onclick="clearFilter();" />
   <input id="onlyMine" type="button" value="Assignment group is
 [Problem solving]" onclick="publishMultipleFilter();" />
</j:jelly>
```

Use the Debug filter

The debug interactive filter helps you create custom filters. This filter displays a JSON array representation of all active filters on a dashboard.

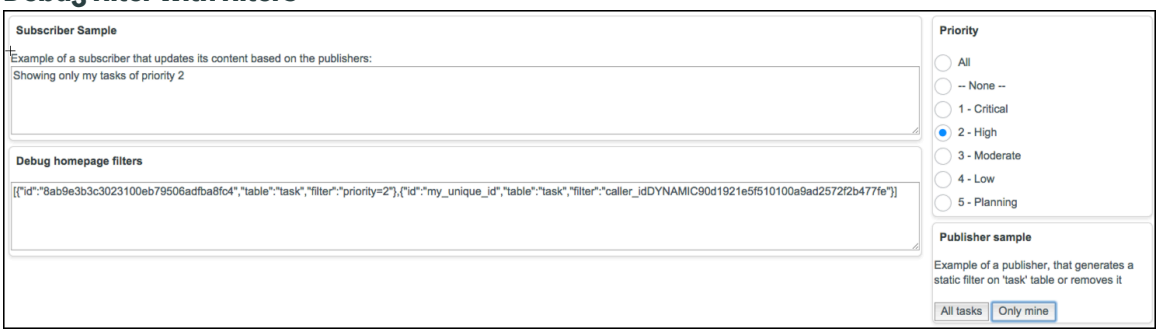
Before you begin

Role required: admin

About this task

To use the debug filter, add it to a dashboard. The debug filter is read-only and intended to aid in the design and implementation of custom interactive filters.

Debug filter with filters



Procedure

1. In the dashboard, click the Add widgets (+) icon.
2. In the Add Widgets panel, select the widget category **Interactive Filters** and the widget **{Debug}**.
3. In the Debug filters list, select **Debug homepage filters** and click **Add**.

Result

The Debug widget is added to your dashboard.

Custom interactive filter limitations

Custom interactive filters are a fallback for use when standard interactive filters do not provide certain functionality.

Note:
The exposed DashboardMessageHandler API for custom interactive filters is limited and does not provide parity with standard interactive filters. The API does not support these features.

Unsupported custom interactive filter features

Setting default filter values

Creators of custom interactive filters are not able to select default filter values.

Retaining filter value on refreshing the widget

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When you click a widget's refresh icon ( ) to refresh its content, or when you select **Refresh** from the context menu ( ), the custom interactive filter value does not persist.

Resetting custom filter values / All filter values

When you select **Reset Filters** from the context menu ( ), the custom interactive filter does not change and is still applied.

Setting filter values on page load or tab switch

Custom interactive filter values do not persist when the user switches tabs, or opens a new dashboard and returns to the first dashboard or dashboard tab.

Adding multiple instances of the same custom interactive filter on a tab

If there is more than one instance of the same custom interactive filter on a tab, unexpected behavior can result.

Note:
Custom interactive filter values do not persist across tabs. To filter values on multiple tabs on the same dashboard, you must add the custom interactive filter to each tab.

Unsubscribing reports on removal of custom interactive filter

Reports following a custom interactive filter on a dashboard continue to follow that filter even when the filter is deleted from the dashboard.

Filtering widgets in Export to PDF

When you create custom content to be placed as widgets on dashboards and home pages, you must perform extra tests before you export the content to PDF. In the exported PDF, report widgets that are filtered using custom interactive filters may appear as blank squares or the widget content does not respect the filter.

Custom interactive filters cannot be used in a breakdown dashboard

On breakdown dashboards, the breakdown itself is used to filter all Performance Analytics widget data. For more information, see Using breakdowns on dashboards.

DashboardMessageHandler

Provides methods to define custom filtering logic for interactive filters.

For more information about interactive filters, see reporting and interactive filters.

DashboardMessageHandler - DashboardMessageHandler(String id)

Instantiate a DashboardMessageHandler object with a given unique ID.

Parameters

Name	Type	Description
Id	String	A unique ID for the filter. This ID allows report widgets to track which filter applied each filter. The ID does not need to be unique across all dashboards, but each dashboard cannot have multiple filters with the same ID.

```
var my_dashboardMessageHandler = new
 DashboardMessageHandler("my_unique_id");
```

DashboardMessageHandler - publishFilter(String table, String encodedQuery)

Each DashboardMessageHandler object can publish a single filter.

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Publishing a new filter from the same object overwrites the original filter. Use multiple DashboardMessageHandler objects to publish multiple filters.

Parameters

Name	Type	Description
table	String	The table to filter, such as task.
encodedQuery	String	An encoded query that specifies the filter to publish.

Returns

Type	Description
void	

```
var my_dashboardMessageHandler = new
 DashboardMessageHandler("my_unique_id");
<input id="onlyMine" type="button" value="Only mine"

 onclick="my_dashboardMessageHandler.publishFilter('task','calle
r_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe');"/>
```

DashboardMessageHandler - publishMessage(Array filters)

Apply a custom interactive filter to multiple tables.

Parameters

Name	Type	Description
filters	Array	Array of filter objects that define the tables to filter and the filter criteria. `[ { "table": String, "filter": String } ]`
filters.table	String	Name of the table to filter.
filters.filter	String	Encoded query containing the filter criteria to apply to the table.

Returns

Type	Description
None	

This jelly script filters the Incident and Problem tables to return records where the assignment group is Problem solving.

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```
<?xml version="1.0" encoding="utf-8" ?>
<j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide"
 xmlns:j2="null" xmlns:g2="null">
<script>
 var dmh = new DashboardMessageHandler("aha_dmh");
 var filter =
 "cmdb_ci.sys_idINcdafbfc9db8f570466e0a345ca96198a";
 //this is the encoded query string
 var fullFilter = dmh.getFilterMessage('change_request',filter);
 //creates a JSON object

 SNC.canvas.interactiveFilters.setDefaultValue({id: dmh.aha_dmh,
 filters:[fullFilter],}, false);
 var published = dmh.publishMessage([fullFilter]);
</script>

</j:jelly>
```

DashboardMessageHandler - removeFilter()

Removes the current filter published by this DashboardMessageHandler object from all reports on the dashboard.

Parameters

Name	Type	Description
None		

Returns

Type	Description
void	

```
var my_dashboardMessageHandler = new
 DashboardMessageHandler("my_unique_id");
<input id="removeFilter" type="button" value="Remove filter"
  onclick="my_dashboardMessageHandler.removeFilter();"/>
```

Dynamic JavaScript filters

Create dynamic conditions in JavaScript that you can configure as part of a report visualization's criteria instead of specified values.

To create a report using a dynamic conditional statement, you place a JavaScript URL in the conditional value statement of the filter. You can enter a JavaScript command directly into the field, but for a script longer than one statement, the script should be placed in its own record. You then call a function from that record in the value field of the report condition.

Add a dynamic JavaScript filter

Add a dynamic JavaScript statement for evaluation as part of a report visualization's filter criteria.

Before you begin

Role required: itil, report_user, report_group, report_global, report_admin, or admin. To create a meaningful report, you must have the right to access the data you want to report on.

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About this task

JavaScript filters can be single-line statements, or longer scripts. For longer JavaScript statements, create a script include that returns the correct format and data type, conforms to the specific data that the report should filter for, and is client callable. For more information, see Script includes.

This table lists the operators supported by each field type that supports JavaScript filters. Field types that are not in this table do not support JavaScript filters and the **Value** field in the condition builder for those field types does not have the option to paste your own statements.

Field type	Allowed operators	Expected return data type
Sys ID (GUID)	"is", "is not", "is one of", "starts with", "ends with", "contains", "does not contain", "between", "greater than or is", "less than or is".	Textual representation of a complete or partial sys_id value. For the "is one of" operator, the expected return type would be either a comma-delimited list of sys_id values or an array containing each sys_id that should be included in the results.
Free Text String	"is", "is not", "is one of", "starts with", "ends with", "contains", "does not contain", "between", "greater than or is", "less than or is"	One or more textual characters. For the "is one of" operator, the expected result would be either a comma-delimited list of string values or an array containing each of the values to include in the "is one of" search value field.
Reference	"starts with", "ends with", "contains", "does not contain"	One or more textual characters that may represent some value or portion of a value found in this field in the table or data source.
String (referencing another table)	"contains", "starts with", "ends with", "does not contain"	One or more textual characters that may represent some value or portion of a value found in this field in the table or data source.
User Input	"is", "is not"	Textual characters that could represent the full value of some record for this field in the table or data source.
Table Name	"is", "is not", "is one of", "starts with", "ends with", "contains", "does not contain", "between", "greater than or is", "less than or is"	Textual representation of a complete or partial Table Name in the system. For the "is one of" operator, the expected return type would be either a comma-delimited list of Table Name values or an array containing each Table

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Field type	Allowed operators	Expected return data type
		Name that should be included in the results.
Template Value	"is", "is not"	Textual characters that will fulfill the value as per a Template found on the instance.
Domain ID	"starts with", "ends with", "contains", "does not contain"	One or more textual characters that may represent some value or portion of a value found in the domain field in the table or data source.
User Roles	"is", "is not"	Textual representation of a user role string value.
Domain Path	"starts with", "ends with", "contains", "does not contain", "is", "is not", "is one of", "less than or is", "greater than or is", "between"	One or more textual characters that may represent some value or portion of a value found in this field in the table or data source. For the "is one of" operator, either a comma-delimited list of textual values or an array object containing each value that should be included.
Translated Text Translated Field	"is", "is not", "is one of", "starts with", "ends with", "contains", "does not contain", "between", "greater than or is", "less than or is"	Textual value. For the "is one of" operator, the expected return type would be either a comma-delimited list of textual values or an array of textual values.
HTML HTML Template	"contains", "does not contain"	Textual value which might correspond to data in the selected field in this report criteria.
Email Script	"contains", "does not contain"	Textual value representing a value that should (or should not) be in the Email Script field.
Script (Plain) Script (server side) Script	"contains", "does not contain"	Textual value representing a value that should (or should not) be in the Script field.
Short Table Name	"is", "is not"	Textual value (under 40 characters). For the "is one of" operator, the expected return type is either a comma-delimited list of textual values or

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Field type	Allowed operators	Expected return data type
		an array containing each textual character that would represent a short table name.
Field Name	"is", "is not", "is one of", "starts with", "ends with", "contains", "does not contain", "between", "greater than or is", "less than or is"	Textual representation of a complete or partial field name value. For the "is one of" operator, the expected return type would be either a comma-delimited list of field name values or an array containing each field name that should be included in the results.

Procedure

1. Perform one of the following actions:
   - On an upgraded instance that has not been fully migrated to Platform Analytics, navigate to **All** > **Reports** > **View / Run**.
   - On a new instance or one that has been fully migrated to Platform Analytics, navigate to **All** > **Platform Analytics Administration** > **Usage and governance** > **Reports**.
2. Open the report visualization that you want to add the dynamic filter to.
3. Select the filter icon ( ) to expand the condition builder.
4. Construct your filter condition.
   These combinations of field types and operators allow you to specify a dynamic JavaScript statement.

   Note:
   - The "between" operator provides two fields that can support the same or different JavaScript URLs.
   - The "is" operator can return an array of data elements of the expected type. In this case the operator is treated as the "is one of" operator.
   - List fields do not support dynamic JavaScript filters.

5. Choose a field type and operator and enter a JavaScript statement.
   - For a one-line JavaScript statement, use the format `javascript:<JavaScript_Statement>;`.
   - For a JavaScript statement that calls a script include, use the format `javascript:new <Record_Name>().<Function_Name>();` in which `Record_Name` corresponds to the record name of the script include and `Function_Name` is the function in the script include that returns the value compared in the filter.

   Note:
   The Javascript URL can also include one or more parameters passed to the function which performs the calculation and returns a result. For example, a JavaScript function that passes two parameters to the script include record could be written as `javascript:new TextJSFilter().getGroupIDs("Professional Services","Sales");`.

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What to do next

After you add the necessary JavaScript statements and conditions and configure the remainder of the report, test the report to ensure it returns and displays the expected results.

Performance Analytics widgets

Widgets enable you to define visualizations for indicator scores. Widgets are shown on dashboards.

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A Performance Analytics widget ties an indicator to a visualization, such as a trend line, a set of columns, or a pie chart. Within the widget, you can filter or group indicator scores by breakdowns. You can also apply time series functions, such as 7-day sums, to the scores.

To create or edit a Performance Analytics widget, the user must have the pa_admin or pa_power_user role. These roles are also required to add widgets to a dashboard. However, any user can view a widget that has been added to a dashboard.

Note:
If a user is prevented from viewing a visualization, a warning message prompts the user to contact the administrator.

If the dashboard is so configured, you can select breakdown elements on the dashboard that apply to all the widgets on the dashboard. If you click a score in a widget on a dashboard, you open the Analytics Hub focused on that indicator.

Note:
Time series aggregations are validated on the Analytics Hub and in KPI Details but not in widgets. Therefore, you might navigate from a working widget to the Analytics Hub and get a warning that the indicator has an invalid aggregation.

Rounding off

Values between 10,000 and 999,999 are rounded off to the nearest thousand and abbreviated with a K, such as 11K for 11,234. Values between 1 million and 999,999,999 are rounded off to the nearest million and abbreviated with an M. Values of 1 billion and higher are rounded off to the nearest billion and abbreviated with a G.

Rounded calculations based on averages may be off by a small amount due to rounding errors.

Widget types and creation details

The first step in creating a widget is to select the type of widget to create. Base this decision on the business goals you are trying to achieve with the widget.

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Widget type	Purpose	Typical Visualizations
Time Series widget	Shows changes over time in indicator scores.	Line visualization is the most usual. Other visualizations are: spline, step, column, stacked column, area, and relative compare.
Breakdown widget	Groups indicator scores by the elements of a breakdown.	Scorecard, pie and similar charts, funnel and pyramid, column and similar charts, relative compare, line, Pareto, pivot scorecard, and treemap.
Score widget	Shows aggregate indicator scores. Can show an indicator score against a target.	Latest score, speedometer, real-time score.
List widget	Lists the metrics for several indicators.	Scorecard, spider web.
Pivot widget	Groups the scores of one indicator by the elements of two breakdowns.	Heatmap
Text analytics	Visualizes word frequencies and groupings in the text that users enter in forms	Word cloud
Workbench widget	Shows multiple indicators and their relations, to monitor a workflow or other process.	Workbench

Security requirements for viewing widgets

Starting with Quebec, widgets follow indicator and breakdown access control lists (ACLs). Outside of ACLs, no roles are required for viewing widgets.

However, if you upgrade an instance from a version earlier than Quebec, by default the rules from before Quebec still apply. Indicator and breakdown ACLs are followed only in these areas:

- List widgets follow indicator ACLs.
- When viewing breakdowns, breakdown ACLs apply.

Furthermore, on an upgraded instance, the following widgets may require users to have the pa_viewer role:

- List widgets
- Text widgets
- The Breakdowns section of Workbench widgets

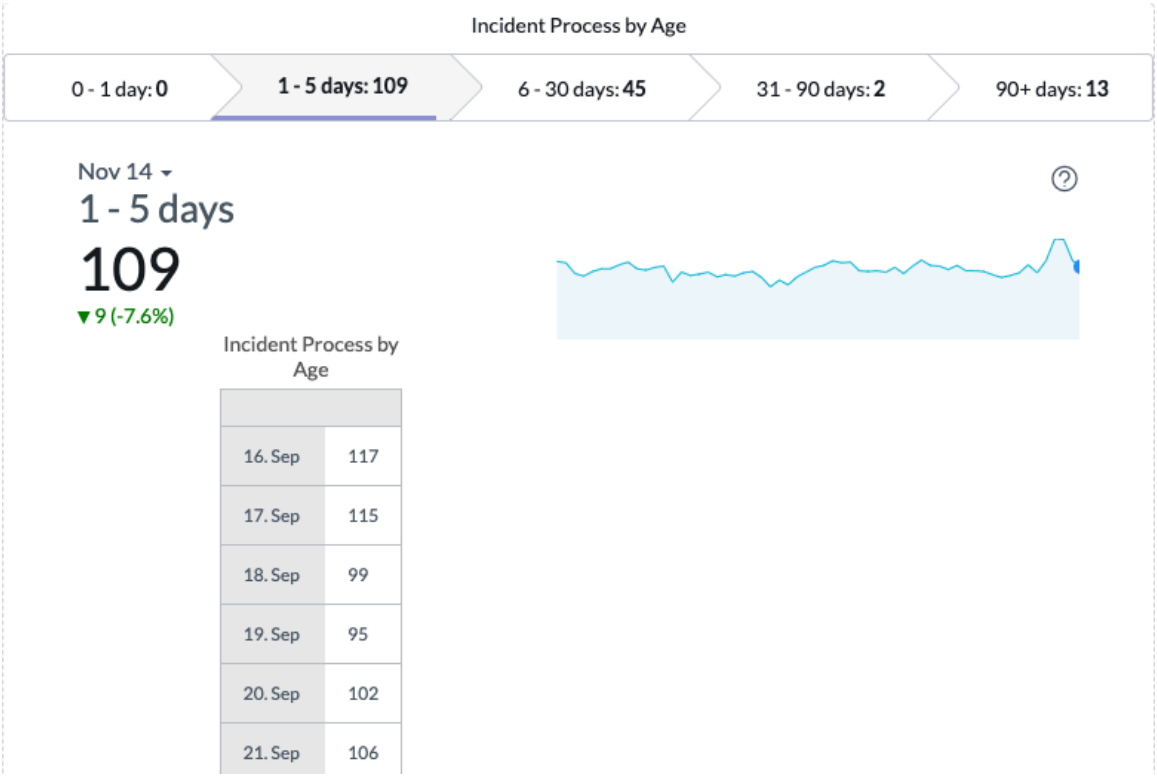
Upgraded instances cannot automatically follow the rules introduced in Quebec because of the variation in how ACLs are configured.

Data tables for widget accessibility

If under Preferences you have enabled **Accessibility** > **Enable data table for charts and graphs**, tables replace the graphical charts for all Performance Analytics widgets on your instance. Workspace widgets are an exception, as they show both charts and tables. For more information

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about accessibility and widgets, including how to replace colors with patterns, see Accessibility options on dashboards.



Time series widgets

Time series widgets show changes in an indicator score over time. Different visualizations emphasize the trend in the scores or the scores themselves, and can display one indicator or compare several indicators.

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A time series is an ordered sequence of metrics taken continuously over time. Indicator scores are measured over time at uniform intervals, which makes them an appropriate subject for time series widgets. The following business cases are some of the uses of a time series widget:

- Identifying trends, patterns, and outliers in indicator scores.
- Identifying turning points, such as whether a change in policy led to a change in indicator scores.
- Evaluating the relationships between indicators.

When you are selecting a visualization for a time series, consider whether you want to emphasize the trend in the scores or specific changes in the scores. Also consider whether you want to show one indicator or compare several related indicators.

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Note:
Some visualizations of other widget types include a time series. For example, the breakdown widget visualizations Stacked Column and Columns and Total include a time series of the indicator scores.

Time series widget visualizations

	Visualization	Description and use case
Visualizing trends in the scores of an indicator		
	Line	Shows how one or more values change over time by connecting a series of data points with straight lines. Use a line visualization to emphasize the trend in the scores. Consider line visualizations to be the default choice for displaying a time series. If you are unsure of which visualization to use, use a line.
	Spline	Shows how one or more values change over time by connecting a series of data points with a fitted curve through the data points. Spline charts let you take a limited set of known data points and approximate intervening values.
Comparing scores in an indicator		
	Column	Shows changes between scores over time by displaying them as proportional vertical columns. Use either to visualize score changes in one indicator or to compare indicators. To compare indicators with a column visualization, either add indicators to the widget, or place several column visualization widgets next to each other in a dashboard.
	Step	Emphasizes changes in indicator scores between discreet points in time. Use to show small incremental changes in scores, especially when a line visualization smudges the data.
Comparing scores or trends between indicators		
	Stacked Column	Each column is divided into a stack of slices representing different indicators. Use when you want to see the cumulative result of multiple indicators.
	Area	Resembles a line visualization, but the area between the axis and line is emphasized with colors. Use with multiple indicators to highlight the relative contribution that each indicator makes to the whole.
	Relative Compare	Shows how multiple indicators diverge over time.

Considerations when creating a time series widget

To create a time series widget that fulfills your business goal, keep several points in mind.

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Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

When you are creating a time series widget, consider the following points:

- To show a filtered set of scores in a time series widget, apply a breakdown to the widget. Only the scores that match the specified element of the breakdown will appear.
- To show aggregated scores, such as a seven-day average or a sum, apply a time series to the widget.
- To show the scores of secondary indicators over the same time line, add widget indicators to an existing widget. For more information, see Add widget indicators.
- When you are selecting a visualization for a time series, consider whether you want to emphasize the trend in the scores or specific changes in the scores. Also consider whether you want to show one indicator or compare several related indicators.
- Rounded calculations based on averages may be off by a small amount due to rounding errors.

Create a line visualization for a time series widget

To show the trend over time in indicator scores, create a time series widget with a line visualization.

Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

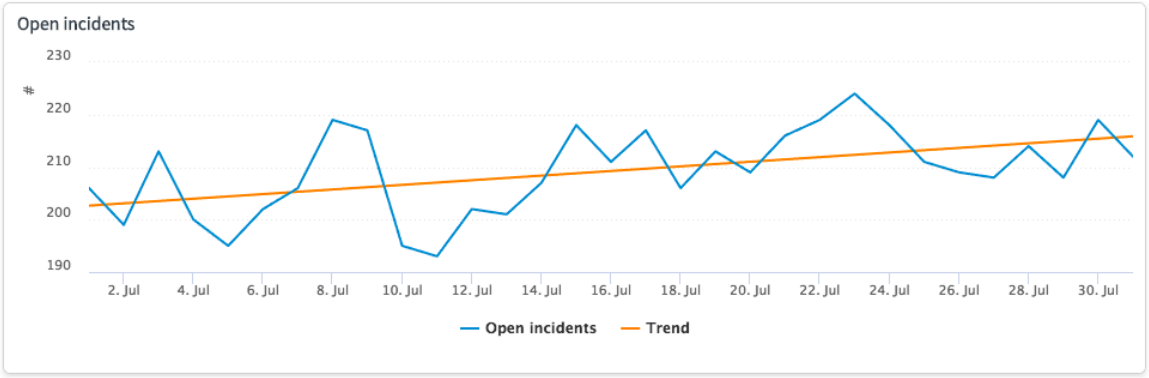
This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Line visualization is the simplest way to show the trend over time in the scores of a single indicator. Consider it the default visualization for a time series. If you are unsure which visualization to use for a time series, use a line.

The following example is a line visualization of the number of open incidents over the month of July. The **Show trend** optional display setting has been enabled.

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Line visualization - time series



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Line**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

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a. Select **Follow element**.

   Selecting this option removes the ability to set a second breakdown and element on the widget.

b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for time series widgets
9. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Considerations when creating a time series widget
- Create a line visualization for a breakdown widget

Create a column visualization for a time series widget

To emphasize the indicator scores over time instead of the trend in scores, create a time series widget with a column visualization. You can also use column visualizations to compare indicators.

Before you begin
Role required: pa_power_user or admin

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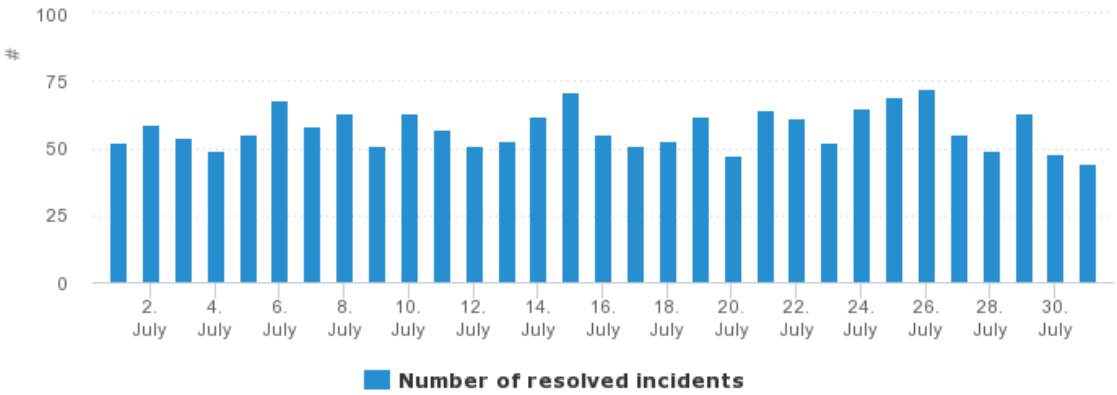
About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

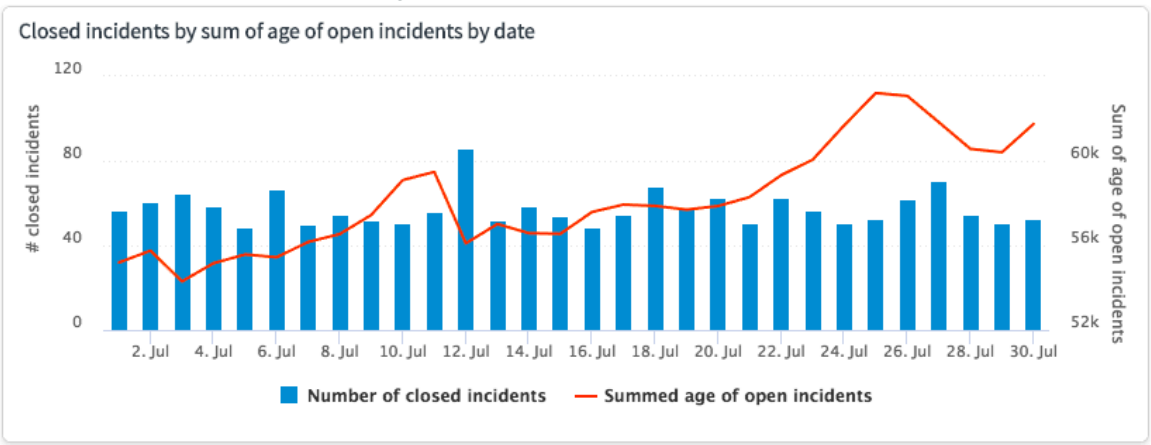
If you want to emphasize indicator scores instead of the trend in scores over time, use a column visualization. Column visualizations are also useful for comparing the scores of several indicators. To compare indicators, add indicators to the widget, or place several widgets with column visualization next to each other in a dashboard.

Column visualization



To help see whether there is a correlation between two indicators, add a second indicator to the widget. For best results, select an indicator that has discreet values as the main indicator and a continuous set of data as the secondary indicator.

Column visualization examining correlation



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.

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4. In the **Visualization** field, select **Column**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

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Field	Description
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.

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Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

Important:
Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for time series widgets
9. Click **Submit**.

What to do next

To compare your indicator to other indicators, perform one of the following actions:

- Add indicators to the Widget Indicators related list. Use the **Column** visualization for those indicators.
- Create widgets with **Column** visualizations for each of the other indicators. Place these widgets next to each other in a dashboard.

To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

Add widget indicators

Considerations when creating a time series widget

Create an area visualization for a time series widget

To examine the contribution of one or more indicators to a summing indicator, create a time series widget with an area visualization.

Before you begin

Role required: pa_power_user or admin

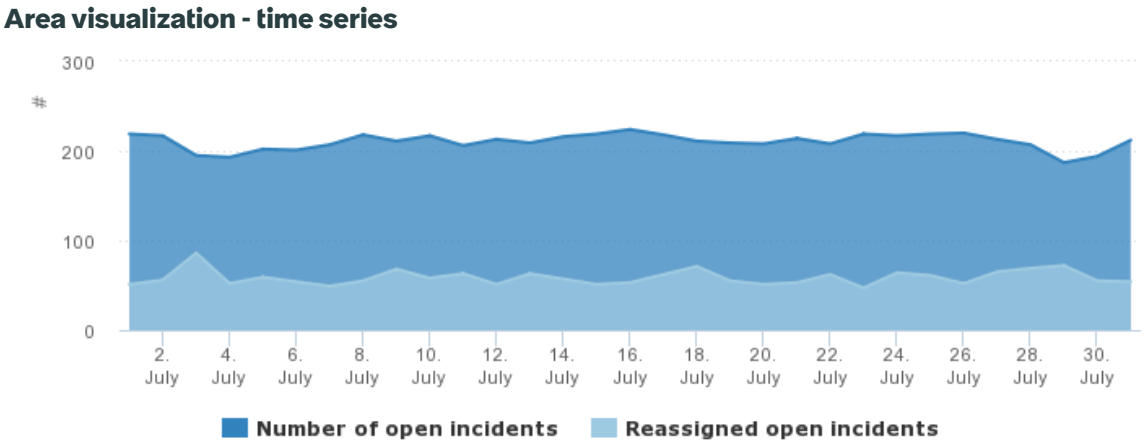
About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

If you want to examine the contribution of one or more indicators to a more inclusive indicator, use an area visualization. An area visualization can emphasize the relative contribution of one or more component indicators to the total trend. At the same time, you can still see the individual trends. Compare to the Stacked Column visualization, which sums the indicator scores and emphasizes the contribution of each score to the sum.

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Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Area**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

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a. Select **Follow element**.

   Selecting this option removes the ability to set a second breakdown and element on the widget.

b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
For more information, see Additional settings for time series widgets
9. Click **Submit**.

What to do next

- To compare your selected indicator with other indicators, add indicators to the Widget Indicators related list. Select the **Area** visualization for those indicators.
- To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

Considerations when creating a time series widget

Add widget indicators

Create a spline visualization for a time series widget

To show the trend over time in indicator scores when you need to apply curve fitting, create a time series widget with a spline visualization.

Before you begin

Role required: pa_power_user or admin

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About this task

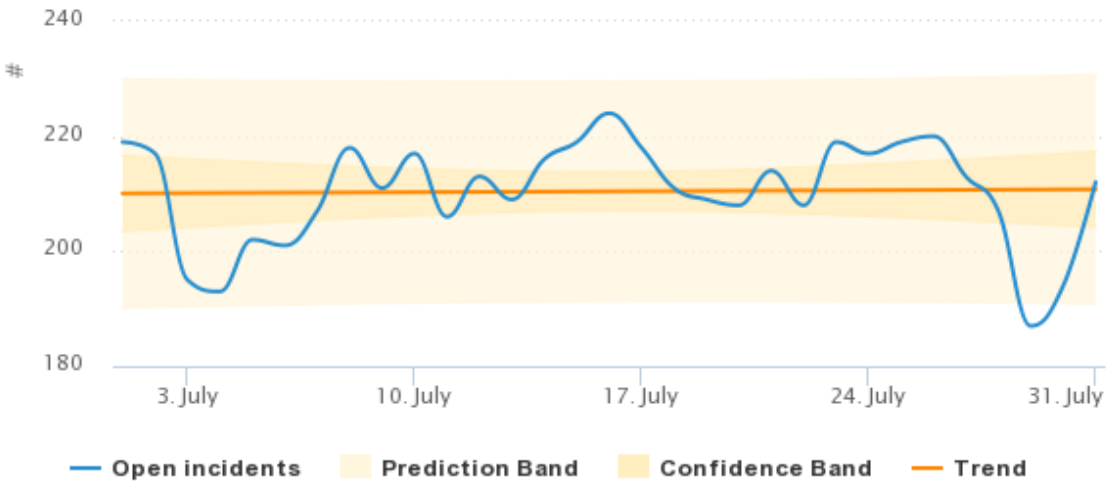
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A spline visualization replaces the straight line of a line visualization with a curve. As with a line visualization, use a spline visualization to show the trend over time in the indicator scores. Use a spline instead of a line when you need to fit a curve to your indicator scores.

In the following example, the trend line and 95% confidence interval is shown with a spline visualization of the number of open incidents.

Spline visualization - time series



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Spline**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown.

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Field	Description
	Note: Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.

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Field	Description
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
   Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for time series widgets
9. Click **Submit**.

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What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Considerations when creating a time series widget

Create a step visualization for a time series widget

To emphasize changes in indicator scores between discreet points in time, create a time series widget with a step visualization.

Before you begin
Role required: pa_power_user or admin

About this task

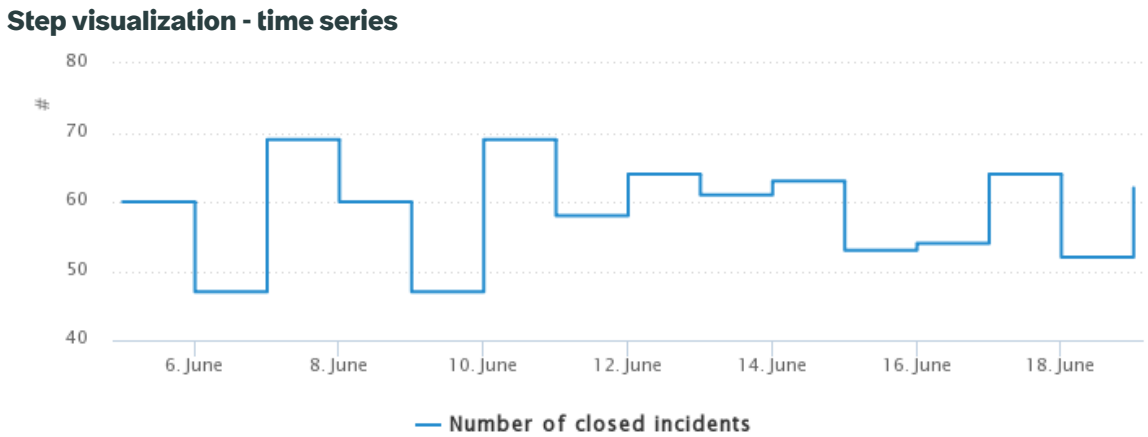
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Consider using a step visualization in the following circumstances:

- You want to emphasize the change in an indicator score between specific points in time, instead of the trend over time.
- The changes in indicator scores are too small to be easily seen in a line visualization.

The use case for a step visualization is the opposite of the use case for the spline visualization. Use a spline to emphasize a trend or the fuzziness of your data over time.



Procedure
1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.

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If you change the value of **Type** after you fill in other fields, those fields are cleared.

4. In the **Visualization** field, select **Step**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

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Field	Description
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.

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Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

Important:
Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for time series widgets
9. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Considerations when creating a time series widget

Create a stacked column visualization for a time series widget

To compare and sum the scores of several indicators, create a widget as a time series with a stacked column visualization.

Before you begin
Role required: pa_power_user or admin

About this task

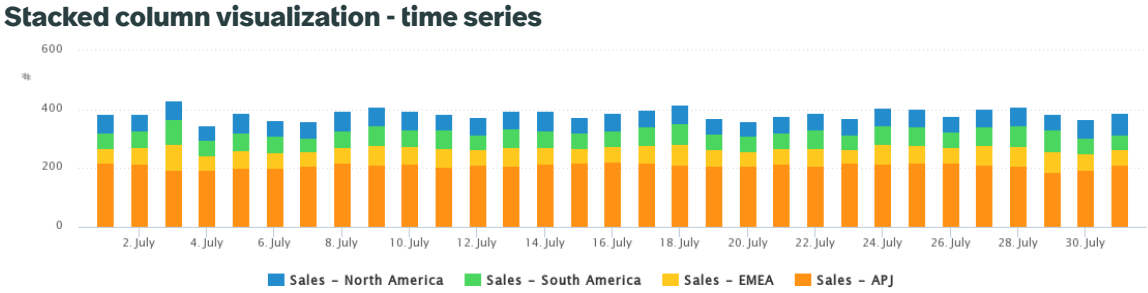
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

To show the sum of scores of several indicators over time, and to show the relative contribution of each indicator to the sum, use a stacked column visualization.

In the following example, indicators for each regional sales center are stacked in columns to show both the total sales and the relative contribution of each region.

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Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Time series**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Stacked Column**.
5. In the **Indicator** field, select the main indicator for which you want to show scores.
6. Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Previous period chart	Compares the scores of the main indicator in similar periods. The **Column** visualization works well for previous period charts. Also consider setting a **Color scheme**. Activating Previous Period Chart disables any secondary Widget Indicators.
Label	Specifies a custom label for the main indicator.
Color	A single color that applies only to the scores for the main indicator. This field overrides any color selected in **Color scheme**.
Color scheme	A spectrum of colors for the scores for all indicators. If only one indicator is shown, only the first color is used. If you do not specify a color scheme, the default color scheme defined by the *glide.ui.chart.default.colors* property applies. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

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a. Select **Follow element**.

   Selecting this option removes the ability to set a second breakdown and element on the widget.

b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

8. **Optional:** Review the **Settings** tabs and change settings as desired.
For more information, see Additional settings for time series widgets
9. Right-click the form header and select **Save**.
10. Add additional indicators in the Widget Indicators related list, giving each indicator the **Stacked Column** visualization.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Considerations when creating a time series widget
- Add widget indicators

Create a relative compare visualization for a time series widget

To show how the relative proportions of several indicators change over time, use a relative compare visualization for a time series.

Before you begin
Role required: pa_power_user or admin

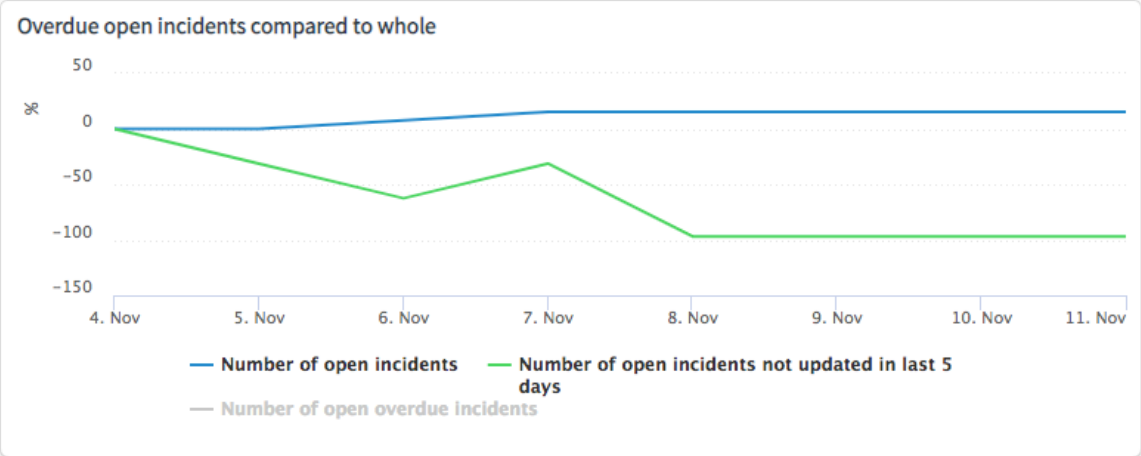
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About this task

Like a pie chart, a relative compare visualization shows relative proportions between data points, but it can also show how those proportions change over time. Traditional uses of relative compare visualizations are stock charts or population growth trends. When you create a relative compare visualization, it uses a baseline of zero and then shows how the data changes over time.

For example, this visualization shows the change of the total number of open incidents compared to the change in the number of open incidents that were not updated for 5 or more days. When you point to a line, the number of incidents and the percentage change for that day appear. The percentage change shown for a data point is calculated from a baseline of zero, not the previous data point as on most other time series visualizations.

Example of a relative compare visualization for a time series



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Click **New**.
3. From the **Type** list, select **Times Series**.
4. From the **Visualization** list, select **Relative Compare**.
5. Specify which indicators to include in the visualization with one of the following options.

6. **Optional:** Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown.

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Field	Description
	Note: Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

7. Right-click the form header and select **Save**.
8. If you selected a single indicator, add additional indicators in the Widget Indicators related list. If you selected an indicator group, additional indicators are not required.
9. Select the **Show date range selector** check box on the **Date Settings** tab.
   This setting lets users dynamically change the amount of time displayed in the visualization.
10. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

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a. Select **Follow element**.

   Selecting this option removes the ability to set a second breakdown and element on the widget.

b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

> **Important:**
> Do not specify a breakdown and element on the widget record when you want the elements for that breakdown to be selected on a breakdown dashboard. The element on the widget record overrides any elements selected on the breakdown dashboard for that breakdown.

11. Fill in the other fields, as appropriate.
12. Click **Update**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

Additional settings for time series widgets

Considerations when creating a time series widget

Add widget indicators

Additional settings for time series widgets

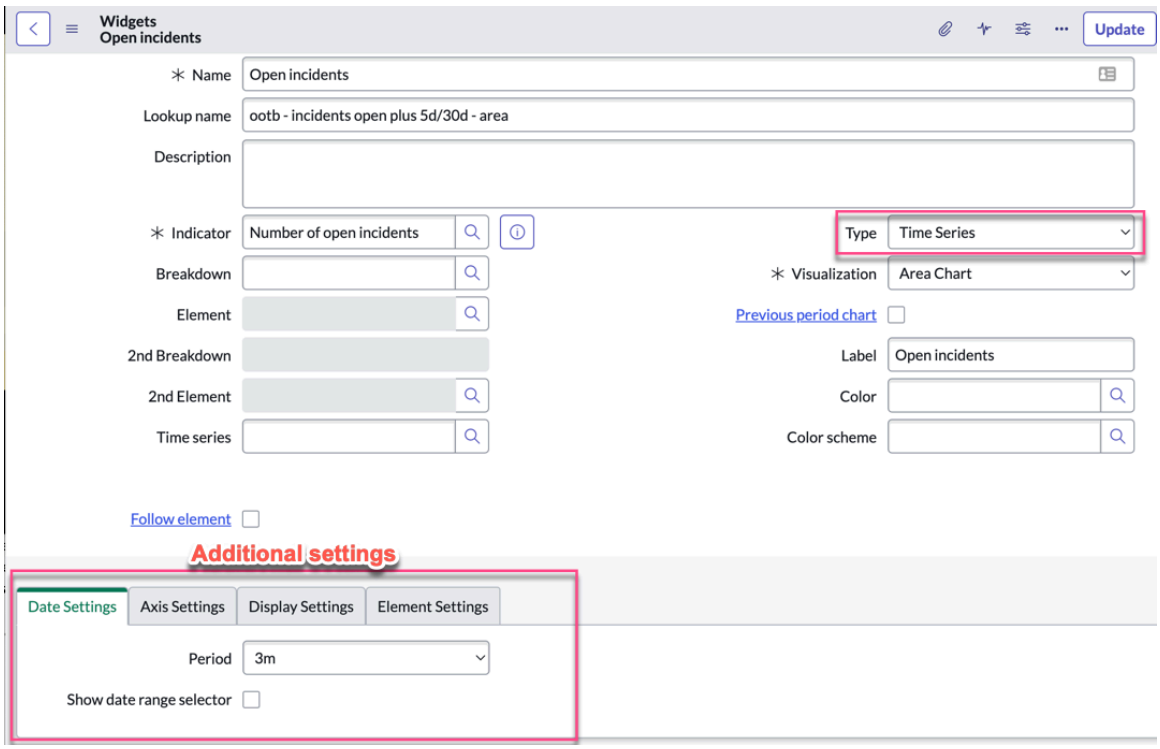
Time series widgets have the following optional settings for display, for the date range, and for the axis labels. You can also use these setting to select an elements filter in place of a first-level breakdown element.

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Important:
This topic is not a guide to creating time series widgets. It is a guide to extra, optional settings that are common across time series widget types. FOR INSTRUCTIONS ON CREATING TIME SERIES WIDGETS, PLEASE SEE THE APPROPRIATE "CREATE" TOPIC:

- Create a line visualization for a time series widget
- Create a column visualization for a time series widget
- Create an area visualization for a time series widget
- Create a spline visualization for a time series widget
- Create a step visualization for a time series widget
- Create a stacked column visualization for a time series widget
- Create a relative compare visualization for a time series widget

The available settings depend on the selected visualization. The following example is for a Area Chart visualization.



Date settings

The date settings are available only if **Previous period chart** is not selected.

Setting	Description
Period	Select the date range to display in the widget. Several options are available. • Select a specific time range. The default is **3m** (3 months). • Select **max** to use scores up to the current date. • Select **between** and then fill in the **From** and **To** fields to define a time period. The **Period** field is available with only the following visualizations:

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Setting	Description
	• Line • Spline • Column • Area • Step • Stacked Column • Relative Compare
Show date range selector	Display a date range selector on the widget. Users can then change the selected period when viewing the widget on a dashboard. **Note:** • Selecting a date range on a widget does not update the trend line. • If you combine a time series aggregation such as By month SUM with a date range selector, the user may see one more time period than they expect. The instance interprets a period such as 3 m as 0-3 months and may show four months of scores. • The date range selector is not supported for indicators based on a business calendar.

Axis settings

Setting	Description
Y-axis title	Specify a title to display on the vertical axis of the chart.
Y-axis from	Specify the starting point for the range of values for the vertical axis of the chart.
Y-axis to	Specify the ending point for the range of values for the vertical axis of the chart.
2nd Y-axis title	Specify a secondary title to display on the vertical axis of the chart.
2nd Y-axis from	Specify the starting point for a 2nd range of values for the vertical axis of the chart. The 2nd Y-axis can be used if scores normally move between a limited range, but you have some exceptions that would otherwise distort the chart. For example, scores normally lie from 40 through 60, but there is an exception of 1000.
2nd Y-axis to	Specify the ending point for a 2nd range of values for the vertical axis of the chart.

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Display settings

Setting	Description
Show target	Display the target score, if defined. This field appears only if **Previous period chart** is not selected.
Show thresholds	Display thresholds such as an all time high or an all time low. Thresholds appear only if they have been defined for this indicator.
Show data labels	Display the score for each data point, such as each slice of a pie chart.
Show trend	Display the trend line. This field appears only if **Previous period chart** is not selected.
Show confidence bands	Display confidence bands in this chart. For information about how the confidence band is calculated, see Widget confidence bands.
Show forecast	Display forecast data in the chart based on current trend data. Forecasting must be configured on the indicator.
Show forecast range	Display the 95% confidence interval of the forecast. Available only when **Select forecast** is enabled.
Show comments	Display comments added to data points in the chart.

Element settings

Setting	Description
Elements filter	Specify an element filter in place of the first-level breakdown element. Use an elements filter to personalize which elements appear according to the characteristics of the viewer. For example, you can filter elements of the Assignment Group breakdown to show only the groups to which the viewer belongs. For more information, see Personalized visuals.

Previous Period settings

Previous period settings are available only if **Previous period chart** is selected.

Note:
Thresholds, trend, confidence bands, and forecasts aren't intended to work when **Previous period chart** is selected.

Setting	Description
Range of periods	Select the range of periods to compare with the current period,
Number of periods	Specify the number of previous periods to display.

Widget confidence bands

The visible points of the trend line are used to calculate the confidence band. If you increase the date range, the bands are recalculated using the trend for the new date range.

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First, the confidence bands are calculated using the standard error of the trend. The width of the band depends on the number of points that are included in the calculation and the mean of the scores. If the standard error is low, the trend line is shown to be accurate. As the number of points decreases, or outliers are recorded, the confidence band widens. The confidence of the trend is less certain with fewer data points or with volatile scores.

Score widgets

Score widgets show aggregate indicator scores.

Score widget visualizations

	Visualization	Description
	Latest score	Shows a single indicator score and the change in that score compared to a previous period. A line representing the time series of scores appears in the background.
	Speedometer	Shows the most recently collected score of an indicator in the form of a round meter. The indicator target and its color scheme are shown on the dial.
	Dial	Shows an overview of the most recently collected score of an indicator in a half circle.
	Real-time score	Shows the current indicator score and the change in that score compared to the score at the last scheduled collection. A line representing the time series of scores appears in the background.

Create a latest score visualization for a score widget

To see the change between the latest score and a previous score, use a latest score visualization in a score widget. You can also show a trend line of scores.

Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

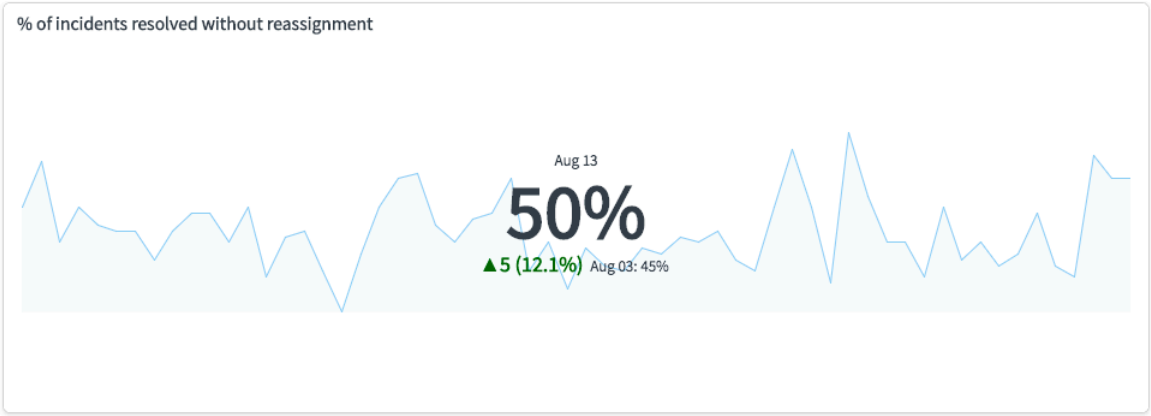
This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A latest score visualization shows the latest score and both the absolute and percentage change between this score and a previous score. This visualization is similar to a **Chart** view in an Analytics Hub. You can choose how many scores back to compare to the latest score. You can also display a trend line of absolute or percentage changes in scores.

Note:
This data visualization is supported on the mobile platform. For more information, see Displaying KPI Details for the mobile dashboard and Mobile dashboard preview.

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Latest score visualization



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** and **Subtitle** fields, give the widget a name and subtitle that reflect the information being displayed.
3. In the **Type** field, select **Score**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Latest score**.
5. In the **Indicator** field, select the indicator for which you want to show scores.
6. **Optional:** Fill in any of the following fields:

Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   Note:
   If multiple elements are selected on the breakdown dashboard, only the aggregate value of the elements can be shown.

   For more information, see Configure widgets for breakdown dashboards.

8. **Optional:** Select a template.
   Formula indicators that return a percentage value use Template 2 by default. Other indicators use Template 1 by default.

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9. In the **Latest score settings** tab, select which previous score to compare against the latest score in the **Compare score with** field:

Previous score	The score from the previous data collection. This setting is the default.
Periods back	Specify the number of data collection periods back from which you want the score to compare against the latest score.

10. In the **Element Settings** tab, you can select an element filter instead of selecting a specific element in the **Element** field.
Use this approach to personalize which breakdowns are shown depending on the viewer. For more information about using element filters to personalize widgets, see Personalized visuals.
11. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

View scores and statistics

Create a speedometer or a dial visualization for a score widget

To show the latest score of an indicator compared to the range of scores, use a speedometer or dial visualization in a score widget. A speedometer also shows the indicator target.

Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

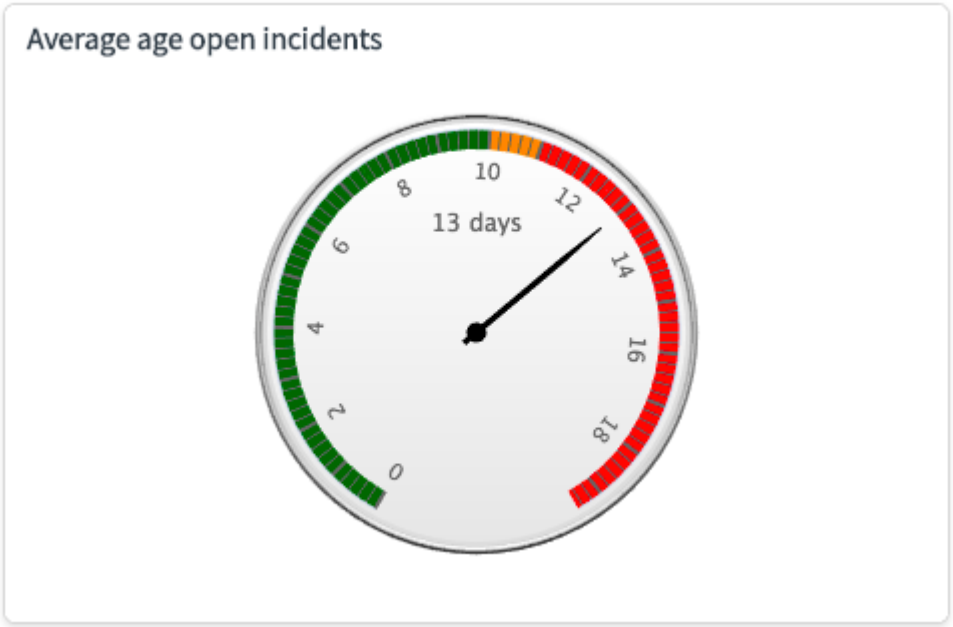
A speedometer visualization shows the latest score with a needle on a speedometer. A dial visualization shows the latest score with a colored in section of a half-circle. By default, the speedometer or dial shows the range of possible scores, but you can create your own range.

The speedometer is particularly useful when a target is set on the indicator. If a direction is set on the indicator (minimize or maximize), the visualization reproduces the target and the 3- or 5-color traffic light set on the indicator. For example, the following speedometer shows the Average age open incidents indicator with a Minimize direction, a target of 10, and a 3-color traffic light.

To create a target color scheme, see Indicator targets.

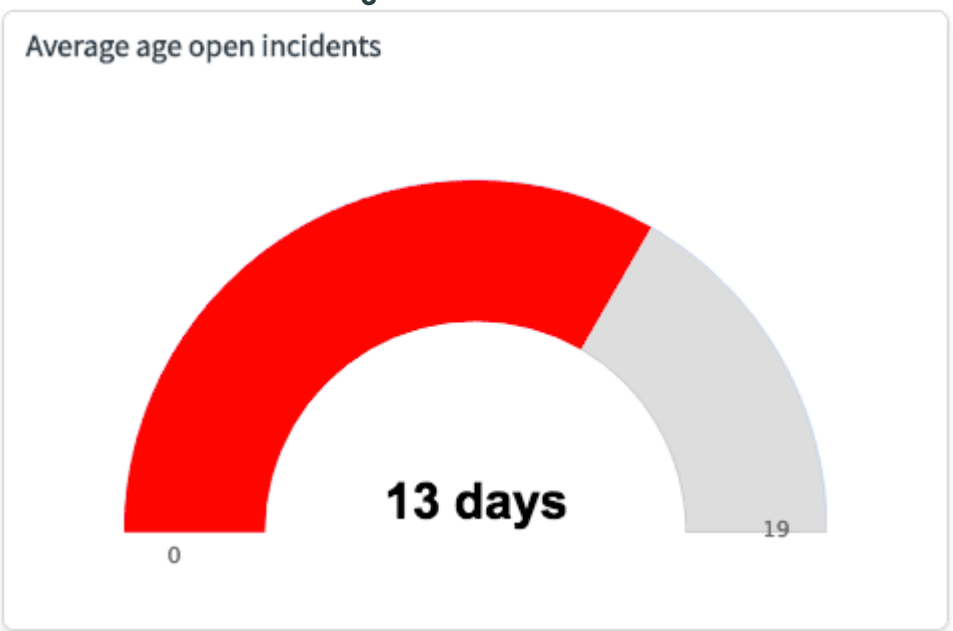
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Speedometer visualization - score widget



The dial visualization does not show the indicator target.

Dial visualization - score widget



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Score**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Speedometer** or **Dial**.
5. In the **Indicator** field, select the indicator for which you want to show scores.
6. **Optional:** Fill in any of the following fields:

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Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

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a. Select **Follow element**.

   Selecting this option removes the ability to set a second breakdown and element on the widget.

b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   Note:
   If multiple elements are selected on the breakdown dashboard, only the aggregate value of the elements can be shown.

For more information, see Configure widgets for breakdown dashboards.

8. **Optional:** In the **Speedometer/Dial Settings** tab, either select Auto scale, which shows the range of actual scores on the speedometer, or specify another scale.
9. In the **Element Settings** tab, you can select an element filter instead of selecting a specific element in the **Element** field.
   Use this approach to personalize which breakdowns are shown depending on the viewer. For more information about using element filters to personalize widgets, see Personalized visuals.
10. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

Indicator targets

Create a real-time score visualization for a score widget

To see the current score, use a real-time score visualization in a score widget. You can also show a trend line of scores.

Before you begin

- The indicator for which you want the real-time scores must have the **Show real-time score** property enabled.
- Role required: pa_power_user or admin

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About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A real-time score visualization shows the current score and both the absolute and percentage change between this score and the score at the last previous scheduled data collection. The score is calculated when a dashboard user opens a dashboard that contains the widget. This visualization is similar to a **Chart** view in an Analytics Hub. You can also show a trend line of absolute or percentage changes in scores.

For more information, see Real-time scores.

Warning:
- Real-time scores can differ per viewer and differ from collected scores. Real-time scores are taken directly from the relevant facts tables. Therefore, the Access Control Lists (ACL) of those facts tables determine the real-time scores that each logged-in user sees.
- If the widget has too many data elements, it cannot update in real time. In this case, a message appears that instructs the viewer to refresh the widget manually.

Real-time score visualization



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Click **New**.
3. In the **Name** and **Subtitle** fields, give the widget a name and subtitle that reflect the information being displayed.
4. In the **Type** field, select **Score**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
5. In the **Visualization** field, select **Real-time score**.
6. In the **Indicator** field, select the indicator for which you want to show scores.
7. **Optional:** Fill in any of the following fields:

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Field	Description
Breakdown and Element	Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** Instead of specifying an element for the first-level breakdown, you can specify an elements filter in the **Elements Settings** tab. Use elements filters for creating personal visualizations. For more information, see Additional settings for time series widgets. **Important:** If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified. **Note:** ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

8. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

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(Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

Note:

- If multiple elements are selected on the breakdown dashboard, only the aggregate value of the elements can be shown.
- Record watcher is not supported on Score widgets when multiple elements are selected on a breakdown dashboard. In this case, real time is refreshed only on page refresh.

For more information, see Configure widgets for breakdown dashboards.

9. **Optional:** Select a template.
   Real-time score visualizations use Template 2 by default.
10. In the **Element Settings** tab, you can select an element filter instead of selecting a specific element in the **Element** field.
    Use this approach to personalize which breakdowns are shown depending on the viewer. For more information about using element filters to personalize widgets, see Personalized visuals.
11. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

Edit a responsive dashboard

Real-time scores

Performance Analytics widgets on Service Portal

Create an automated indicator

List widgets

List widgets show the scores of multiple indicators.

List widget visualizations

	Visualization	Description
	Scorecard	For several indicators, shows any of the following attributes: • Scores at several points in time • Changes between the last two scores • % Change • Trends • Bullet charts

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List widget visualizations (continued)

	Visualization	Description
	Spider	Shows a plot of the latest score of each indicator on its own axis, starting with 0 at the center.

Permission to view indicators

On upgraded instances, you might need the pa_viewer role to view List widgets. Furthermore, List widgets do not show indicators that you do not have permission to read.

Create a scorecard visualization in a list widget

To list the metrics of several indicators, use a scorecard visualization in a list widget.

Before you begin
Role required: pa_power_user or admin

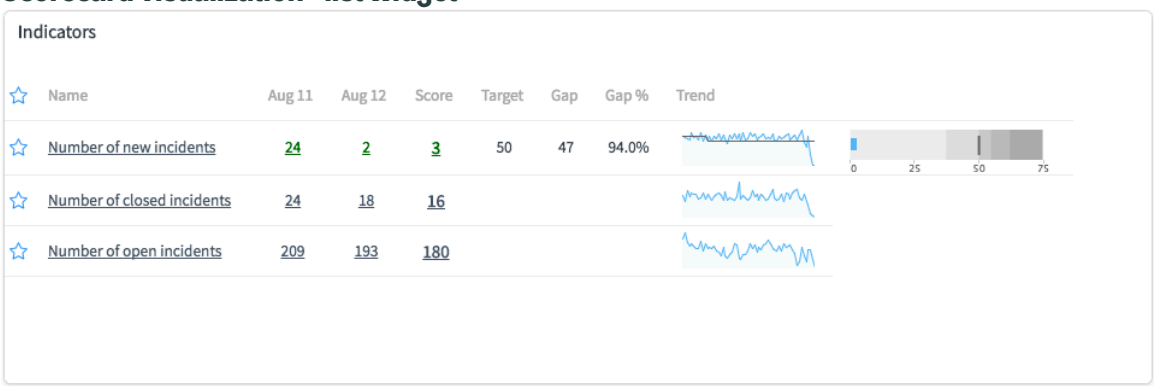
About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Use this visualization to help compare several similar indicators regarding their scores, the trend in their scores, and their compliance with targets.

Scorecard visualization - list widget



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Click **New**.
3. In the **Name** field, give the widget a name that reflects the information being displayed.
4. In the **Type** field, select **List**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
5. In the **Visualization** field, select **Scorecard**.
6. Select indicators in one of the following ways:

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- Select a group in the **Indicator Group** field.
- Click **Save**, then add widget indicators as described in Add widget indicators.

7. To aggregate the widget data for a specific time period, such as applying a 7-day sum or average, select a function in the **Time series** field.

   Note:
   Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

8. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
   Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

9. **Optional:** Select the attribute on which to sort the data in the **Sort on** field.
10. Select the scores and metrics to show in the **Column Settings** tab.

Column setting	Description
Current score	Show the score from the latest data collection. Selected by default.
Trend	Shows the direction that the indicator is moving. The trend is shown in a mini-chart on the dashboard. Selected by default.
Bullet chart	Show a graphic that shows how close the latest score is to the latest target score. The graphic only appears if the indicator has a defined target.
Multiple scores	Shows the number of scores that are defined in the **Number of periods** field, which appears when **Multiple scores** is selected. If **Current Score** is also selected, the most recent period is labeled **Score**. Otherwise, the most recent period is labeled with the date.

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Column setting	Description
Number of periods	Select the number of additional periods to include in the widget.
Period step	If the **Number of periods** > 1, select the length of each period. The unit is based on the frequency of the first indicator. **Note:** Including indicators with different frequencies, such as daily or weekly, may result in different numbers of periods per indicator. For example, if the first indicator has a daily frequency, and another indicator has a weekly frequency, the daily indicator shows 7 scores for every 1 score of the weekly indicator.
Change	Shows the change in value from the previous score.
Change %	Shows the percentage change from the previous score.
Target	Shows the target for the indicator. A value appears only if the indicator has a defined target. The target and current score are shown graphically in the **Bullet chart**.
Gap	Shows the difference between the current score and the target. For indicators with a Maximize direction, the gap calculation is Score–Target. For indicators with a Minimize direction, the calculation is Target–Score. Thus a positive value is always good, and a negative value is always bad. A value appears only if the indicator has a defined target.
Gap %	Shows the percentage difference between the current and target scores. As with Gap, a positive Gap % is always good, and a negative Gap % is always bad, regardless of the direction of the indicator. A value appears only if the indicator has a defined target.

11. **Optional:** Filter which indicators to show in the **List Settings** tab.

List setting	Description
Scorecard options	Select **All** indicators, indicators marked **Key**, or **Favorite** indicators to show only those indicators on the dashboard.
Page size	Select the number of rows to show on the list scorecard.
Filter	Filter the scorecard list for **Best Performing**, **Worst Performing**, **Improved**, **Declined**, or **Deteriorated**. Only indicator scores that match the filter are shown.

12. Click **Submit** or **Update**.

What to do next
To view the widget, add it to a dashboard or a portal.

Create a spider visualization in a list widget

To plot the scores of several indicators, use a spider visualization in a list widget.

Before you begin
Role required: pa_power_user or admin

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About this task

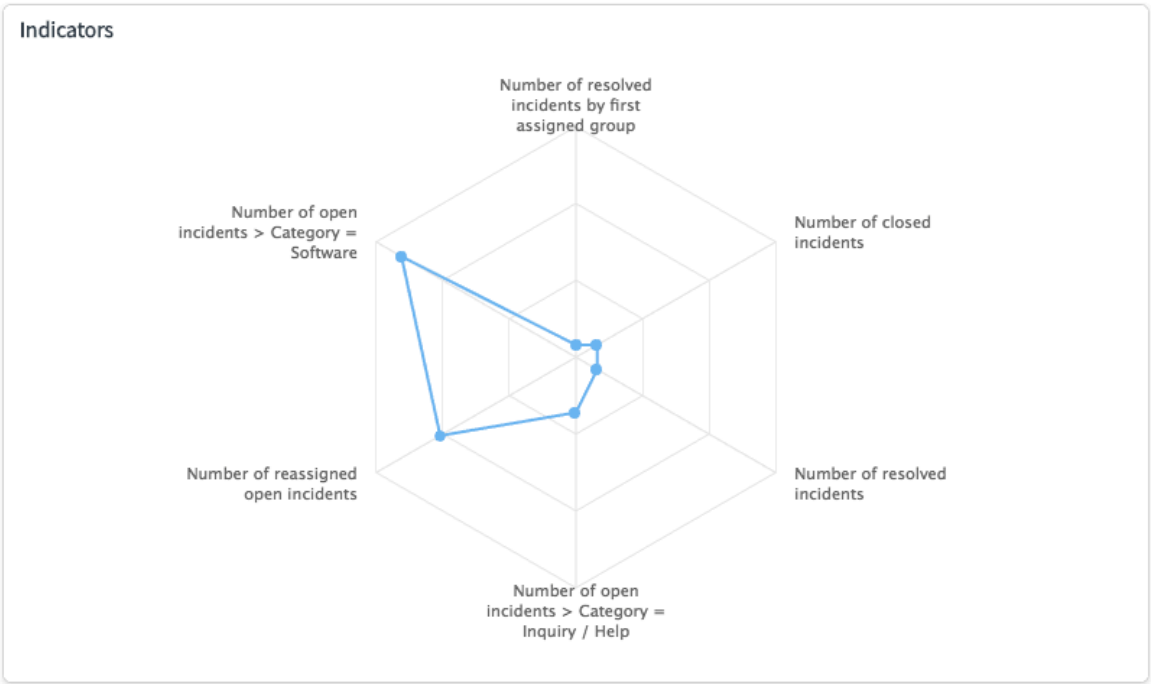
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Use this visualization to help compare the scores of several similar indicators.

Note:
You can compare a maximum of ten indicators in a spider visualization.

Spider visualization - list widget



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Click **New**.
3. In the **Name** field, give the widget a name that reflects the information being displayed.
4. In the **Type** field, select **List**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
5. In the **Visualization** field, select **Spider**.
6. Select indicators in one of the following ways:
   - Select a group in the **Indicator Group** field.
   - Click **Save**, then add widget indicators as described in Add widget indicators.
7. To aggregate the widget data for a specific time period, such as applying a 7-day sum or average, select a function in the **Time series** field.

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Note:
Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

8. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, select whether to show each element separately or to show an aggregate of elements based on the indicator aggregation.
      Neither all widget visualizations nor all indicators support both aggregate and separate views. For automated and external indicators, only COUNT, SUM, MAX, and MIN data aggregations support aggregate views. COUNT DISTINCT and AVG do not. For more information, see Showing multiple elements separately or aggregated.

9. **Optional:** Select the attribute on which to sort the data in the **Sort on** field.
10. **Optional:** Filter which indicators to display in the **List Settings** tab.

List setting	Description
Scorecard options	Select **All** indicators, indicators marked **Key**, or **Favorite** indicators.
Page size	Has no effect. The maximum number of indicators is 10.

What to do next
To view the widget, add it to a dashboard or a portal.

Breakdown widgets

Breakdown widgets show indicator scores grouped by breakdown elements. Different visualizations can be used to compare the relative proportion of breakdown elements or the trends in these proportions.

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Note:
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This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

When you are selecting a visualization for a breakdown widget, consider whether you want to compare the trends or the relative proportions of the breakdown elements. Also consider whether you want to show one indicator or compare several related indicators, and whether you want to show one or two breakdowns.

Breakdown widget visualizations

	Visualization	Description
Visualizing trends in the scores of an indicator, by elements of a breakdown		
	Scorecard	Shows the trends for one breakdown for a single indicator.
Visualizing the relative proportions of the elements of a breakdown		
	Column	Enables a comparison between the relative proportion of breakdown elements by displaying them as proportional vertical columns. Use when a pie, funnel, or other such visualization is not appropriate.
	Pie	Enables a comparison between the relative proportion of breakdown elements by using a circle to represent the whole.
	Donut	Enables a comparison between the relative proportion of breakdown elements by using a donut shape to represent the whole.
	Semi-donut	Enables a comparison between the relative proportion of breakdown elements by using a semi-donut shape to represent the whole. A semi-donut chart uses a donut sliced in half to represent the whole.
	Funnel	Enables a comparison between the relative proportion of breakdown elements by displaying values as progressively decreasing proportions. The size of each section reflects a percentage of the total of all values.
	Pyramid	Enables a comparison between the relative proportion of breakdown elements by displaying values as progressively increasing proportions. The size of each section reflects a percentage of the total of all values.
Visualizing both the trend in scores and the relative proportions of elements of a breakdown		
	Stacked Column	Combines time series and breakdown widget functions. The X-axis is a time line and the visualization shows the development of indicator scores over time. Also, each column is divided into a stack of slices according to the elements of a breakdown. Thus the visualization shows the relative proportion of breakdown elements over time.
	Column and total	Shows both the relative proportion of breakdown elements and the trend in the indicator score. Shows a separate column for each breakdown value and a line representing the total for all values, over time.

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Breakdown widget visualizations (continued)

	Visualization	Description
	Line	Shows changes over time in the relative proportion of breakdown elements for an indicator by connecting a series of data points with straight lines.
	Relative Compare	Shows how multiple breakdowns diverge over time.
Other visualizations		
	Pareto	Combines column and line visualizations to identify the most important factors in a large set of factors.
	Pivot scorecard	Enables you to compare the breakdown elements for one breakdown applied to several indicators. The Y-axis can be the indicators or the breakdown elements.
	Treemap	Shows a treelike display of nested rectangles with a color gradient to signify positive to negative scores or trends in scores.

Grouping by breakdown and filtering by breakdown

In breakdown widgets, breakdowns either group or filter indicator scores. When you create a widget, this dual purpose of breakdowns affects the function of the breakdown fields.

The **Breakdown** and **2nd Breakdown** fields in the widget form have a different function for breakdown widgets than for other widget types. In most other widget types, these fields specify filters. Only the indicator scores that correspond to the specified breakdown elements are shown. However, when you create a breakdown widget, you group the scores by a breakdown instead of filtering it. The elements of the breakdown are shown as the different wedges of a pie visualization, or separate columns in a column visualization, for example.

By default, a breakdown widget shows all the elements of the breakdown. However, you can restrict which elements are shown by applying an element filter. For more information, see Element filters.

You can filter the scores by a first-level breakdown and element and show the elements of a second-level breakdown. To do this, specify a breakdown and an element in the **Breakdown** and **Element** fields. Then specify the breakdown that is used to group the data in the **2nd Breakdown** field. If you do not specify a **2nd Breakdown**, the **Element** field is ignored and the first **Breakdown** is used to group indicator scores instead of filtering them.

Interacting with breakdown widgets on dashboards

Performance Analytics users can interact with individual breakdown widgets on dashboards to change the visualization or breakdown.

Widgets with the **Type** of **Breakdown** enable users to select the visualization when viewing the widget on a dashboard. Users can select any visualization for the widget type from the **Visualization** choice list when viewing the widget on a dashboard.

Note:
You cannot select the **Pivot Scorecard** visualization from a dashboard. To use this visualization, configure the widget record.

Breakdown widgets also enable users to select the breakdown when multiple breakdowns are available. All available breakdowns for the widget **Indicator** appear in the **Breakdown** choice list

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when viewing the widget on a dashboard. If the indicator has only one associated breakdown, the **Breakdown** choice list does not appear on the widget.

Note:
If the widget is added to a breakdown dashboard and the user selects the same breakdown on the widget and on the dashboard, the dashboard breakdown is ignored. However, when the user selects any other combination of widget and dashboard breakdowns, both breakdowns apply.

By default, the interactive breakdown applies as the 1st-level breakdown. However, if the widget is on a breakdown dashboard and **Follow element** is selected on the Widget form, the interactive breakdown applies as the 2nd-level breakdown. (**Collect breakdown matrix** must be set on the indicator for 2nd-level breakdowns to apply.) Any breakdown that is set on a dashboard that contains the widget applies as the 1st-level breakdown.

You can disable this functionality for a specific widget by clearing the **Show visualization selector** or **Show breakdown selector** check boxes on the Widgets form.

The visualization or breakdown selected in the widget record is used as the default.

Related topics

Indicator breakdowns

Using breakdowns on dashboards

Create a scorecard visualization for a breakdown widget

To show the trend for the elements of one breakdown applied to one indicator, use a scorecard visualization.

Before you begin
Role required: pa_power_user or admin

About this task

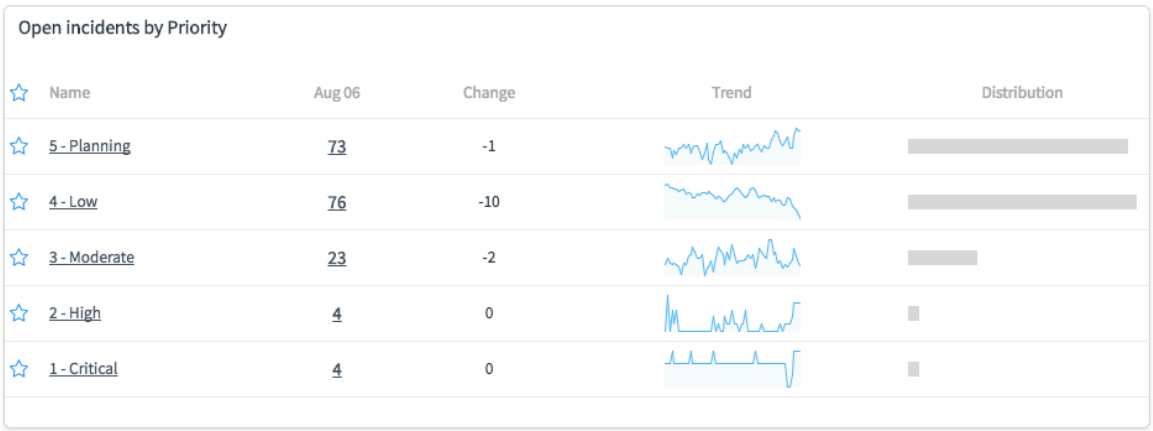
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Scorecard visualizations show the trends by element for one breakdown applied to one indicator.

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Scorecard visualization - breakdown



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Scorecard**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:

     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

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Important:
If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, only the **Aggregated** view is possible.

   d. **Optional:** Select a breakdown relation in **Followed breakdown relation**. The widget displays only the breakdown elements that follow the specified breakdown relation. A related breakdown element must be selected on the breakdown dashboard. Otherwise, the widget does not display any data. For a detailed example, see Showing breakdown relations on dashboards.

      Note:
      - You can specify either a followed breakdown or a followed breakdown relation, not both.
      - Multiple element selection is not supported on a widget that follows a breakdown relation.

   For more information, see Configure widgets for breakdown dashboards.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations.

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Field	Description
	Note: Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.

9. **Optional:** Review the **Settings** tabs and change settings as desired.
10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Additional settings for breakdown widgets
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards
- Analytics Hub

Create a pie, donut, or semi-donut visualization for a breakdown widget

To show the relative proportions of the elements of a breakdown, use a pie, donut, or semi-donut visualization.

Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

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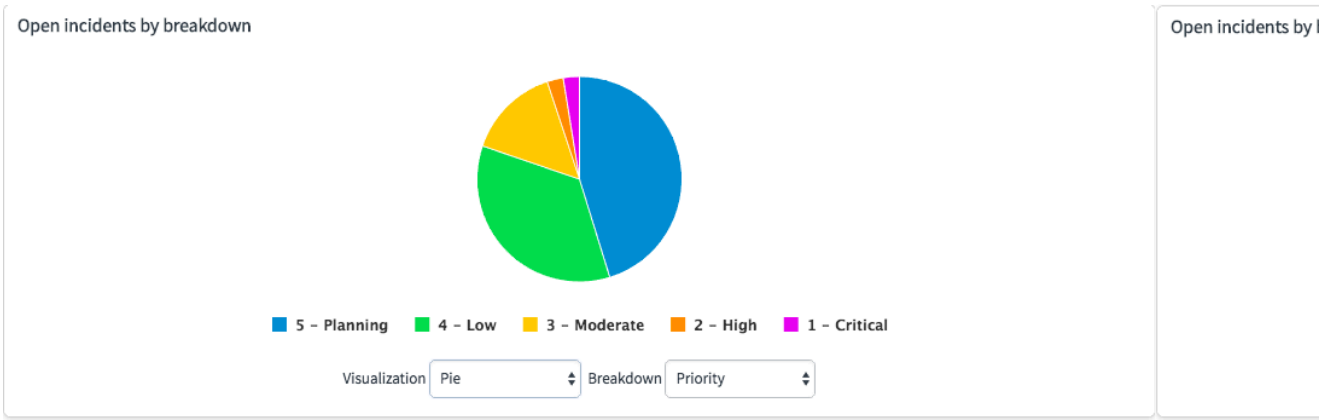
When you need to compare the percentages or relative proportions of breakdown elements, you can use a pie, a donut, or a semi-donut visualization. Consider trying all three to see which works best for a particular widget.

These visualizations can be unclear in the following cases:

- The breakdown has many elements.
- Several elements in the breakdown are much smaller than the others.

In these cases, or to compare scores instead of proportions, consider using a column visualization.

Pie, donut, and semi-donut visualizations



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Pie**, **Donut**, or **Semi donut**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

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Note:

- Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
- To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

- The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

Important:
If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, only the **Aggregated** view is possible.

   For more information, see Configure widgets for breakdown dashboards.

   Note:
   The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator.

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Field	Description
	For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. **Optional:** Review the **Settings** tabs and change settings as desired. For more information, see Additional settings for breakdown widgets.
10. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a pyramid or a funnel visualization for a breakdown widget

To show the relative proportions of the elements of a breakdown, particularly when the elements represent stages in a process, use a pyramid or funnel visualization.

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Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

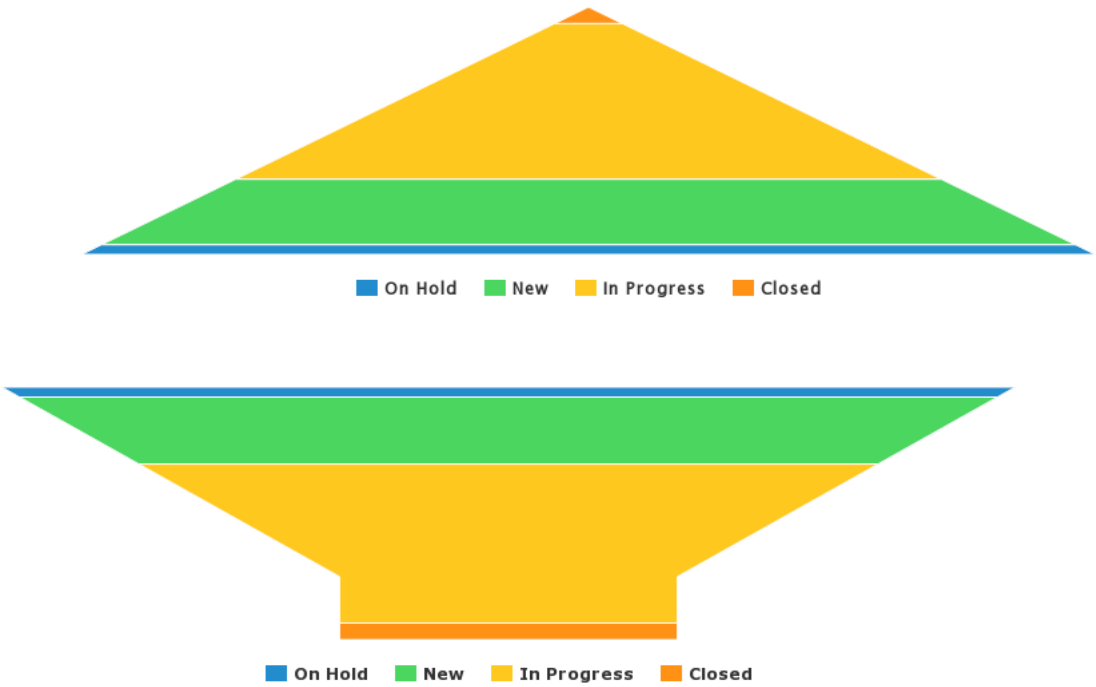
This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

When you need to compare the percentages or relative proportions of breakdown elements, consider using a funnel or pyramid visualization instead of a pie visualization. Funnel and pyramid visualizations are particularly appropriate when the elements of a breakdown represent stages in a process, such as going from lead to closed deal in a sales process.

Funnel charts stack slices from top to bottom by decreasing percentage and pyramid charts stack slices by increasing percentage. Pyramid charts are often used to represent hierarchical levels in an organization.

Pyramid and funnel visualizations - breakdown

In the following examples, open incidents are displayed according to the stages that the incidents are in.



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.

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4. In the **Visualization** field, select **Pyramid** or **Funnel**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
   Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate

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values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. **Optional:** Review the **Settings** tabs and change settings as desired.

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For more information, see Additional settings for breakdown widgets.

10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a column visualization for a breakdown widget

To compare the elements of one breakdown applied to one indicator, use a column visualization.

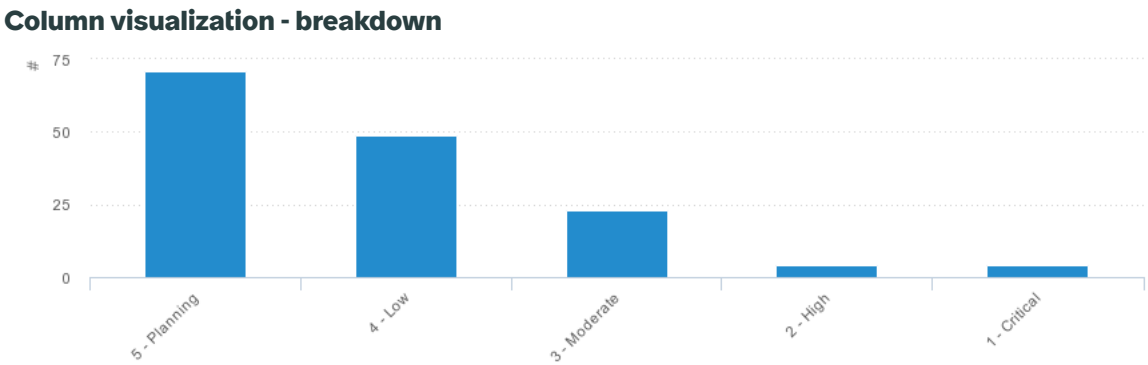
Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

If you want to compare the relative proportion of indicator scores by breakdown elements, and a pie visualization is not appropriate, use a column visualization. Column visualizations are clearer when there are many elements, when several elements are much smaller than others, or when several elements are close to each other in value.



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Column**.

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You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.

5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
   Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate

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values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. **Optional:** Review the **Settings** tabs and change settings as desired.

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For more information, see Additional settings for breakdown widgets.

10. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a Pareto visualization for a breakdown widget

To identify the most important breakdown elements when the breakdown has a large set of elements, use a Pareto visualization.

Before you begin

Role required: pa_power_user or admin

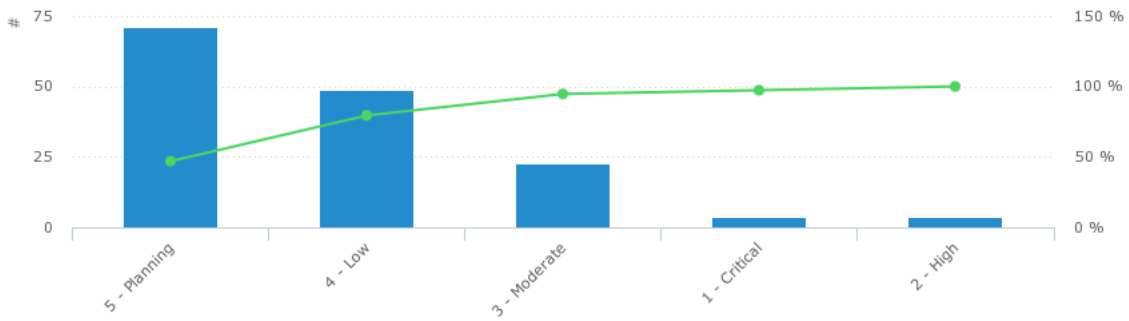
About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Pareto visualizations contain both bar and line graphs. The bars display the data in descending order from left to right, and the line graph shows the cumulative totals from each category in the same order. The left Y axis is the record count, and the right Y axis is the cumulative percentage of the total number of records evaluated. The data to the left of the intersection of the line graph and the 80% mark have the greatest effect on the overall outcome.

Pareto visualization - breakdown



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.

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4. In the **Visualization** field, select **Pareto**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
   Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate

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values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. **Optional:** Review the **Settings** tabs and change settings as desired.

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For more information, see Additional settings for breakdown widgets.

10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics

- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a line visualization for a breakdown widget

To follow changes over time in the relative proportion of breakdown elements for an indicator, use a line visualization in a breakdown widget.

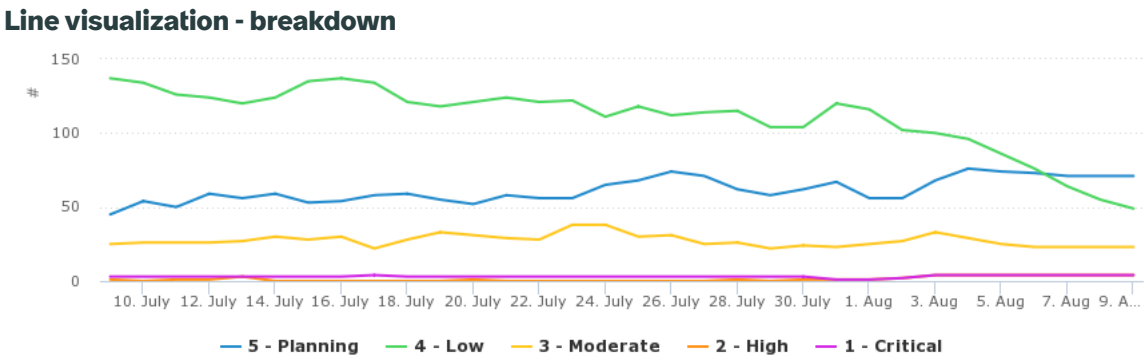
Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

A line visualization in a breakdown widget shows how the proportion of indicator scores belonging to different breakdown elements changes over time. To select the time period over which changes are tracked, go to the **Date Settings** tab.



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Line**.

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You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.

5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
   Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate

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values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. **Optional:** Review the **Settings** tabs and change settings as desired.

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For more information, see Additional settings for breakdown widgets.

10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics

- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Create a line visualization for a time series widget
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a columns and total visualization for a breakdown widget

To follow changes over time in both the scores of an indicator and the relative proportion of breakdown elements for that indicator, use a Columns and Total visualization in a breakdown widget.

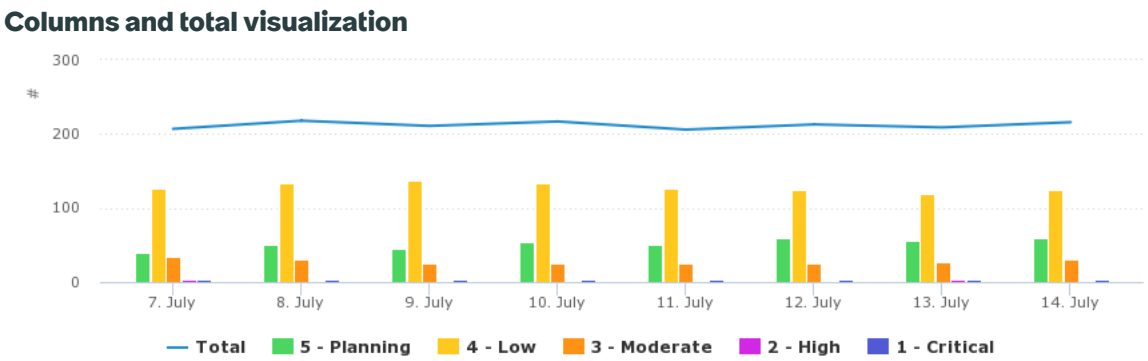
Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

This visualization combines a time series and a breakdown widget. A classic time series with a line visualization is shown for the indicator scores. This line is combined with a column visualization of the breakdown for each point in time at which indicator scores were collected. Use this widget to explore relationships between the indicator score and the relative proportion of breakdown elements for that indicator.



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.

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3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Columns and Total**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
      Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown

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source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

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9. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for breakdown widgets.
10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards
- Create a line visualization for a time series widget

Create a stacked column visualization for a breakdown widget

To follow changes over time in the relative proportion of breakdown elements for an indicator, use a stacked column visualization in a breakdown widget.

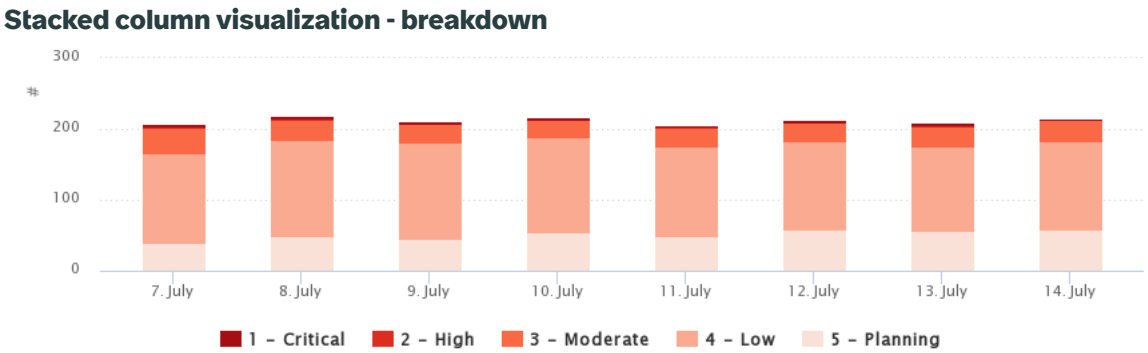
Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

This visualization shows the relative proportion of breakdown elements in a single column, and shows a column for every point in time that indicator scores are collected. To select the time period over which changes are tracked, go to the **Date Settings** tab.



Procedure
1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.

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If you change the value of **Type** after you fill in other fields, those fields are cleared.

4. In the **Visualization** field, select **Stacked Column**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:
     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

   Important:
   If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

   Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**.
   Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

   (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the

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widget follow elements on breakdown dashboards. You want the widget to show separate values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

c. In **Show multiple elements as**, only the **Aggregated** view is possible.

For more information, see Configure widgets for breakdown dashboards.

Note:
The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

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9. **Optional:** Review the **Settings** tabs and change settings as desired.
   For more information, see Additional settings for breakdown widgets.
10. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a relative compare visualization for a breakdown widget

To show how the relative proportions of several indicators change over time, use a relative compare visualization for a time series.

Before you begin
Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

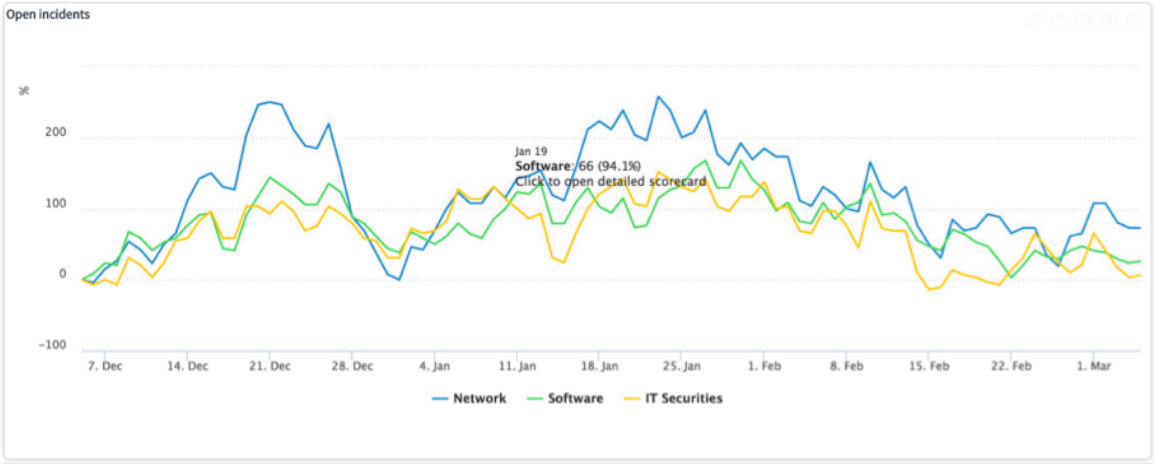
This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Like a pie chart, a relative compare visualization shows relative proportions between data points, but it can also show how those proportions change over time. Traditional uses of relative compare visualizations are stock charts or population growth trends. When you create a relative compare visualization, it uses a baseline of zero and then shows how the data changes over time.

For example, this visualization shows the number of open incidents from December to March for three different incident types. When you point to a line, the number of incidents and the percentage change for that day appear. The percentage change shown for a data point is calculated from a baseline of zero, not the previous data point as on most other time series visualizations.

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Example of a relative compare visualization



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Relative Compare**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

     Note:

     - Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
     - To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

   - The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

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Important:
If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a filtering breakdown on the widget. Scores are grouped by the elements of the first breakdown and filtered by the elements that the user selects on the dashboard.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to show separate values for the elements of the breakdown Assigned to. Therefore, you select **Assigned to** in the field **Followed breakdown**.

   c. In **Show multiple elements as**, only the **Aggregated** view is possible.

   For more information, see Configure widgets for breakdown dashboards.

   Note:
   The **Followed breakdown relation** menu works only with Scorecard visualizations. Also, multiple element selection on a breakdown dashboard is not supported on the widget when you set a breakdown relation to follow.

8. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.

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Field	Description
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

9. In the **Date Settings** tab, select **Show date range indicator**.
10. Review the **Settings** tabs and adjust other settings as desired.
11. Click **Submit**.

What to do next
To view the widget, add it to a dashboard or a portal.

Related topics
- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Additional settings for breakdown widgets
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Create a pivot scorecard visualization for a breakdown widget

To compare the relative proportions of breakdown elements between a number of indicators, use a pivot scorecard visualization in a breakdown widget.

Before you begin
Role required: pa_power_user or admin

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About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

If you want to see the same breakdown applied to more than one indicator in the same widget, use a pivot scorecard. You can pivot the scorecard so that the axes for breakdown elements and for indicators are reversed.

Pivot scorecard - breakdown

Priority of all open incidents

	1 - Critical	2 - High	3 - Moderate	4 - Low	5 - Planning
Number of open incidents	4	4	23	43	71
Number of open incidents not updated in last 5 days	2	0	5	0	10
Number of open incidents not updated in last 30 days	0	0	1	0	2

Pivot scorecard with the breakdown on the Y-axis

Priority of all open incidents

	Number of open incidents	Number of open incidents not updated in last 5 days	Number of open incidents not updated in last 30 days
1 - Critical	4	2	0
2 - High	4	0	0
3 - Moderate	23	5	1
4 - Low	43	0	0
5 - Planning	71	10	2

Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Pivot Scorecard**.
5. In the **Pivot breakdown** field, select the breakdown whose elements you want to see across several indicators.
6. Click **Save**.
   The **Indicators** related list appears at the bottom of the form.
7. In the **Indicators** related list, click **New**.

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8. In the menu that appears, select the indicators that you want to compare breakdown elements between.
9. Click **Update**.

What to do next

- To view the widget, add it to a dashboard or a portal.
- Once the widget is in a dashboard, edit the widget and try the **Breakdown on Y-axis** display setting.

Related topics

Edit a responsive dashboard

Performance Analytics widgets on Service Portal

Grouping by breakdown and filtering by breakdown

Create a treemap visualization for a breakdown widget

To display a hierarchy of breakdown elements, use a treemap visualization.

Before you begin

Role required: pa_power-user or admin

About this task

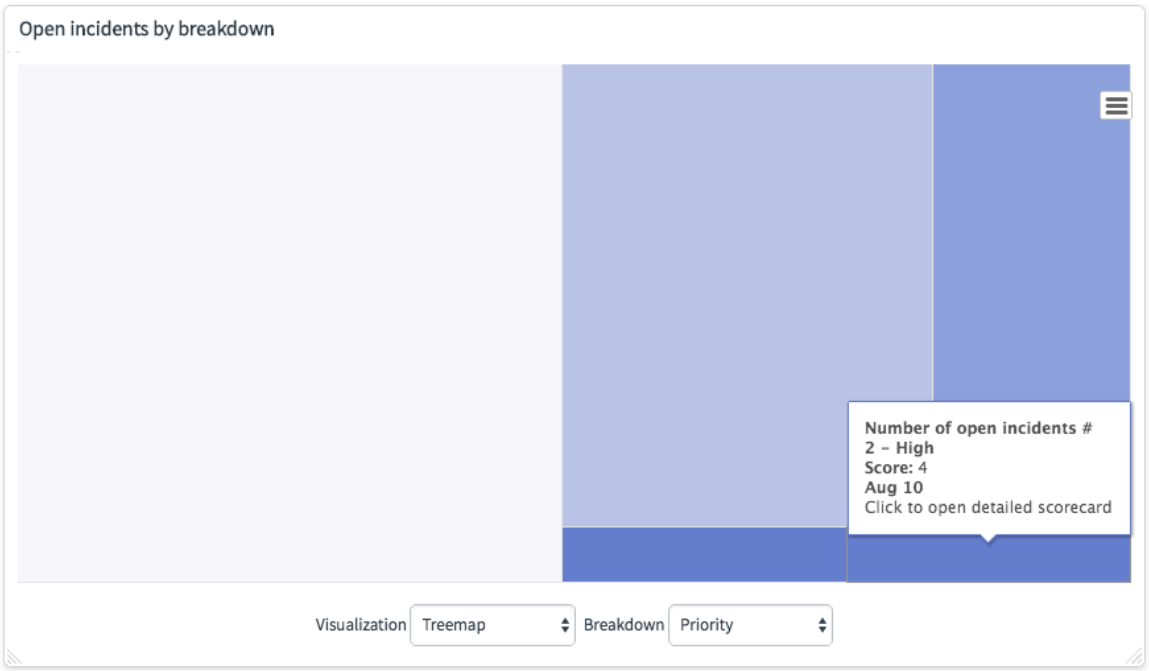
Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

If the elements of a breakdown differ in favorability, or if you want to compare each breakdown element against an indicator target, you can use a treemap. Treemaps use nested rectangles with the size representing the relative proportion of the element and the color representing the favorability.

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Treemap visualization



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Breakdown**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
4. In the **Visualization** field, select **Treemap**.
   You can let the user switch between visualizations. Select **Show visualization selector** in the **Display settings** tab.
5. In the **Indicator** field, select the main indicator which you want to break down.
6. Select the breakdown to group the scores.
   You may also set a breakdown and element to filter the scores.
   - For the widget to show scores grouped by the elements of a breakdown, select a breakdown in the **Breakdown** field. Do not select an element or a second breakdown.
   - You can have the widget show different elements depending on characteristics of the viewer. To do so, specify an elements filter in the **Element Settings** tab. Do not specify an element in the **Element** field. You can personalize only the first-level breakdown elements. For more information, see Personalized visuals.
   - For the widget to show scores filtered by an element of one breakdown then grouped by the elements of another breakdown, select the filtering breakdown and element in the **Breakdown** and **Element** fields. Then select the grouping breakdown in the **2nd Breakdown** field. The widget shows scores for each element of the **2nd Breakdown** but only if they match the first **Breakdown** and **Element**.

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Note:

- Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab.
- To have a second breakdown, **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

- The widget can also show scores grouped by one breakdown and filtered by an element that the user selects on a breakdown dashboard. Select the grouping breakdown in the **Breakdown** field. Then select **Follow element** as described in a later step.

Important:
If the widget is for a formula indicator, all contributing indicators in the formula must support the breakdown. Otherwise an error message instead of a value appears in the widget on a dashboard.

7. In the **Coloring method** field, select whether to rank the favorability based on score, change to score, percent of change, or an indicator target.
8. Select the color that indicates a positive in the **Positive color** field.
9. Depending on the **Coloring method**, you may need to select a **Negative color**
10. **Optional:** Fill in any of the following fields:

Field	Description
Time series	Run a function on the scores for a specific time period, such as applying a 7-day sum or average. from being applied to the indicator. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Sort on (Optional) Sort direction	Sort the data on the **Sort on** attribute. Then select whether to sort in ascending or descending order. **Note:** The system attempts to sort the data based on the scores from the latest collection job. If the latest job did not collect any scores, the **Sort on** setting is ignored.
Color scheme	A spectrum of colors for the scores for all breakdowns. If only one breakdown is shown, only the first color is used. (Optional) If you do not specify a color scheme, the colors

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Field	Description
	defined in the system property *glide.ui.chart.default.colors* apply. You can create your own color scheme instead of using a provided color scheme. For more information, see Create a color scheme.

11. **Optional:** Review the **Settings** tabs and change settings as desired. For more information, see Additional settings for breakdown widgets.
12. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Related topics

- Edit a responsive dashboard
- Performance Analytics widgets on Service Portal
- Grouping by breakdown and filtering by breakdown
- Interacting with breakdown widgets on dashboards

Additional settings for breakdown widgets

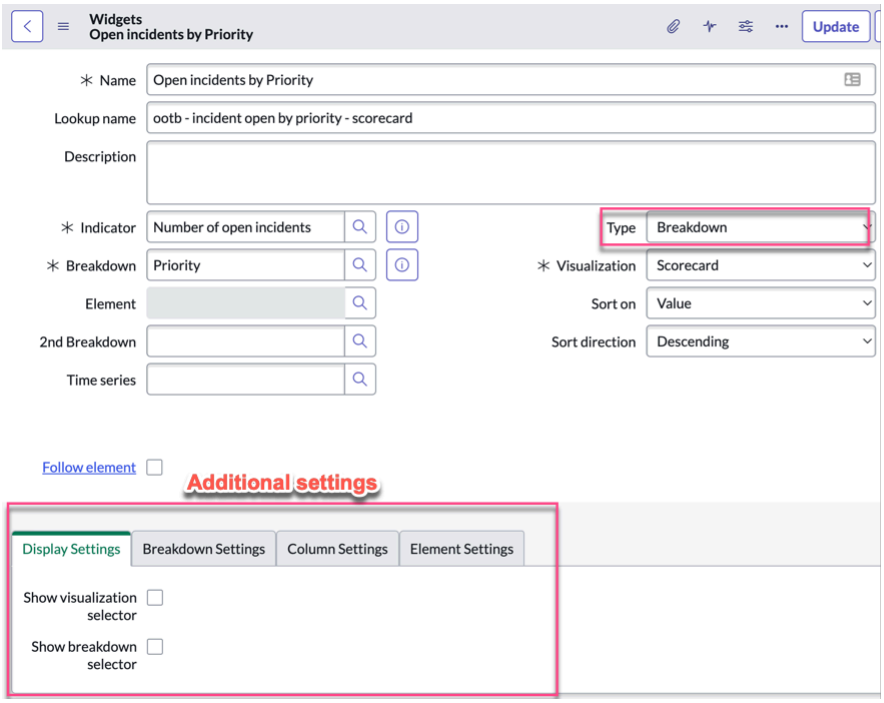
Breakdown widgets have the following optional settings for the date range, the display, the grouping breakdown, and for the column contents. Not all options are available for all visualizations.

Important:
This topic is not a guide to creating breakdown widgets. It is a guide to extra, optional settings that are common across breakdown widget types. FOR INSTRUCTIONS ON CREATING TIME SERIES WIDGETS, PLEASE SEE THE APPROPRIATE "CREATE" TOPIC:

- Create a scorecard visualization for a breakdown widget
- Create a pie, donut, or semi-donut visualization for a breakdown widget
- Create a pyramid or a funnel visualization for a breakdown widget
- Create a column visualization for a breakdown widget
- Create a Pareto visualization for a breakdown widget
- Create a line visualization for a breakdown widget
- Create a columns and total visualization for a breakdown widget
- Create a stacked column visualization for a breakdown widget
- Create a relative compare visualization for a breakdown widget
- Create a pivot scorecard visualization for a breakdown widget
- Create a treemap visualization for a breakdown widget

The available settings depend on the selected visualization. The following example is for a Scorecard visualization.

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Date settings

Setting	Description
Period	Select the date range to display in the widget. Several options are available. • Select a specific time range. The default is **3m** (3 months). • Select **max** to use scores up to the current date. • Select **between** and then fill in the **From** and **To** fields to define a time period. The **Period** field is available only if you select **Line**, **Columns and Total**, or **Stacked Column** as the **Visualization**
Show date range selector	Display a date range selector on the widget that enables users to change the selected period when viewing the widget on a dashboard. **Note:** • Selecting a date range on a widget does not update the trend line. • If you combine a time series aggregation such as By month SUM with a date range selector, the user may see one more time period than they expect. The instance interprets a period such as 3m as 0-3 months and may show four months of scores.

Axis settings

Note:
Axis settings are not available when Stacked column is the visualization.

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Setting	Description
Y-axis title	Specify a title to display on the vertical axis of the chart.
Y-axis from	Specify the starting point for the range of values for the vertical axis of the chart.
Y-axis to	Specify the ending point for the range of values for the vertical axis of the chart.
2nd Y-axis title	Specify a secondary title to display on the vertical axis of the chart.
2nd Y-axis from	Specify the starting point for a 2nd range of values for the vertical axis of the chart. The 2nd Y-axis can be used if scores normally move between a limited range, but you have some exceptions that would otherwise distort the chart, such as a range of 40 to 60, with an exception of 1000.
2nd Y-axis to	Specify the ending point for a 2nd range of values for the vertical axis of the chart.

Display settings

Setting	Description
Show target	Display the target score, if defined. This field appears only if **Previous period chart** is not selected.
Show thresholds	Display thresholds such as an all time high or an all time low. Thresholds appear only if they have been defined for this indicator.
Show data labels	Display the score for each portion of the chart, such as for each slice of a pie chart.
Show trend	Display the direction the indicator is moving. The trend is shown in a mini-chart on the dashboard.
Show confidence bands	Display confidence bands in this chart. For information about how the confidence band is calculated, see Widget confidence bands.
Show forecast	Display forecast data in the chart based on current trend data. Forecasting must be configured on the indicator.
Show comments	Display comments added to data points in the chart.
Show visualization selector	Display a choice list on the widget that enables users to change the selected visualization from a dashboard. **Note:** You cannot select the **Pivot Scorecard** visualization from a dashboard. You must configure the widget record to use this visualization.
Show breakdown selector	Display a choice list on the widget that enables users to change the selected breakdown from a dashboard. There

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Setting	Description
	must be more than 1 breakdown available for the widget for the breakdown choice list to appear.
Positive color	When the **Visualization** is **Treemap**, select the color used to indicate a score moving in the desired direction, based on the indicator **Direction** value. If **Color based on** is set to **Target**, the positive color indicates values closer to the target.
Negative color	When the **Visualization** is **Treemap**, select the color used to indicate a score moving in the wrong direction, based on the indicator **Direction** value. If **Color based on** is set to **Target**, the negative color indicates values further away from the target. This field is not available when **Color based on** is **Score**.
Show legend	When the **Visualization** is **Treemap**, select this option to display a legend for the positive and negative colors.
Include elements without data in the legend	Shows the breakdown name in the legend of the widget even when no records match the elements of the breakdown.

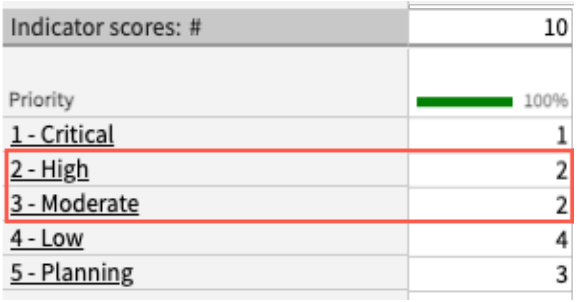
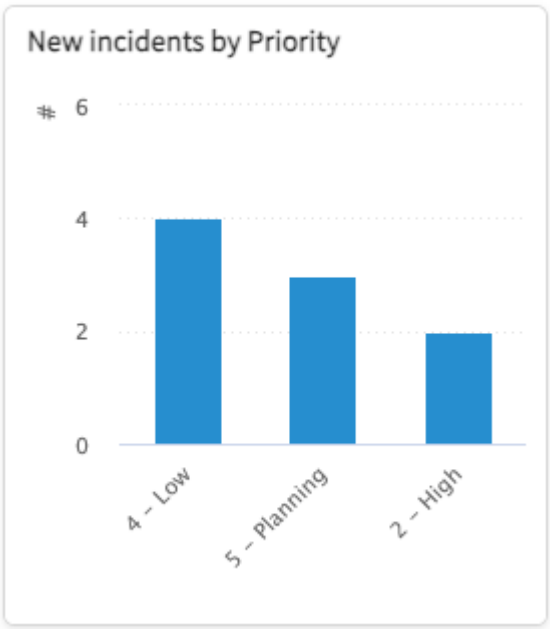
Breakdown settings

Setting	Description
Breakdown on Y axis	Pivot Analytics Hub breakdown widgets display breakdown elements as the X axis and indicators as the Y axis by default. Select this check box to display breakdown elements as the Y axis and indicators as the X axis.
Show total	If you selected **Scorecard** in the **Visualization** field, an extra row can be included in the breakdown chart showing the totals of all selected breakdowns.
Show bar	Represent the score for each instance by a bar.

Element settings

Setting	Description
Elements filter	Specify if only a certain subset of breakdown elements are available for this widget. By default all elements are available. For example, elements of the breakdown **Priority** can be: **Critical**, **High**, **Moderate**, **Low** or **Planning**.
Manual elements	Breakdown elements can be selected automatically or manually. Select the **Manual elements** check box to display the **Widget Elements** related list for adding elements. Clear the **Manual elements** check box to automatically use the elements that belong to the breakdown.

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Setting	Description
Show top x	Show only the elements with the x highest scores, according to the **Sort by** field, to make the chart easier to read. In case of ties, the first element listed in the scoresheet is shown. For example, if you have a widget where **Show top x** is 3 and the third-highest value for the Priority breakdown is tied between High and Moderate, the widget shows High, not Moderate.   The order in which the scoresheet lists elements depends on the table containing the elements. For example, for elements on the Choice [sys_choice] table, this order follows the value in the Sequence field. For elements on the Group [sys_group] table, the order is alphabetical based on the Name field. **Note:** The top elements are selected from the most recent scores. If the widget has a line visualization, the top elements are still selected from the most recent scores, even if other elements have a higher average score across the timespan shown.
Percentages	If you select **No percentages**, no score percentages are shown for the instances. If you select **Percentage of elements**, a score percentage is shown for each instance. For example,

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Setting	Description
	6.4% of the total incidents are Critical, 11.8% are High, and so on.

Column settings

Setting	Description
Current score	Display the score from the latest data collection.
Trend	Display the direction the indicator is moving. The trend is shown in a mini-chart on the dashboard.
Multiple scores	Adds scores to the Analytics Hub. Select the number of additional scores to display in **Number of periods**. Select the length of each period in **Period step**. If **Current Score** is also selected, the Score column is counted as the most recent period and N-1 periods are added.
Change	Display the change from the previous score.
Change %	Display the percentage change from the previous score.
Target	Display the target for the indicator if a target has been defined.
Gap	Display the difference between the current and the target scores. Gap can be either positive (moving towards the target) or negative (moving away from the target).
Gap %	Display the percentage difference between the current and target scores. Gap % can be either positive (moving towards the target) or negative (moving away from the target).

Latest score settings

Setting	Description
Compare score with	This tab is shown when the visualization type is Latest Score. Select Previous Score or Periods Back. You can specify any number of previous periods.

Personalized visuals

Configure visuals with dynamic elements to show information that applies only to the person looking at the visual on a dashboard, service portal, or Workspace canvas.

A visual can display only the tickets assigned to a support agent or the number of tasks assigned to the team of a manager, for example. When you navigate to an Analytics Hub from a personalized visual, the Analytics Hub is personalized as well.

Use personalized visuals to push Performance Analytics down to the managers and line workers. It can be particularly useful to add widgets with personalized visuals to service portals. Enable managers who log in to their portal to see analytics only for records that belong to groups they own. Enable line workers who log in to their portal to see analytics only for records that belong to them or to one of their groups. Performance Analytics comes with the "One of my groups," "Groups I manage," and "Me" element filters to let you create such personalized visuals.

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Personalization applies to Time Series, Score, and Breakdown widgets. When you configure personalized visuals, the personalization applies wherever the widget appears: a dashboard, landing page, or the Service Portal.

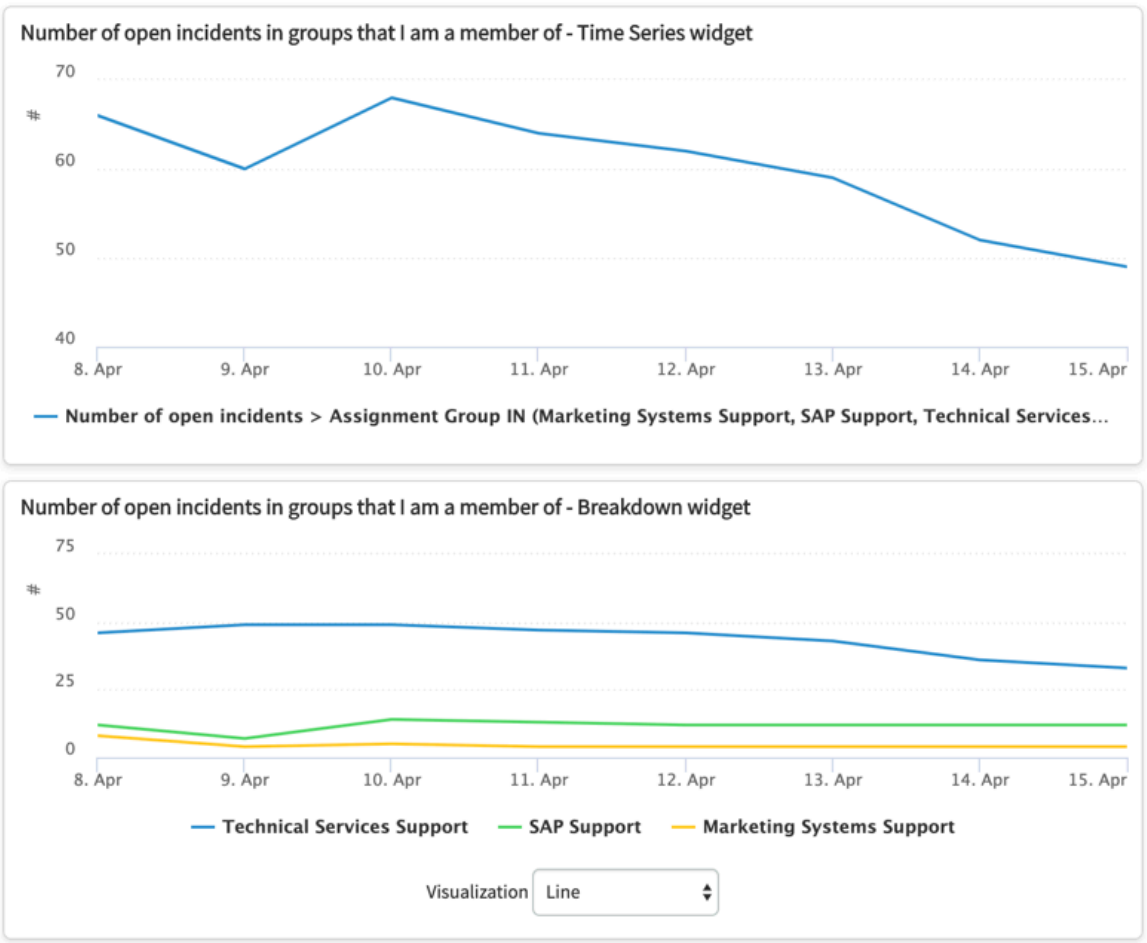
Technically, you personalize a visual by applying an element filter to the widget instead of specifying breakdown elements. The personalization comes about through using a dynamic condition on the filter, such as [is (dynamic)] [me].

Note:
Personalized visuals apply only to first-level breakdowns.

Showing multiple elements

When an element filter returns more than one element, the scores for these elements are shown as an aggregated value on Score and Time Series widgets. However, these scores are shown separately on Breakdown widgets. The following example shows a Time Series widget and a Breakdown widget with the same personalized visuals. The logged in viewer is a member of the Technical Services Support, SAP Support, and Marketing Systems Support groups. The Time Series widget, on top, shows an aggregate view of these groups, while the Breakdown widget underneath shows a separate view.

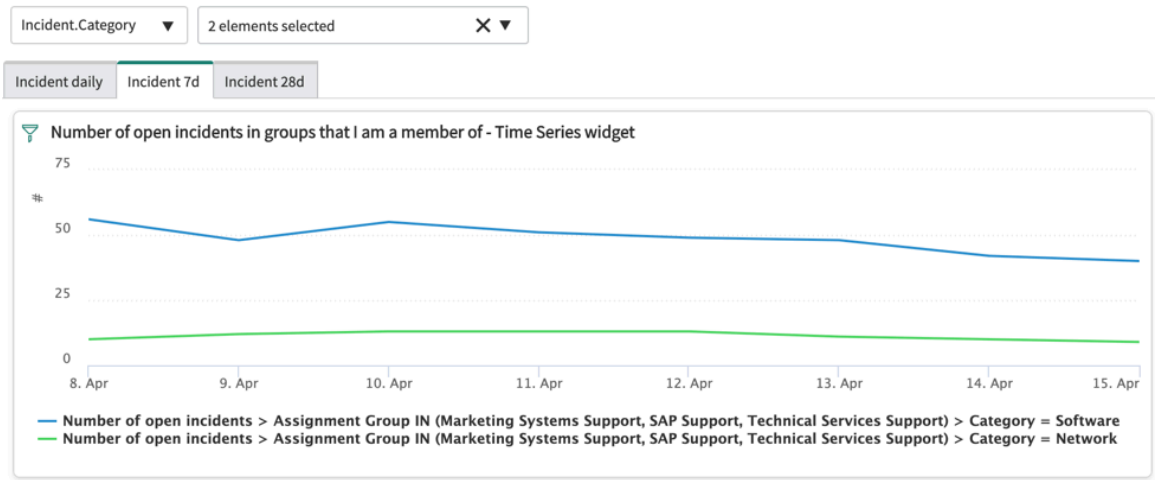
Time Series widget and Breakdown widget with personalized visuals



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Note:
When you configure a widget to follow the elements on a breakdown dashboard, your choice of an **Aggregate** or **Separate** view of multiple elements does not affect personalized visuals. For example, the following time series widget on a breakdown dashboard is configured to show multiple elements separately. This configuration applies to elements of the Category breakdown on the dashboard. However, the widget still shows the elements of Assignment Group from the personalized visual as an aggregate.

Widget with personalized visual on breakdown dashboard



For more information, see Configure widgets for breakdown dashboards.

Configure a widget with personalized visuals

Personalized visuals enable you to share the information that is most relevant to the person who uses the visual on a dashboard or canvas. You personalize the visuals of a widget by applying an element filter.

Before you begin

Note:
Personalized visuals apply only to first-level breakdowns.

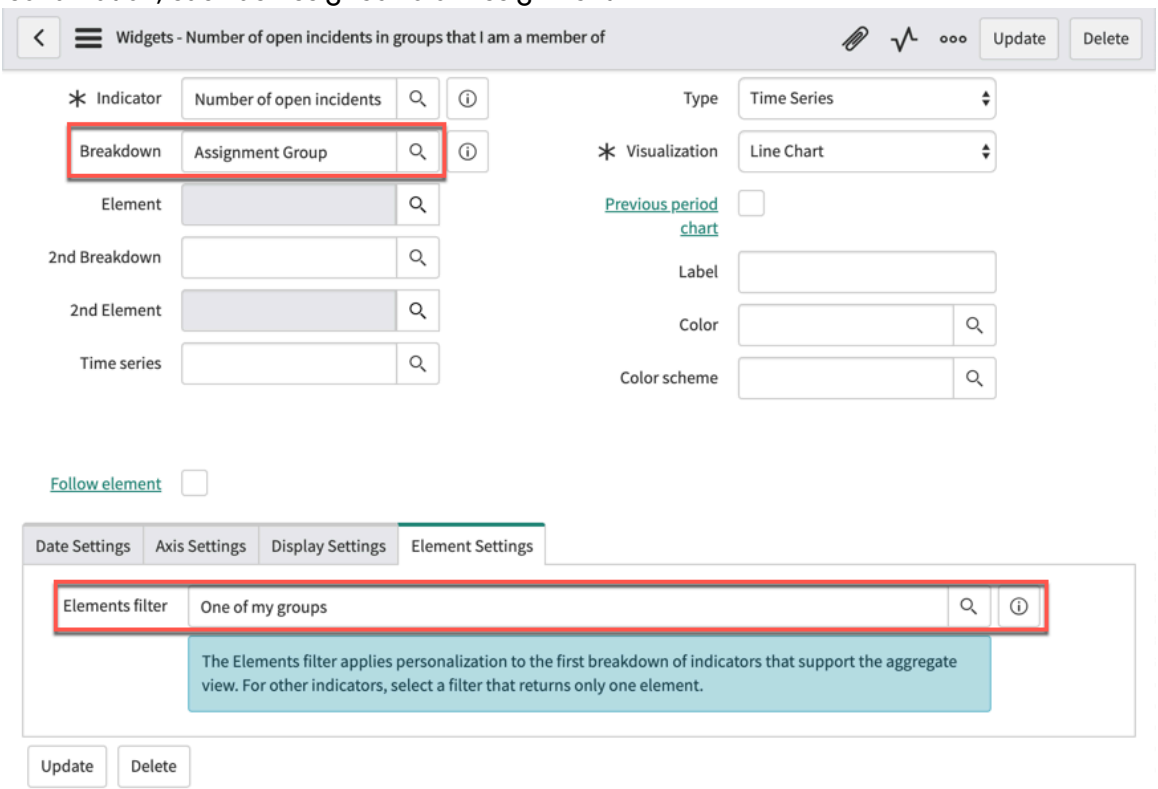
Role required: pa_admin, pa_power_user

Procedure

1. Create one or more breakdown element filters with a dynamic condition, such as [is (dynamic)] [me].
   Before you create an element filter, verify whether you can use an existing one.
2. Navigate to **Performance Analytics** > **Widgets**.
3. Select the widget that you want to personalize.

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4. On the Widget form, select the breakdown that applies to the personalization, such as Assigned To or Assignment Group.



5. On the Element Settings tab, click the magnifier to select the Elements filter that applies to the breakdown and personalizes the widget.
6. Click **Update**.

Result

On a dashboard, Service Portal, or canvas that has this widget, the widget shows breakdown elements filtered for the viewer.

Personalized visuals example

To personalize a visual, you create an element filter and configure a Performance Analytics widget with the same filter. In this example, you create a filter to show only the incidents that belong to the user, then you configure a score widget with the filter you create.

Before you begin

Role required: pa_admin, pa_power_user
Element filters are persistent. Once you create an element filter, you can apply it to multiple visuals.

About this task

In this example, you create an element filter that uses the `Users.Active` breakdown source to filter on the user viewing a widget. Then you configure the widget to use the new element filter, and then you view the widget on a dashboard.

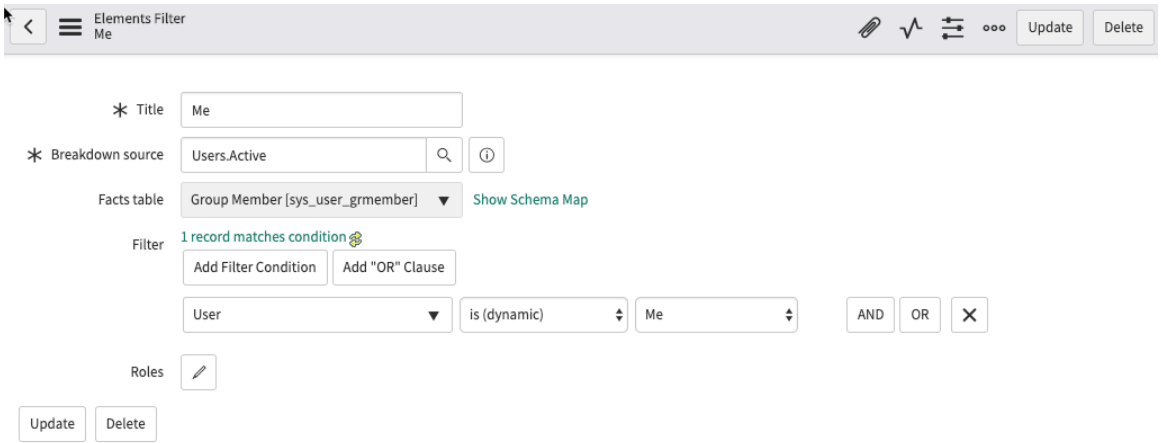
Procedure

1. Navigate to **All** > **Performance Analytics** > **Elements Filters** and create a new elements filter with the details in the Element filter fields table.
   For more information, see Create an elements filter.

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Element filter fields

Field	Description
Breakdown source	Click the magnifier and choose `Users.Active`. The element filter is available for any breakdowns based on this breakdown source.
Facts table	Choose the breakdown source facts table. The facts table for `Users.Active` is **Group Member [sys_user_grmember]**.
Filter	Specify the filter conditions to limit the available elements. Only elements that meet these conditions are displayed when you apply this element filter. For this element filter, specify `[User][is (dynamic)][Me]`. For Personalized visuals, the operator in the filter condition must be `[is (dynamic)]`.
Roles	Select any roles that a user must have to select this element filter on a widget form. A user must have at least one of the specified roles. If no roles are specified, all users who can edit a Performance Analytics widget can add this element filter. For this example, we don't want to limit who can select the filter.



2. Create a score widget with the details in the widget fields table.
   For more information, see Performance Analytics widgets. The important thing to know is that the elements filter applies to the indicator's first-level breakdown.

Widget fields

Field	Description
Name	My open incidents
Indicator	Number of open incidents
Breakdown	Select `Assigned To`. If this breakdown is not available, add it to the indicator. For more information, see assign and map breakdowns.
Type	Score
Visualization	Latest Score

3. On the **Element Settings** tab of the widget, select `Me`, the Elements filter you created in step 1.

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Users who can see the widget My open incidents, see the score only for the incidents assigned to them.

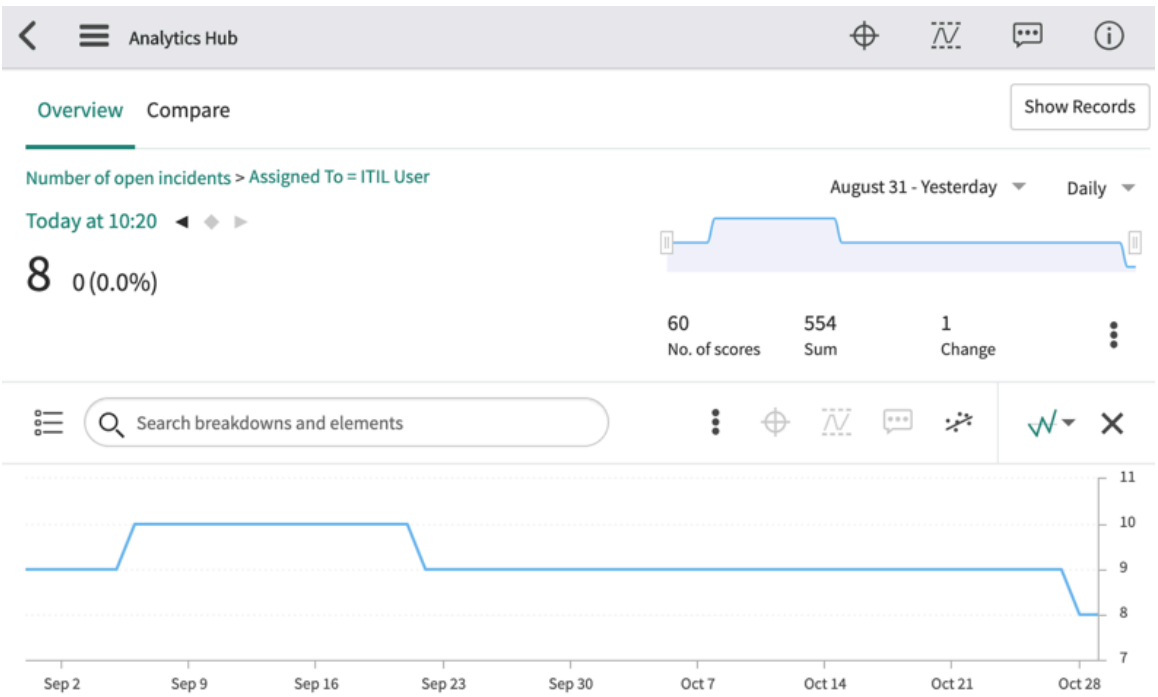
4. Add the My open incidents widget to a dashboard.

What to do next

Log in as a user who is assigned incidents and open a dashboard with the My open incidents widget. The My open incidents widget shows the score only for the incidents assigned to that user.



Click the score to open the Analytics hub for this indicator, filtered on the user looking at the dashboard.



Create a heatmap visualization in a pivot widget

To group the scores of an indicator by two breakdowns, use a heatmap visualization in a pivot widget.

Before you begin

Role required: pa_power_user or admin

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About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

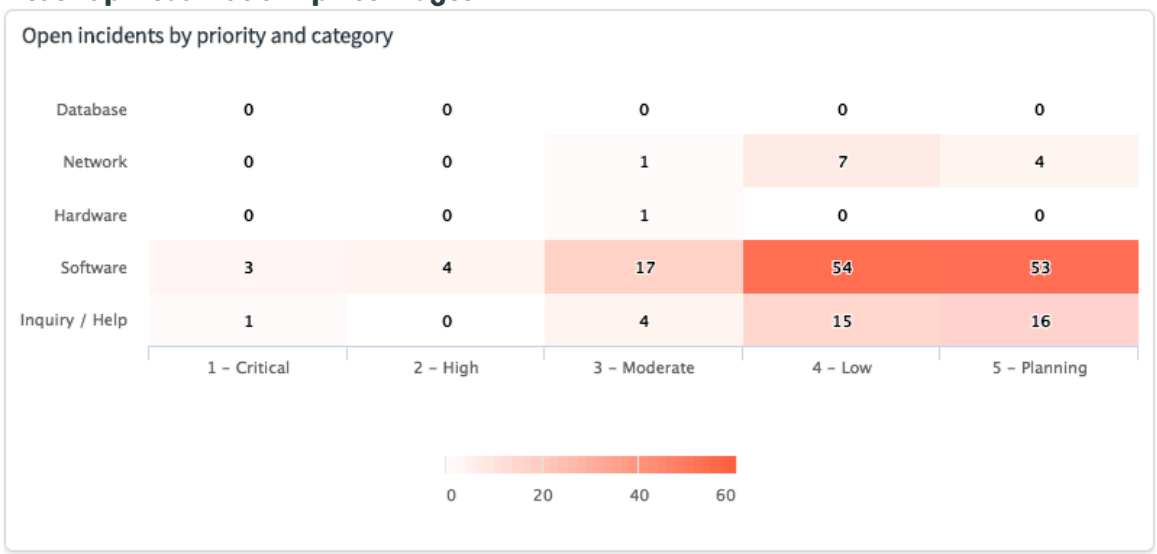
This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

If you want to apply two breakdowns to an indicator, create a pivot widget with the breakdowns as the two axes of the pivot table. Heatmaps, which use a color gradient to highlight when both scores are high, are the only visualization available for pivot widgets.

Note:

- Pivot widgets do not support the **Follow Element** function. Dashboard breakdowns cannot apply to these widgets.
- Heatmaps cannot display more than 1000 cells. If the total number of elements of the two breakdowns is above 1000, the heatmap does not appear.

Heatmap visualization - pivot widget



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Click **New**.
3. In the **Name** field, give the widget a name that reflects the information being displayed.
4. In the **Type** field, select **Pivot**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
5. In the **Visualization** field, select **Heatmap**.
6. In the **Indicator** field, select the indicator which you want to break down.
7. In the **Breakdown** field, select the breakdown to be the X-axis.
8. In the **2nd Breakdown** field, select the breakdown to be the Y-axis.

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9. **Optional:** In the **Display Settings**, set the color scheme and whether to display data labels and the legend.
10. Click **Submit**.

What to do next

To view the widget, add it to a dashboard or a portal.

Text analytics and text widgets

Text analytics reveal any patterns that exist in user-entered text fields.

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

Text analytics provides visual tools for analyzing the text that users enter in forms. The possible benefits of such analyses include early warning of customer pain points, disclosure of fraudulent activity, and the extraction of certain entities or concepts that are clustering in sales, incident reports, etc. The useful information in this unstructured, qualitative data may be hidden from other tools.

Note:

- Text analytics is available only with licensed Performance Analytics.
- Platform Analytics data visualizations do not support text analytics.

Text analysis begins with indexing the text. Text indexing is defined on indicator sources, to allow for the reuse of a single index configuration by many indicators.

When you set up text analytics, you decide on:

- Which fields in an indicator source to index.
- Which indicators to apply a text index configuration to.
- Which stop words to exclude from analysis.
- What phrases to search for, besides single words.
- Keywords for default filtering.

When you have set up text analytics, create a widget to visualize the text and include the widget in a dashboard.

The following video walks you through the process of setting up and viewing text analytics:

How to create a Performance Analytics text analytics word cloud widget, which analyzes unstructured or qualitative data. Also how to set up and collect data for text analytics widgets.

Set up text analytics

Select the text fields to analyze and which indicators to analyze.

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Before you begin

Text analytics relies on specific steps in the data collection jobs. The **Collect** parameter in the relevant jobs must be set to collect text analytics. A job is relevant if it collects data for the same indicators that are subject to text analysis. See Create or schedule a data collection job.

Note:

Regarding domain separation: To collect text analytics for specific domains, set up text analytics for each of those domains. On the collection job for each domain, specify a **Run as** user with access to that domain. Do not specify a domain configuration for the collection job. For more information, see Approaches to Performance Analytics with domain separation. You are using a hybrid approach.

Role required: pa_power_user or pa_admin

Procedure

1. Navigate to **All** > **Text Analytics** > **Setup**.
   - To create a new text analytics configuration, select **New**.
   - To edit an existing text analytics configuration, select the information icon in that row and select **Open record**. Select the indicator source name to open the record for that indicator source, not the text analytics configuration.
2. Select the **Indicator source** whose input text you want to analyze.
3. Unlock **Fields to analyze** and select the fields whose input text you want to analyze.
   You must select at least one field. Usually you want to include the **Short description** field.

   You cannot select the following fields:
   - Dot-walked fields
   - Translated Text fields
   - Any other field with a type other than String
4. **Optional:** Select **Use system stop words** to include the Zing stop words.
   Selected by default. The Zing global stop words apply to the indicator source. If you do not use the Zing stop words, you must select all stop words yourself.
5. Save the text index configuration.
   The **Indicators** related list appears at the bottom of the form.
6. In the **Indicators** list, click **Edit** and select the indicators to analyze.
7. Run a relevant historical data collection job to collect initial data.
   You may be able to run a job from this form, or you may have to run a historical data collection job. See the next topic for details.

Related topics

Zing removes stop words from queries

Collect initial text analytics data

When you configure text analytics for an indicator source, no data is available until a relevant data collector job is run. If you have newly created a text analytics configuration, run a special collection job. If you have added indicators to an existing text analytics configuration, run a historical data collection job to collect only text analytics.

Before you begin

Role required: pa_power_user or admin

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Procedure

- On the **Setup Fields** form, if the button is available next to **Save**, **Update**, and **Delete**, click **Run historic collection**.
  This button launches a single-use historical job that collects only text indexes. It is available only when you create a text analytics configuration.

  This job collects data for a period equal to the shortest period for which there is data for any of the indicators in the analysis. For example, if you are running text analysis on five indicators and you have one year of data for four of them but only four months of data for the fifth indicator, four months of text analytics are collected for all five indicators.

- If you have added an indicator to an existing text analytics configuration, configure and run a historical data collection job.

  1. Navigate to **Data collection** > **Jobs**.

  2. Create or edit a historical data collection job as described in Create or schedule a data collection job, with the following characteristics:
     - Set the **Collect** job parameter to **Text indexes only**.
     - Set the **Run** job parameter to **On demand**.
     - Set **Relative start**, **Relative start interval**, **Relative end**, and **Relative end interval** values that are appropriate for the indicators for which you are performing text analytics.
     - Ensure that the indicators for which you are performing text analytics match the indicators for the collection job.

  3. Execute the job.

What to do next

Now that text analytics are configured and initial data is collected, you can create text analysis widgets for the selected indicators. Consider setting text analytics stop words first. Both these stop words and the Zing stop words can apply.

Select text analytics stop words

Select words to exclude from text analysis. You can exclude words at either the indicator source or the indicator level.

Before you begin

Role required: pa_analyst or pa_admin

About this task

Select stop words to apply either at the indicator source or at the indicator level. If you select stop words for an indicator, you can filter the scores to which the stop words apply by breakdown and breakdown element. If you select stop words for an indicator source, you exclude them from data collection, which results in a leaner index.

By default, the Zing global stop words apply in addition to the stop words you select in this form. You can disable this behavior in the text index configuration. To find the list of the current stop words, navigate on your instance to **System Definition** > **Text Index Stop Words**.

Procedure

1. Navigate to **Text Analytics** > **Stop Words** and click **New**.
2. In the **Type** field, select either **Indicator** or **Indicator source**.
   If you specify an indicator, you can filter the text by one or two levels of breakdown.

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When specified on the indicator source, stop words are removed from data collection to keep the index lean. However, you cannot immediately bring these stop words back into the widget by removing them from the **Stopwords** field. They do not appear until the next data collection.

Stop words that are specified on the indicator remain in the index. These stop words can be brought back into the widget immediately by removing them from the **Stopwords** list, but index size may affect performance.

3. Select either the **Indicator** or the **Indicator source** to which to apply the stop words.
4. **Optional:** To filter the text by a breakdown, select values in the **Breakdown** and first **Element** fields.
   If you select a breakdown but not an element, the widget analyses only the text that is not associated with any element of that breakdown.
5. **Optional:** If you have selected a breakdown and you want to filter the text by a second breakdown, select values in the **2nd Breakdown** and second **Element** fields.
6. In the **Stopwords** field, enter a comma-separated list of words to exclude from the text analysis.
7. Click **Submit**.

Search text for phrases

You can specify phrases that text analytics searches for, instead of searching for only the most frequent individual words.

Before you begin

Role required: pa_analyst, pa_power_user, or admin

Procedure

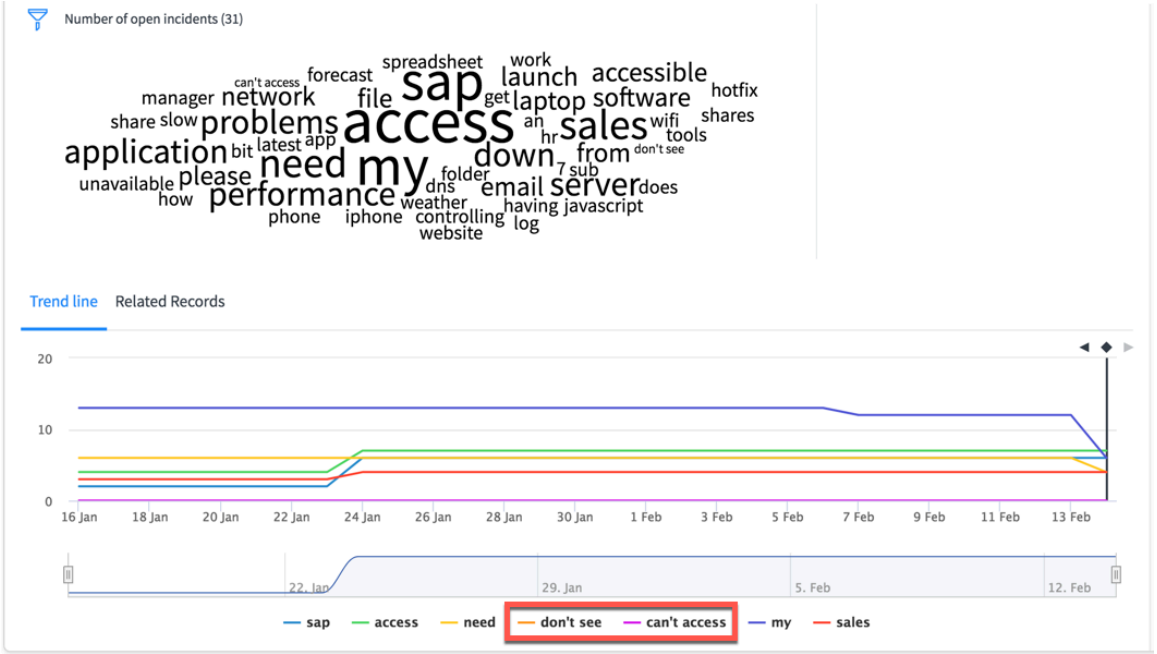
1. Navigate to **All** > **Text analytics** > **Phrases** and click **New**.
   To edit an existing text index phrases form, click the information icon for that form, then select **Open Record** from the preview window.
2. Select the **Indicator** that you want to search for phrases.
   Text Analytics must be set up for this indicator.
3. **Optional:** In the **Breakdown** and **Element** fields, you can filter the records that are searched for the phrases.
   Specify both a breakdown and an element. You can filter to a second level by filling in the level 2 **Breakdown** and **Element** fields.
4. Enter a comma-separated series of phrases in the **Phrases** field.
   For example, enter "can't access, don't see."

Result

When you include a text widget for this indicator in a dashboard, the specified phrases appear in the trend line.

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Text widget with phrases "don't see" and "can't access"



Create a text widget

To help analysts visualize any patterns in user-entered text in an indicator, create a word cloud visualization in a text widget.

Before you begin

Text indexing must be configured for the relevant indicator source, and this configuration must include the relevant indicator.

Text analytics is available only with the licensed version of Performance Analytics.

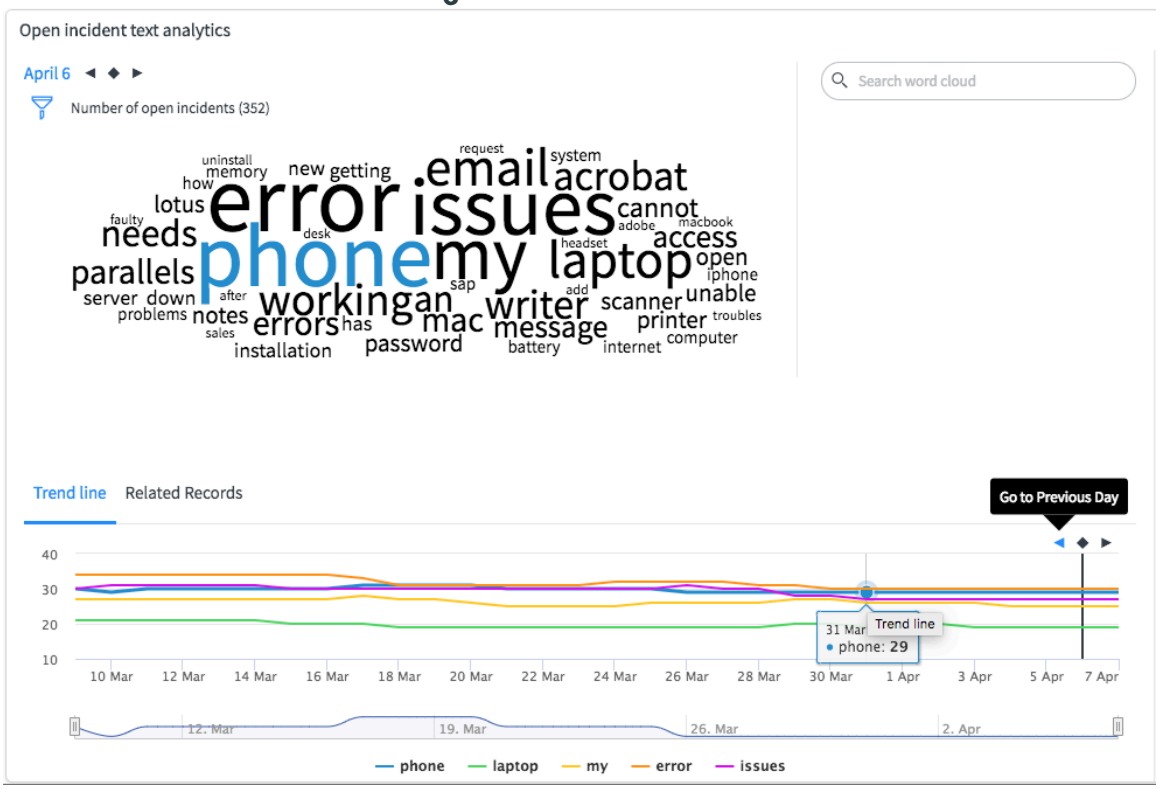
Role required: pa_power_user or admin

About this task

The Text widget provides a word cloud for visualizing the frequency of words and phrases.

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Word cloud visualization - text widget



Procedure

1. Navigate to **All** > **Performance Analytics** > **Widgets** and click **New**.
2. In the **Name** field, give the widget a name that reflects the information being displayed.
3. In the **Type** field, select **Text**.
   If you change the value of **Type** after you fill in other fields, those fields are cleared.
   Word Cloud is automatically selected as the **Visualization**.
4. In the **Indicator** field, select the main indicator for which you want to analyze text.
5. **Optional:** Fill in any of the following fields:

Field	Description
Breakdown and Element	Only text that is associated with the specified element of the specified breakdown is analyzed. Select values for both **Breakdown** and **Element**. Otherwise, only text that is not associated with any element of the breakdown is shown.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.

6. To have the widget follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

   b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

      (Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

      Note:
      This widget type does not support multiple element selection. If you select multiple elements on a breakdown dashboard with this widget, the widget ignores all selected elements.

   For more information, see Configure widgets for breakdown dashboards.

7. Set the cutoff value, which filters which words and phrases are shown in the widget based on the frequency of a word or phrase in the field:

   a. In the **Cutoff** field, select whether the cutoff value is a numerical count or a relative percentage.

      - **Count** is the number of occurrences of a word or phrase in the field. For example, if the cutoff settings are [[Count][Greater than or equal to][10]], the widget shows only words and phrases that occur ten or more times.
      - **Percentage** refers to the percent of occurrences of all words in the field that are occurrences of the word or phrase. For example, if there are 30 total occurrences of all words in the field and the cutoff settings are [[Percentage][Greater than or equal to][10]], the widget shows only words or phrases that occur three or more times.

   b. In the **Cutoff conditions** field, select whether the cutoff value is a minimum or a maximum.

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- **Greater than or equal to** has the widget show a word or phrase if it is at least as common as the cutoff value.
- **Less than or equal to** has the widget show a word or phrase if it is no more common than the cutoff value.

c. In the **Cutoff value** field, specify an integer value.

8. **Optional:** Set any of the remaining display settings.

Field	Description
Default field	If multiple fields are selected in the text index configuration, this field appears by default.
Maximum number of words	The maximum number of words to be displayed in the word cloud
Maximum number of trendlines	The maximum number of trend lines to be displayed beneath the word cloud

What to do next

- Add the widget to a dashboard.
- The admin or the dashboard owner shares the dashboard containing the widget with these users.
- Text analysis uses special steps in the data collection job. If no data is available for the widget, verify that the relevant data collection job has run and that the job collects text indexes. See Collect initial text analytics data.
- Filter the word cloud by keywords.

Save keywords for text analytics

You can save keywords that will always filter a text analytics widget. You can save them directly on the widget in a dashboard, choosing from the words in the word cloud. Alternatively, you can create or edit a record of saved keywords.

Before you begin

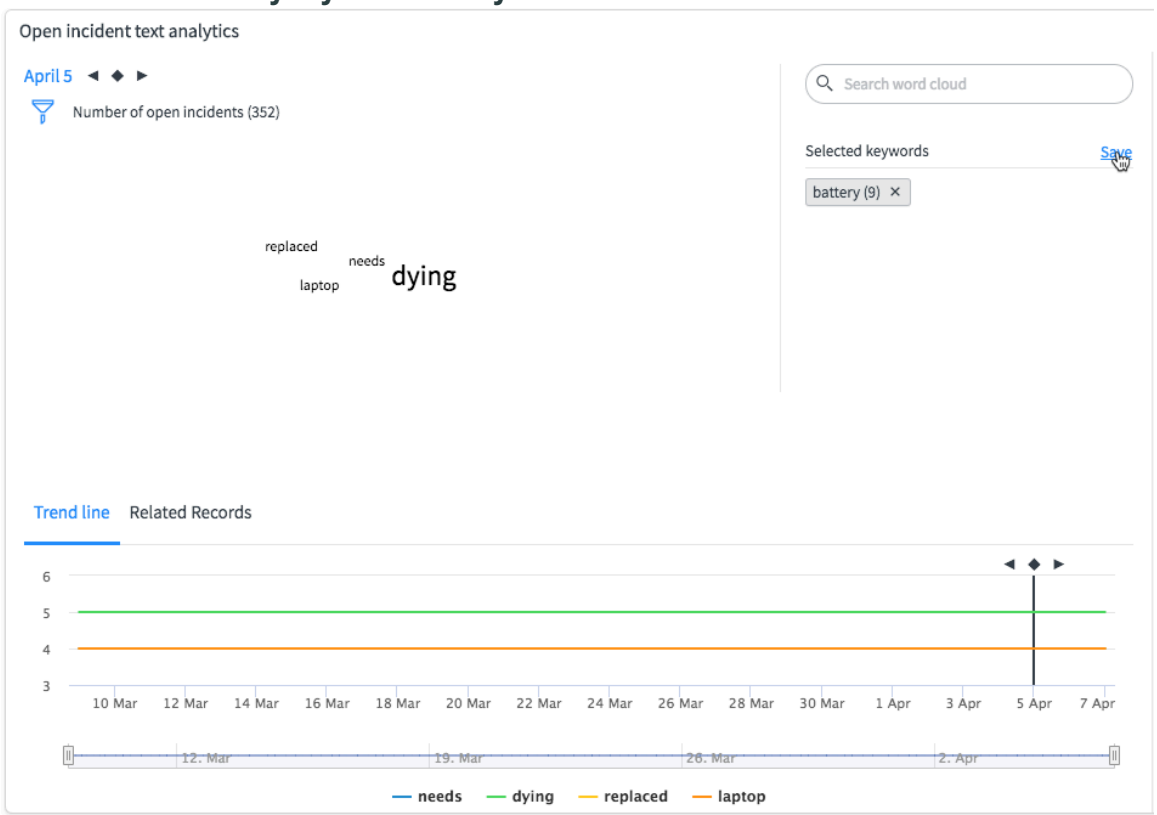
Role required: pa_analyst or admin

About this task

To filter a word cloud by keywords, click the words in the cloud. You can save a list of the keywords, which will be used whenever someone views the widget. Each list of keywords applies to one breakdown and element combination for the indicator in one widget. In the following example, the word "battery" has been specified as a keyword. If you click **Save**, all viewers will see this widget filtered by "battery." Anyone with the required roles can delete the saved keywords later.

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Word cloud filtered by keyword 'battery'



Alternatively, you can create or edit the record where the keywords are saved. This approach does not restrict your selection to keywords that have already appeared in the word cloud.

Procedure

1. Navigate to **All** > **Text Analytics** > **Keywords** and click **New**.
2. In the **Widget** field, specify the widget to which the keywords apply.
3. In the **Indicator** field, specify the indicator to which the keywords apply.
4. In the **Field** field, select the indicator field that the keywords apply to.
5. **Optional:** In the **Breakdown** and **Element** fields, you can filter the records to which the keywords apply by a breakdown element.
   Specify both a breakdown and an element. You can filter to a second level by filling in the level 2 **Breakdown** and **Element** fields.

   If you specify a breakdown and element combination, the keywords only apply when that combination is selected in the widget. If you do not specify a breakdown and element combination, the keywords apply for all breakdown and element combinations that do not have keywords selected specifically for them.
6. In the **Keywords** field, enter a comma-separated list of keywords.
7. Click **Submit**.

Monitor a workflow with a workbench process widget

A workbench process widget is a collection of indicators that tell a story. The widget enables you to analyze multiple facets of multiple indicators on one screen without drilling down. This widget is useful when you want to monitor a process or service that has a workflow.

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Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

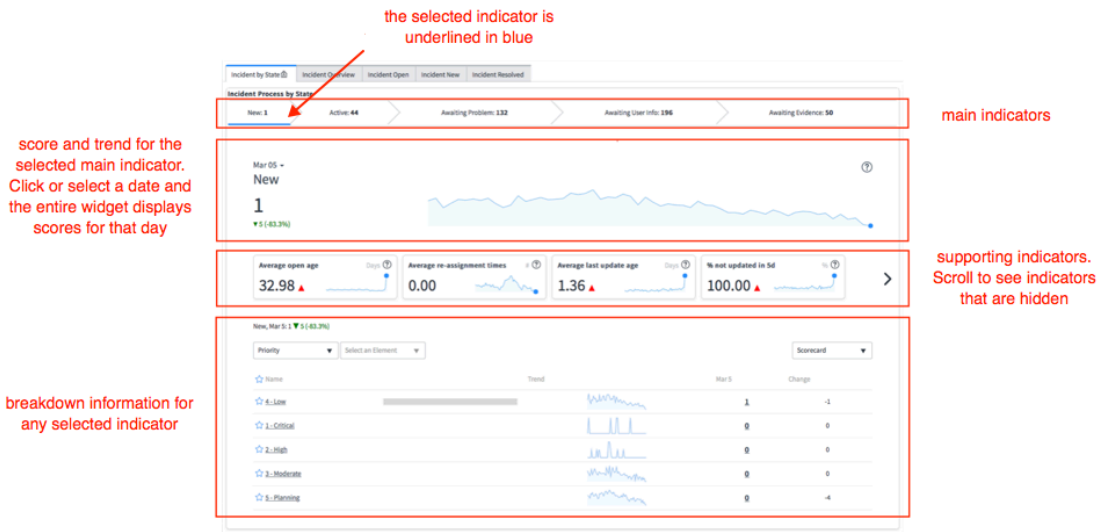
You choose the main indicators on the top of the widget. Optionally, each main indicator can have a unique set of supporting indicators.

The widget has four interconnected sections that dynamically update. For example, when you click a main indicator its score, trend, supporting indicators, and breakdown information appear. Click or select a date on any visualization and the entire widget displays data for that day.

Note:

- If real-time scores are supported for the main indicator and its applied breakdowns, you can view real-time scores. To view real-time scores, select **Real-time** in the date selector. Real-time scores are displayed only in the top pane of the workbench. For more information, see Real-time scores.
- The timespan that the widget shows for each score trend depends on the frequency of the indicator. The timespans are: 60 days for daily, one year for weekly and monthly, three years for quarterly, and 12 years for yearly. You cannot set this time span. However, applying a time series aggregation in the widget changes the time span accordingly.

Workbench process widget



The bottom section of the workbench process widget displays either available breakdowns or collected records for the selected indicator. Click the **Breakdowns** or **Records** tabs to display one or the other. If you select a supporting indicator that specifies an aggregate, such as the average age of open incidents, the **Records** tab is hidden.

When you create a workbench widget, you choose only main and supporting indicators. The score, trend, and breakdown sections of the widget are automatically configured and cannot be changed. However, you can change the order and appearance of indicators on the widget.

Create a workbench process widget

Create a workbench widget to monitor a process using multiple indicators.

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Before you begin

- Familiarize yourself with the structure of the workbench widget
- Decide which main and supporting indicators to include
- Role required: pa_admin, pa_power_user, or admin

Procedure

1. Navigate to **All** > **Performance Anaytics** > **Widgets** and click **New**.
   A new widget record appears.
2. **Name** the widget.
3. In the **Type** field, select **Workbench**.
4. Right-click the form header and select **Save**.
   The Main Widget Indicators related list appears.
5. Add a main indicator to the workbench widget.
   Main indicators appear on the top of the widget. The maximum number of indicators you can add is specified in `com.snc.pa.widget.max_widget_indicators`. The default maximum number of widget indicators is seven.

   a. Click **New** in the Main Widget Indicators related list.

   b. Select an **Indicator**.

   c. Set the **Order** to define where the indicator appears (from let to right).

   d. Fill in other fields, as appropriate.

Additional indicator configuration options

Field	Description
Breakdown and Element	A breakdown element filters the data that appears in the indicator. If you select a breakdown you must select an element. For example, if your indicator is **Number of open Incidents** and you select **Breakdown** for **State** and **Active** for **Element**, only scores for incidents in the active state are included in the widget.
2nd Breakdown and Element	Adds a second breakdown element that filters the data that appears in indicator. If you select a 2nd breakdown you must select an element. For example, imagine your indicator is **Number of open incidents** and the first breakdown filters for active state. You then select **Category** for **2nd Breakdown** and **Software** for **Element**. The indicator will now display only scores for open incidents that are active and in the software category.
Time series	Adds the specified time period and aggregation to the widget's trend visualization.

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Field	Description
	Note: Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation for an indicator that uses such a calendar.
Follow element	Specifies that a breakdown element applied to the dashboard where the widget is added also applies to the indicator. If you specify a 2nd Breakdown, Follow element is ignored. **Warning:** Workbench widgets do not support multiple element selection on breakdown dashboards. If you select multiple elements on a breakdown dashboard with this widget, the widget ignores your selection. For more information, see Configure widgets for breakdown dashboards.
Followed breakdown	Specifies that only this breakdown applies to the indicator as a **Follow element**. All other breakdowns applied to a dashboard where the widget has been added will be ignored. If you do not specify a **Followed breakdown** all breakdowns applied to the dashboard will apply to the indicator.
Label	Specifies the name of the indicator on the widget. If you do not specify a Label, the name of the indicator is used.

e. To add supporting indicators, right-click the form header and select **Save**.
Clicking **Save** instead of the **Submit** button saves the widget indicator but keeps the form open. The Supporting Widget indicators list appears at the bottom of the form after saving.

6. **Optional:** Add supporting indicators to a main indicator.
When you click a main indicator, its supporting indicators appear in the middle of the widget. You can add an unlimited number of supporting indicators.

a. If you are on the Widgets form, navigate to the **Main Widget Indicators** related list and open the **Widget Indicator** form for the main indicator that you want supporting widgets for.
To open the **Widget Indicator** form, select the info icon ⓘ for the main indicator, which opens a preview. Then select **Open Record** in the preview.

b. Click **New** in the **Supporting Widget Indicators** related list.

c. Select an **Indicator**.

d. Set the **Order** to define where indicator appears (from left to right).

e. Fill in other fields, as appropriate.
You can configure supporting indicators the same way as main indicators. See step 5 for configuration options.

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f. Click **Submit** to return to the Main Indicator record.

g. Repeat step 6 until you have added all supporting indicators.

7. Click **Update**to return to the widget record.
8. Repeat steps 5 - 7 until you have added all indicators.
9. **Optional:** Select one of the main indicators as the **Default indicator**.
   This default indicator appears automatically when a user views the widget. If you do not specify a default indicator, the widget displays the main indicator with the lowest **Order** value first.
10. Click **Update** to save the widget.

What to do next

Review the widget to ensure that the new indicators are correct. If you have not already, add the widget to a dashboard to view it.

Add widget indicators

Add any number of secondary indicators to an existing time series or list widget.

Before you begin

The widget must exist. If you want to add indicators to a widget that you are creating, save the widget instead of submitting it. The form remains open and the Widget Indicators related list appears at the bottom.

Role required: pa_power_user or admin

About this task

Note:
This feature is part of the Core UI front end. It is not supported on Platform Analytics dashboards or UI Builder pages, except to a limited extent when migrated in compatibility mode. To build Platform Analytics components, see Data visualizations in Platform Analytics or Filters in Platform Analytics.

This feature is in maintenance mode and is no longer being augmented or changed. Only security fixes to this feature will be addressed.

When you create a time series widget, you associate it with a single, main indicator. If you want to compare this indicator to another indicator in the same widget, add the additional indicator to the existing widget. This procedure is necessary when you create a Stacked Column visualization for a time series.

When you create a list widget, you must either specify an indicator group or add widget indicators.

Note:
When you include main and widget indicators with different frequencies on a time series widget, be aware of how the widget shows time values on the x-axis. For more information about this behavior, see KB0755757.

If the widget follows elements on a breakdown dashboard, the **Show multiple elements as** value applies to both the main widget and any widget indicators. If **Aggregate** is selected but one of the widget indicators does not support the **Aggregate** view, that indicator does not follow the elements on the breakdown dashboard. Instead, the indicator follows any first-level breakdown

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and element that are set in the widget configuration. The other indicators follow the elements on the breakdown dashboard and show an aggregate of their values. For more information, see Configure widgets for breakdown dashboards.

Warning:
You cannot have Previous Period Chart and widget indicators on the same time series widget. If you enable Previous Period Chart on a time series that already has widget indicators specified, the widget indicator list is cleared.

When a user selects breakdown elements on a breakdown dashboard, the breakdown and element names are appended to the widget indicator names. Widget indicator labels also have the breakdown and element names appended. The breakdown and element names are not appended to the widget indicator names and labels in the following circumstances:

- The widget shows an aggregate view of multiple elements, and the widget indicator does not support this view.
- The widget does not follow elements.
- The widget indicators do not support the selected breakdown elements.

Procedure

1. Either save a widget that you are creating, or open an existing widget for editing.
   You can open a widget either from **Performance Analytics** > **Widgets** or from the dashboard. For more information, see Edit a responsive dashboard.
2. Scroll to the bottom of the form and locate a related list with the label **Widget Indicators**.
3. Click **New**.
4. In the **Indicator** field, select a secondary indicator for the widget.
   Selecting too many indicators might make your widget difficult to read.
5. In the **Chart type** field, select a visualization for the indicator.
   Select a visualization that works well with the visualization of the primary indicator. For instance, show the primary indicator as columns and the secondary indicators as lines. If you are using a **Stacked Column** visualization for the primary indicator of a time series widget, set all secondary indicators to also use **Stacked Column**.
6. **Optional:** Fill in any of the following fields:

Field	Description
Breakdown and Element	(Optional) Only the scores that match the specified element of this breakdown are shown. Select values for both **Breakdown** and **Element**. Otherwise, only scores that are not associated with any element of the breakdown are shown. **Note:** If the widget indicator is on a time series widget, you can specify an elements filter instead of a first-level element. See Step 8.
2nd Breakdown and Element	Drill down to a second level of breakdown and element, if a first-level breakdown and element have been specified.

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Field	Description
	Note: ○ Second-level breakdowns must be enabled on the indicator record, in the **Collect breakdown matrix** tab. ○ **Follow element** must be disabled. Dashboard breakdowns count as one breakdown level of the two that are possible.
Time series	Runs a function on the indicator scores for a specific time period, such as a 7-day sum or average. For more information, see Applying time series aggregations. **Note:** Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation on a widget for an indicator that uses such a calendar.
Order	The order in which this indicator appears, if the widget has several secondary indicators. Consider adding extra digits, such as 200 and 300 instead of 2 and 3. This way, if you later add more indicators, you only have to specify the order of the new indicators. You do not have to respecify the order of all secondary indicators.
Chart type	The type of chart for displaying the widget indicator
2nd Y-axis	Add a Y-axis for this indicator. (Optional) Only one secondary indicator Y-axis is displayed. If a second Y-axis is selected for several secondary indicators, only the axis for the indicator that originally came first in the order is shown.
Color	A single color that applies only to the scores for this indicator.
Label	A custom label for this indicator.

7. To have the widget indicator follow the breakdown elements that are selected on a breakdown dashboard, follow these steps:

   a. Select **Follow element**.

      Selecting this option removes the ability to set a second breakdown and element on the widget.

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b. **Optional:** Set which of the available breakdowns to follow in **Followed breakdown**. Breakdown dashboards let you select a breakdown source and elements. However, an indicator can use more than one breakdown that is based on the same breakdown source. Use this setting to determine which of these breakdowns to apply in a breakdown dashboard.

(Optional) For example, the indicator Number of open incidents uses two breakdowns: Assigned to, and Opened by. Both breakdowns are based on the Users.Active breakdown source. Consider the case where you create a widget for this indicator and you have the widget follow elements on breakdown dashboards. You want the widget to display separate values for the elements of the Assigned to breakdown. Therefore, you select **Assigned to** in the field **Followed breakdown**.

For more information about breakdown dashboards, see Using breakdowns on dashboards.

8. Time series widgets only: In the **Elements Filter** tab, you can select an element filter to use instead of selecting a first-level element in the **Element** field.

   See Element filters.

   Use this approach to personalize which breakdowns are shown depending on the viewer. For more information about using element filters to personalize widgets, see Personalized visuals.

   Note:
   On a dashboard, the names of all the elements that the elements filter passes are appended to the indicator name or label of the widget indicator.

9. Click **Submit**.

What to do next
To edit any of these settings later, go to the **Widget Indicators** list and click the information icon for the indicator, not the name.

Related topics
Related lists

KB0724552: How to Add Secondary Indicators to a Time Series or List Widget

Set the on-click behavior of a widget

You can configure what happens when a user clicks on a widget.

Before you begin
Role required: pa_power_user, pa_admin, or admin

About this task
By default, when a user clicks on a widget, the detailed Analytics Hub for the widget indicator appears. You can configure a widget to direct users to a different URL instead.

Note:
For equivalent functionality in Platform Analytics data visualizations, see Chart interactions in a data visualization.

Procedure
1. Navigate to **All** > **Performance Analytics** > **Widgets**.
2. Select the widget you want to configure.

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3. In the **On-click behaviors** related list, click **New** and create a new record.
   If you create more than one On-click behavior record for a single widget, only the record with the lowest **Order** value is used.

   a. In the **Label** field, enter the text that appears for this option when a user clicks on the widget.

   b. In the **Type** field, select **URL**.

   c. In the **Value** field, enter the URL that you want to direct users to when they click on the widget.
   Only URLs relative to the instance URL are allowed. The value must begin with a / character, such as `/incident.do`.

   d. Click **Submit**.

Color schemes

When a data visualization illustrates multiple indicators, breakdowns, or table fields, the colors of the different values can follow a color scheme.

Color schemes can apply to the following visualizations:

- Time series and breakdown widgets that display multiple indicators or breakdowns
- Widgets on breakdown dashboards when multiple elements are shown separately
- Reports that group by or stack by table fields
- Platform Analytics data visualization components that group by or stack by table fields

You can select a color scheme in the **Color Scheme** field when you create a widget. For an example, see Create a pie, donut, or semi-donut visualization for a breakdown widget. You can also design your own color scheme.

You don't have to specify a color scheme. In this case, the default color scheme specified in the property *`com.snc.pa.chart_default_color_schema`* is applied if necessary. In the base system, this color scheme is Default UI14.

All color schemes are on the Chart color scheme [pa_chart_color_schemes] table, at **Performance Analytics** > **System** > **Chart Color Schemes**.

The default color schemes use color definitions with the Qualitative themeable colors from the UX Theme Properties [sys_ux_theme_property] table. When Next Experience is activated, these colors are used rather than the Core UI color palette.

Related topics

Predefined colors in reports

Report types

Create a color scheme

Create a reusable set of colors available for reports, Performance Analytics widgets, and Platform Analytics data visualization components.

Before you begin

Role required: pa_power_user or pa_admin

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About this task

Tip:
A ServiceNow AI Platform or Reporting admin can create custom colors for use in your color schemes. For more information, see Define system colors for analytics.

Procedure

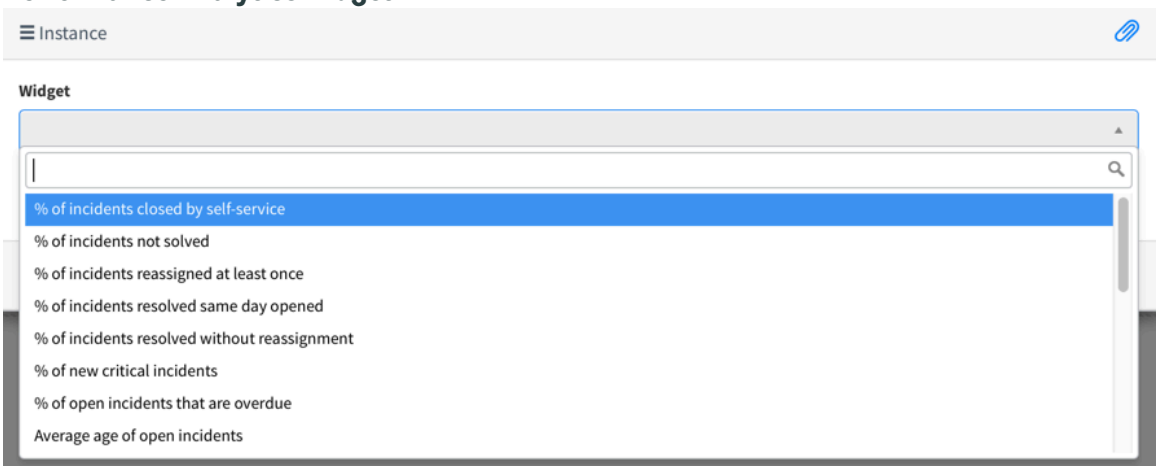
1. Navigate to **All** > **Platform Analytics Administration** > **Color Settings** > **Chart Color Schemes**.
2. Click **New**.
3. Enter a descriptive **Name**.
4. Select colors in the **Color 1** and **Color 2** fields.
   A color scheme must have at least two colors. You can use more.
5. **Optional:** Select up to 32 total colors to include in the color scheme.
6. Click **Submit**.

Performance Analytics widgets on Service Portal

You can show Performance Analytics indicators and breakdowns using Service Portal.

When you edit a portal, add the **Performance Analytics** widget. Use the widget options to select an existing Performance Analytics widget to show on the portal and whether to show its title.

Performance Analytics widget



Security requirements for viewing widgets

Starting with Quebec, widgets follow indicator and breakdown access control lists (ACLs). Outside of ACLs, no roles are required for viewing widgets.

However, if you upgrade an instance from a version earlier than Quebec, by default the rules from before Quebec still apply. Indicator and breakdown ACLs are followed only in these areas:

- List widgets follow indicator ACLs.
- When viewing breakdowns, breakdown ACLs apply.

Furthermore, on an upgraded instance, the following widgets may require users to have the pa_viewer role:

- List widgets
- Text widgets
- The Breakdowns section of Workbench widgets

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Upgraded instances cannot automatically follow the rules introduced in Quebec because of the variation in how ACLs are configured.

Related topics

- Create and edit a page using the Service Portal Designer
- Reports on Service Portal
- Performance Analytics widgets

Activate the Performance Analytics and Reporting - Service Portal Widgets plugin

You can activate the Performance Analytics and Reporting - Service Portal Widgets plugin (com.snc.pa.sp.widget) if you have the admin role. This plugin includes demo data and activates related plugins if they are not already active.

Before you begin
Role required: admin

About this task
The Service Portal Widget plugin activates these related plugins if they are not already active.

Plugins for Performance Analytics and Reporting - Service Portal Widgets

Plugin	Description
Service Portal [com.glide.service-portal]	Core Service Portal functionality.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the plugin using the filter criteria and search bar.

   You can search for the plugin by its name or ID. If you cannot find a plugin, you might have to request it from ServiceNow personnel.
3. Select **Install** to start the installation process.

   Note:
   When domain separation and delegated admin are enabled in an instance, the administrative user must be in the **global** domain. Otherwise, the following error appears: `Application installation is unavailable because another operation is running: Plugin Activation for <plugin name>.`

   You will see a message after installation is completed. For information about the components installed with a plugin, see Find components installed with an application.

Related topics

- List of plugins

View widget statistics

You can view statistics about Performance Analytics widgets to help identify and resolve problems, such as if a widget is loading slowly on dashboards.

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Before you begin

Role required: pa_power_user, pa_admin, or admin

Procedure

1. Navigate to **All** > **Performance Analytics** > **Widget Statistics**.
2. Select the widget you want to view statistics for.
3. Review the following fields.

Report Stats fields

Field	Description
Widget	The widget that the statistics describe.
Number executions total	The total number of times the widget was loaded from the server.
Average execution duration	The average time it took to load the widget, in milliseconds, for all executions of this widget.
Recent number executions	The number of time the widget was recently loaded from the server. The maximum number of recent executions is determined by the property *glide.report.recent_executions_number*.
Recent avg execution duration	The average time it took to load the widget, in milliseconds, for recent executions. The maximum number of recent executions is determined by the property *glide.report.recent_executions_number*.
Total executions duration	The total sum duration for all executions of the widget.

Widget statistics properties

These properties control how widget statistics are tracked and maintained.

Properties

Property	Description
glide.report.recent_executions_number	The number of widget executions that are considered recent for the purpose of recent average duration calculations. • Type: integer • Default value: 25 • Location: Add the property

Analytics Hub

The Analytics Hub is an exploratory view of indicators, used for more detailed analysis. It lets you see trends, predictions, breakdowns, and associated records for a specific indicator. The Analytics Hub replaces scorecards.

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Note:
In Platform Analytics, Analytics Hub functionality is in KPI Details. Navigate to **Platform Analytics** > **Indicators**. After you migrate to Platform Analytics, only the KPI Details option is available.

Introduction to using the Analytics Hub.

Watch this five-minute video to learn how to use Analytics Hub to analyze, explore, and compare Performance Analytics indicator data.

In the Analytics Hub, analyze indicator scores by aggregating data, comparing scores, or viewing changes over time, and filter scores by breakdown. Enhance the Analytics Hub by adding targets, thresholds, trendlines, and useful comments for significant changes.

On the indicator form, you can set the indicator to be included in the Analytics Hub automatically.

Note:
Values between 10,000 and 999,999 are rounded off to the nearest thousand and abbreviated with a K, such as 11K for 11,234. Values between 1 million and 999,999,999 are rounded off to the nearest million and abbreviated with an M. Values of 1 billion and higher are rounded off to the nearest billion and abbreviated with a G.

Related topics

Performance Analytics indicators

Analytics Hub list of indicators

The Analytics Hub provides a list of indicators, their scores, and a customizable selection of other analytics. Click the name of an indicator to see more details about that indicator. The Analytics Hub replaces scorecards.

To access the Analytics Hub list, navigate to **Performance Analytics** > **Analytics Hub**.

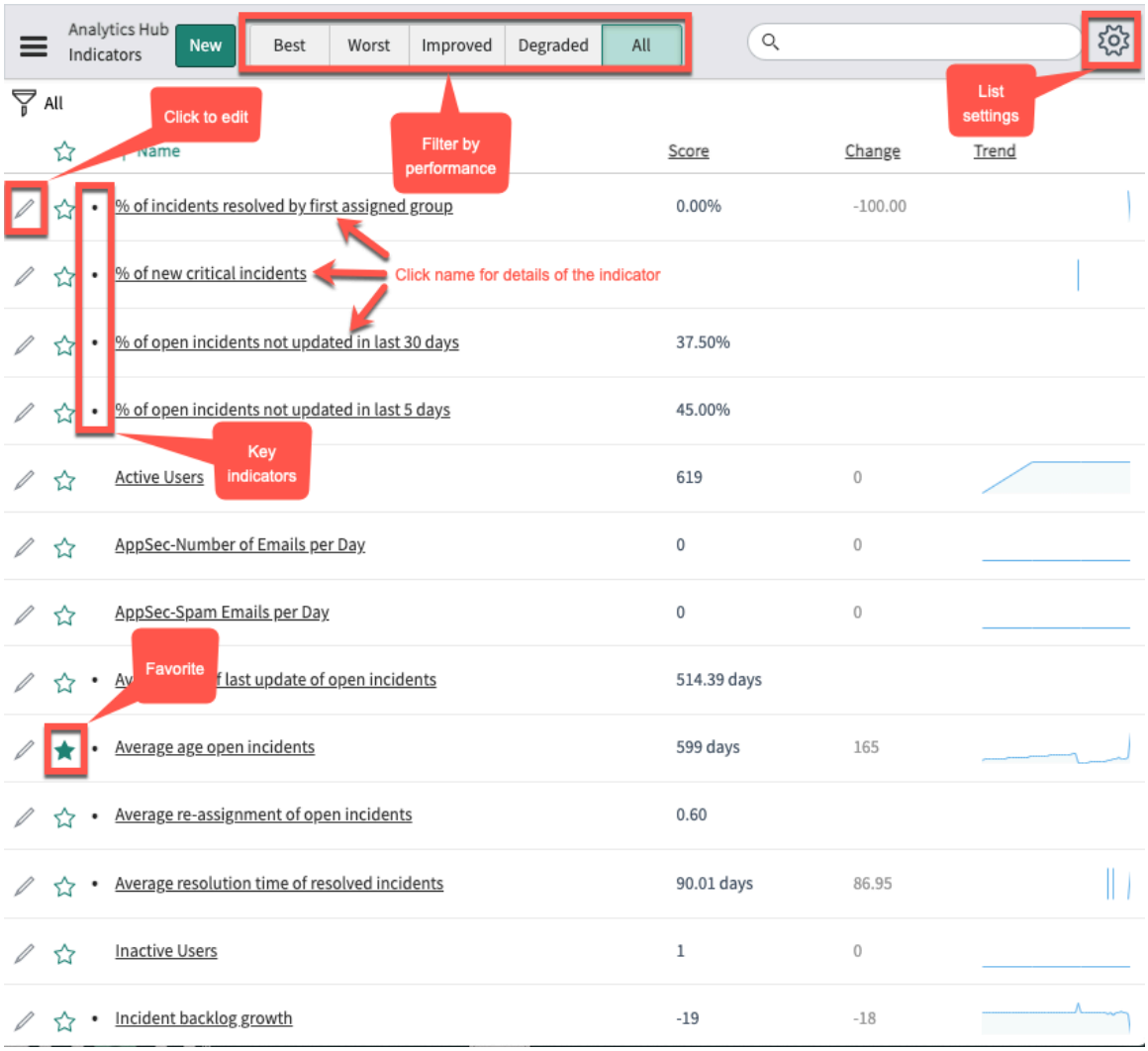
Indicator list controls

The list of indicators includes the following controls:

- Click the name of an indicator to open a view of the Analytics Hub that is focused on the indicator. An extended set of analytical tools is available in this view.
- Click the pencil icon next to an indicator to open the indicator record for editing. This icon is available only if your roles give you access to the indicator record.
- A solid green star beside an indicator name indicates that it is a favorite. Click the star beside the indicator to mark it as a favorite.
- A black dot beside an indicator name indicates that it is a key indicator. Mark indicators as key by selecting the **Key** check box when creating the indicator.

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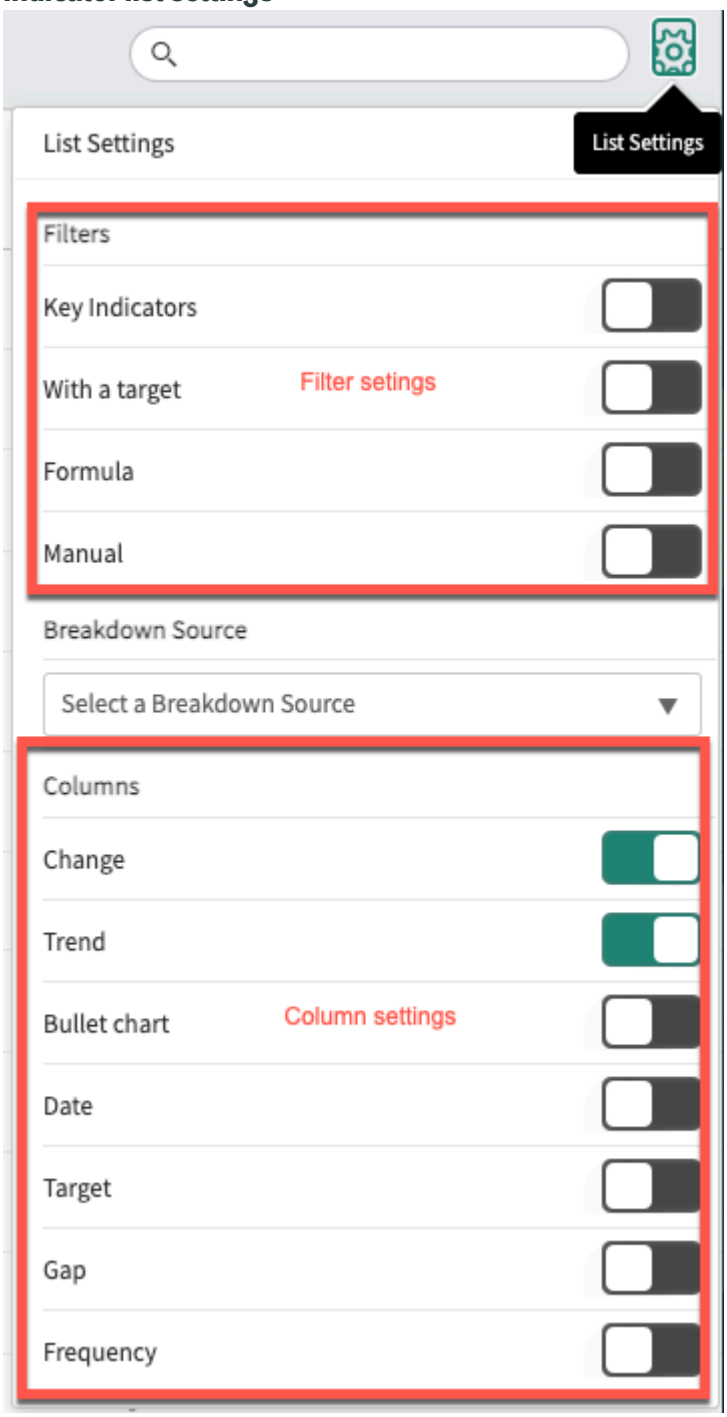
List of indicators



To customize what the Analytics Hub shows, click the list settings icon ( ) beside the search box.

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Indicator list settings



The list settings include the following sections:

- Filter settings
- Breakdown source and element settings
- Column settings

Filter settings

You can filter which indicators are shown with the following settings:

Key indicators

Only indicators that are defined as key indicators in the indicator record are shown.

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With a target

Only indicators with a defined target are shown.

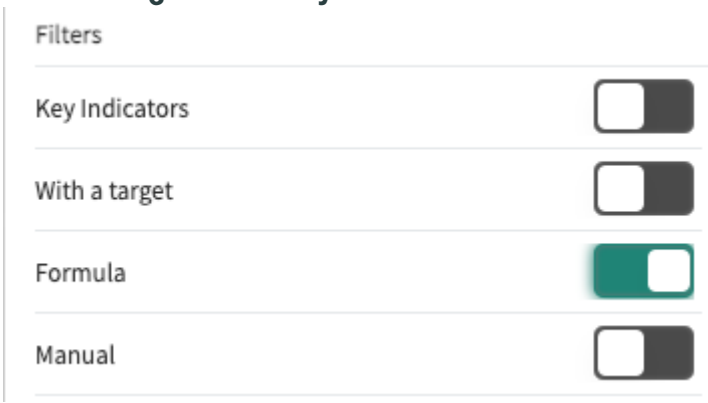
Formula

Only formula indicators are shown.

Manual

Only manual indicators are shown.

Filter setting to show only formula indicators



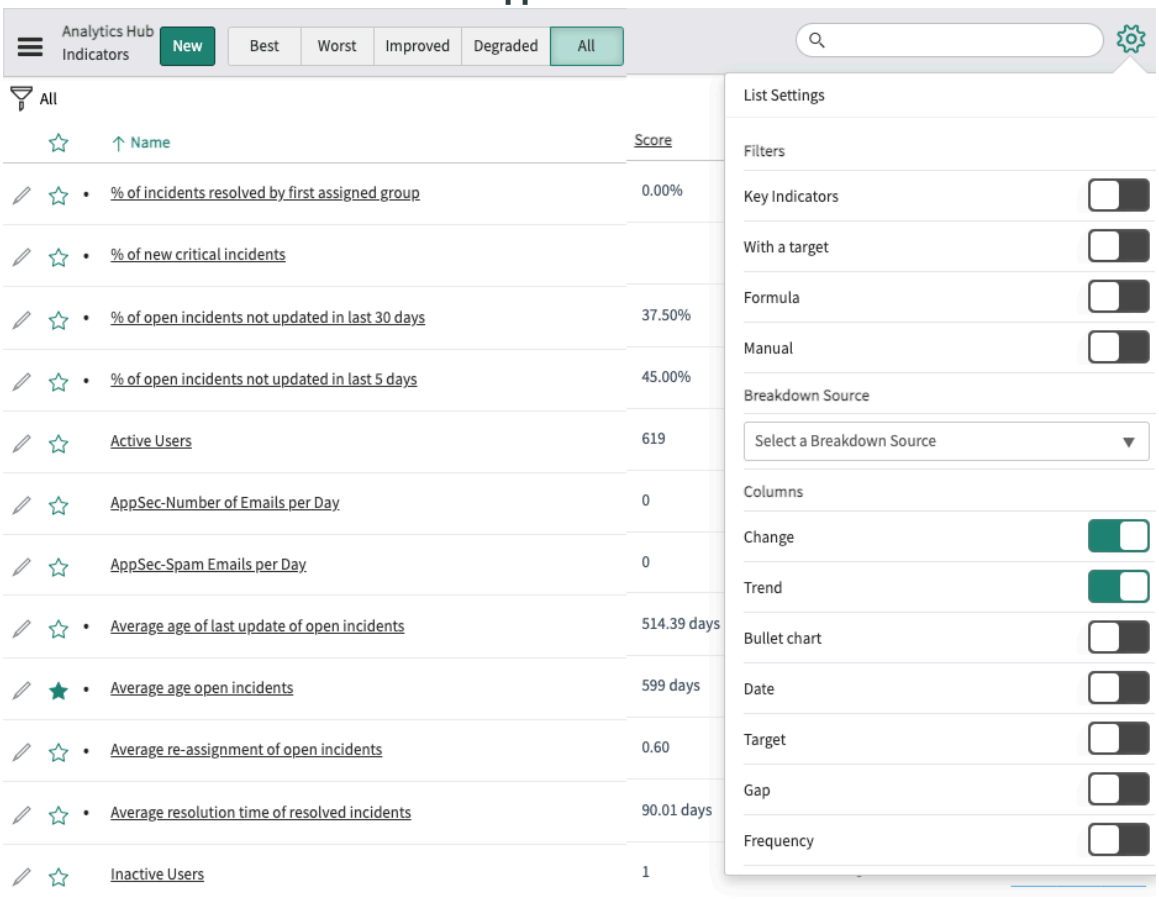
Breakdown source and element settings

Within the settings, you can also select a breakdown source. Only indicators that use that breakdown source are shown. After choosing the breakdown source, you can further filter the list of indicators by selecting a breakdown element. Only indicators to which that element applies are shown.

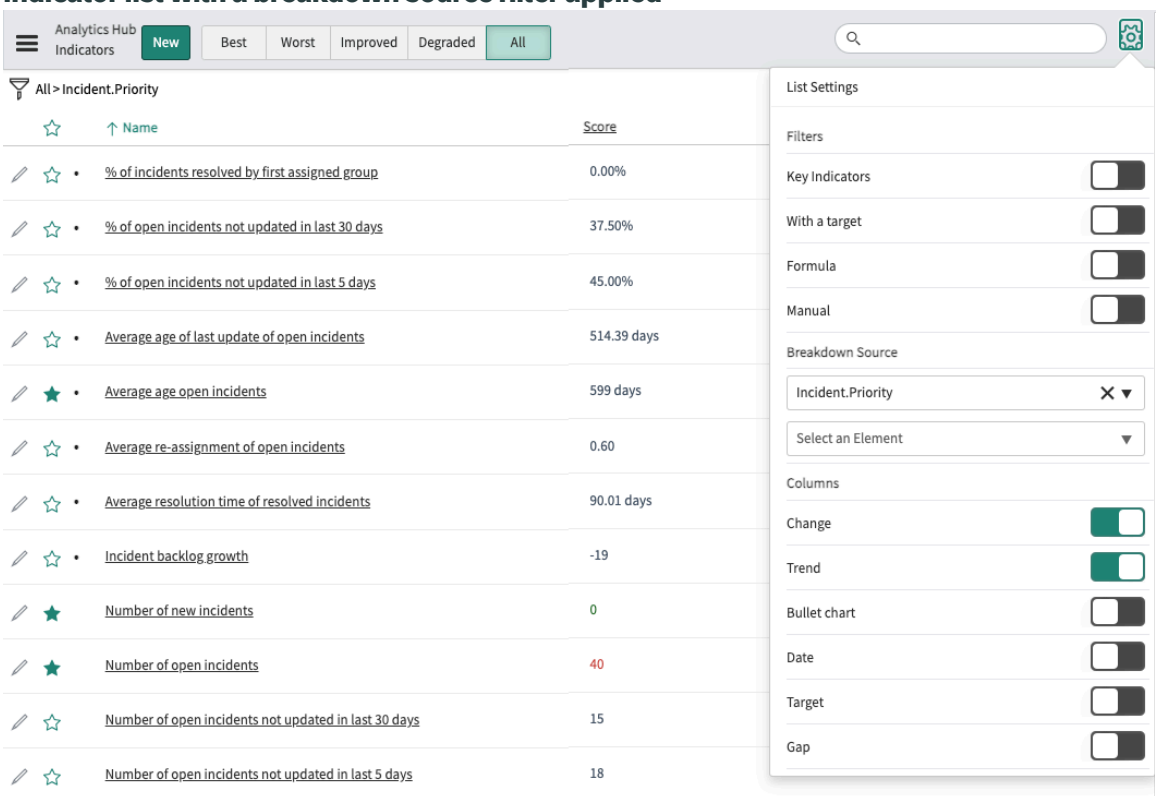
In the following example, you see how the scores change when the list is filtered on the Indicator.Priority breakdown source and then on the 1 - Critical element.

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Indicator list with no breakdown filter applied

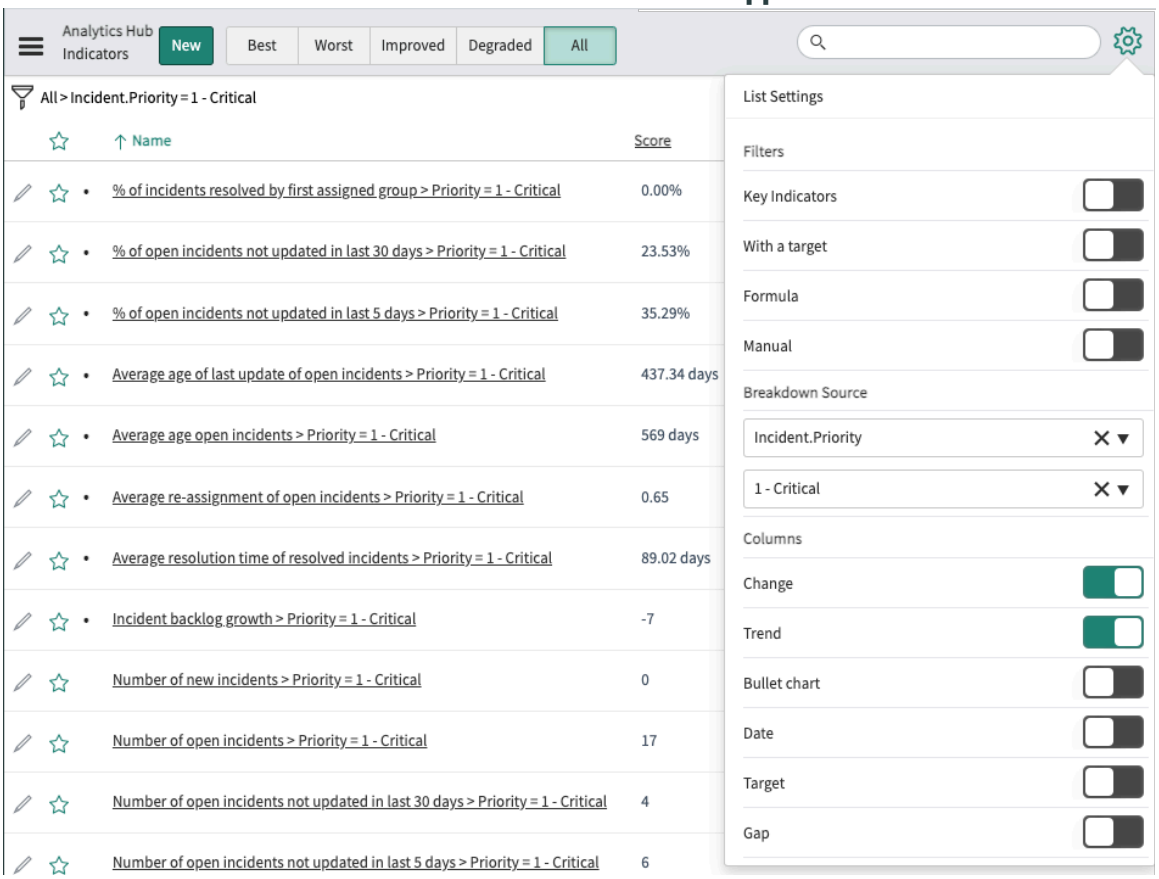


Indicator list with a breakdown source filter applied



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Indicator list with a breakdown source and element filter applied



Column settings

Select which analytics to show in the indicator list. The indicator scores are always shown.

Change

The change in scores, in absolute value, between the most recent and the preceding data collection.

Trend

The trend line for scores over the course of the data collection. This trend line is a miniaturization of the trend line that can be seen when the Analytics Hub is focused on a specific indicator.

Bullet chart

A chart comparing current score to target. This chart is shown for an indicator only if a target is set on that indicator. 

Date

Date that the latest score was collected.

Target

The target for the indicator, if one has been set.

Gap

The gap between the latest score and the target. A value is shown only if a target has been set for the indicator.

Frequency

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The frequency with which scores are calculated for the indicator.

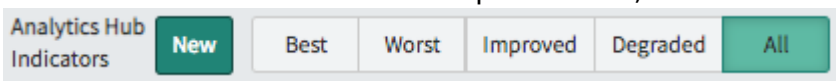
Direction

Whether the score for the indicator should minimize, maximize, or neither.

Show percentage

If activated, the change in score is shown as a percentage instead of as an absolute value.

Filter by performance

You can filter the list of indicators based on the indicator performance, in addition to filtering the list in the settings. 

- **Best:** Shows indicators that are outperforming their target (green), ordered by Gap % (best performers on top).
- **Worst:** Shows indicators that are under performing their target (red), ordered by Gap % (worst performers on top).
- **Improved:** Shows indicators that have improved compared to the previous data collection (moving in the right direction).
- **Degraded:** Shows indicators that have degraded compared to the previous data collection (moving in the wrong direction).

Analytics Hub for a specific indicator

Use the Analytics Hub to analyze indicator data deeply, such as by aggregating data, comparing scores, or viewing changes over time.

To access the Analytics Hub for an indicator, select any of these methods:

- Navigate to **Performance Analytics** > **Analytics Hub**, then select an indicator.
- Click the **Explore indicator** related link on the relevant Indicator record.
- From a responsive dashboard, select any value in a Performance Analytics widget.

Note:

- From a Platform Analytics dashboard, selecting a value in indicator data accesses KPI Details instead of the Analytics Hub. This is default behavior; a data visualization can be configured with different drilldown behavior.
- When the indicator scores in a breakdown dashboard are aggregated on multiple elements, the Analytics Hub is aggregated on the same elements. For more information, see Viewing aggregate scores for multiple elements.
- Time series aggregations are validated on the Analytics Hub and in KPI Details but not in widgets. Therefore, you might navigate from a working widget to the Analytics Hub and get a warning that the indicator has an invalid aggregation.

Limitation

The Analytics Hub is not optimized for mobile screen sizes. You can access the Analytics Hub on a tablet using the standard web interface.

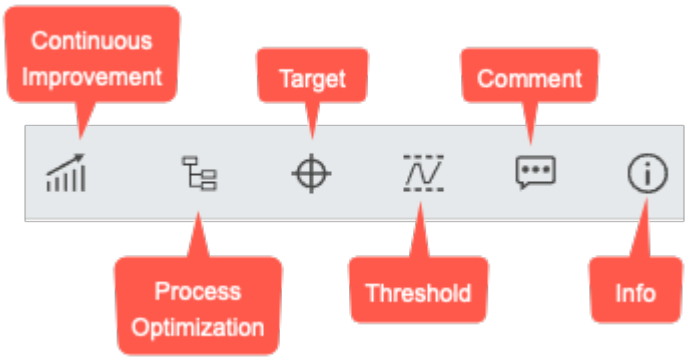
Adding Targets, Thresholds, Comments, and Improvement Initiatives

All tabs in the Analytics Hub have a toolbar at the top with the following actions:

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- Targets
- Thresholds
- Add a comment
- Information
- Create Improvement Initiative (Requires the Continual Improvement Management application)

A tooltip identifies each icon in the toolbar.

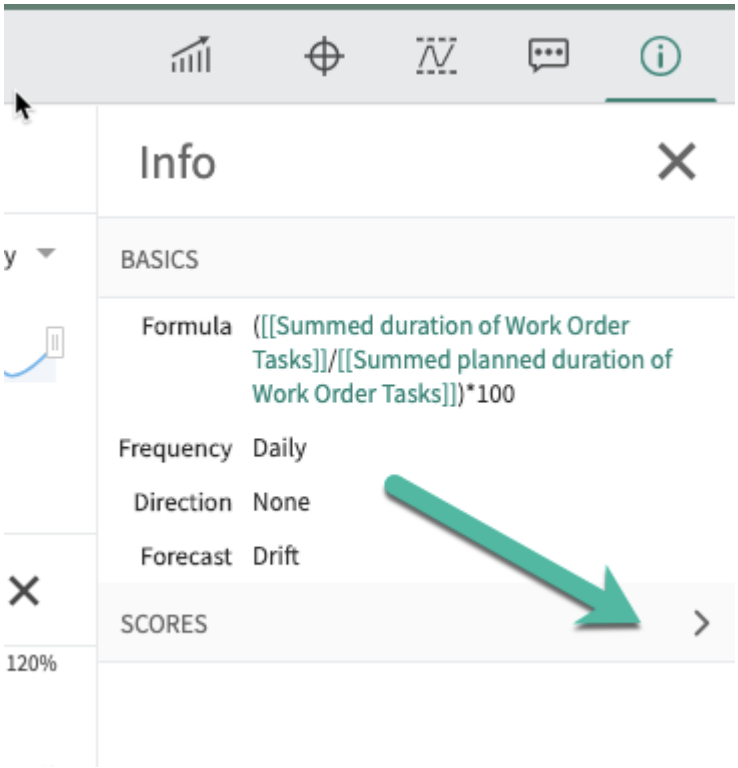


The toolbar always has the rightmost four icons from the screenshot. Clicking one of these icons opens a pane where you can view or create a target, threshold, or comment. You can also view the basic information about the indicator from this pane.

Note:
Targets, thresholds, and comments are not supported on the Analytics Hub when indicator scores are aggregated on multiple elements.

For a formula indicator, this basic information includes the formula. In the Info panel you can also expand a list of the daily scores for the indicator. To see the scores for each component indicator in a formula indicator, click on the indicator name in the formula. Doing so refocuses the Analytics Hub on that indicator.

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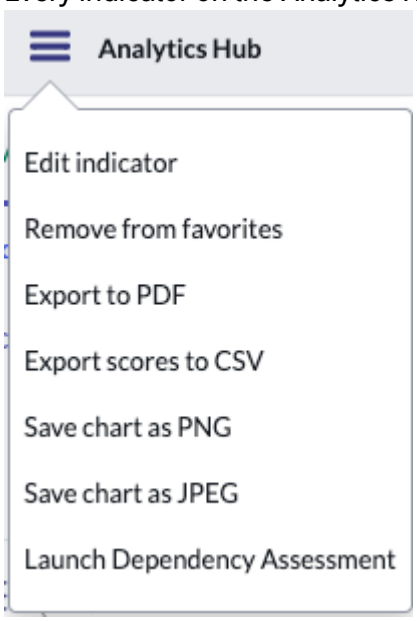


If you have the Continual Improvement Management application and the sn_cim.improvement_requester role, you can create an improvement initiative. Click the **Create Improvement Initiative** icon ( ) to open an Improvement Initiative form. This form is automatically populated with details of the indicator and Analytics Hub. To see the initiative start and finish dates on the timeline, click the improvement initiative icon in the chart options on the **Overview** tab.

If you have the Process Mining application and a Process Mining role, you can open the indicator in a Process Mining dashboard. Click the **Go toProcess Mining** icon ( ).

Editing indicators and scores, exporting to PDF or CSV, and generating graphics

Every indicator on the Analytics Hub has a context menu.



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The options in this menu depend on the type of indicator and whether it has scores.

Option	Where present
Edit indicator	All indicators
Edit scores	Automated indicators with scores
Add to/Remove from favorites	All indicators
Export to PDF	All indicators with scores
Export scores to CSV	All indicators with scores
Save chart as PNG/JPEG	All indicators with scores
Launch dependency assessment	All indicators

Click the context menu a second time to close it without making a choice.

Different tabs on the Analytics Hub

The Analytics Hub for a specific indicator has the Overview and Compare tabs, which are described in View scores and statistics and Compare scores, respectively.

Related topics

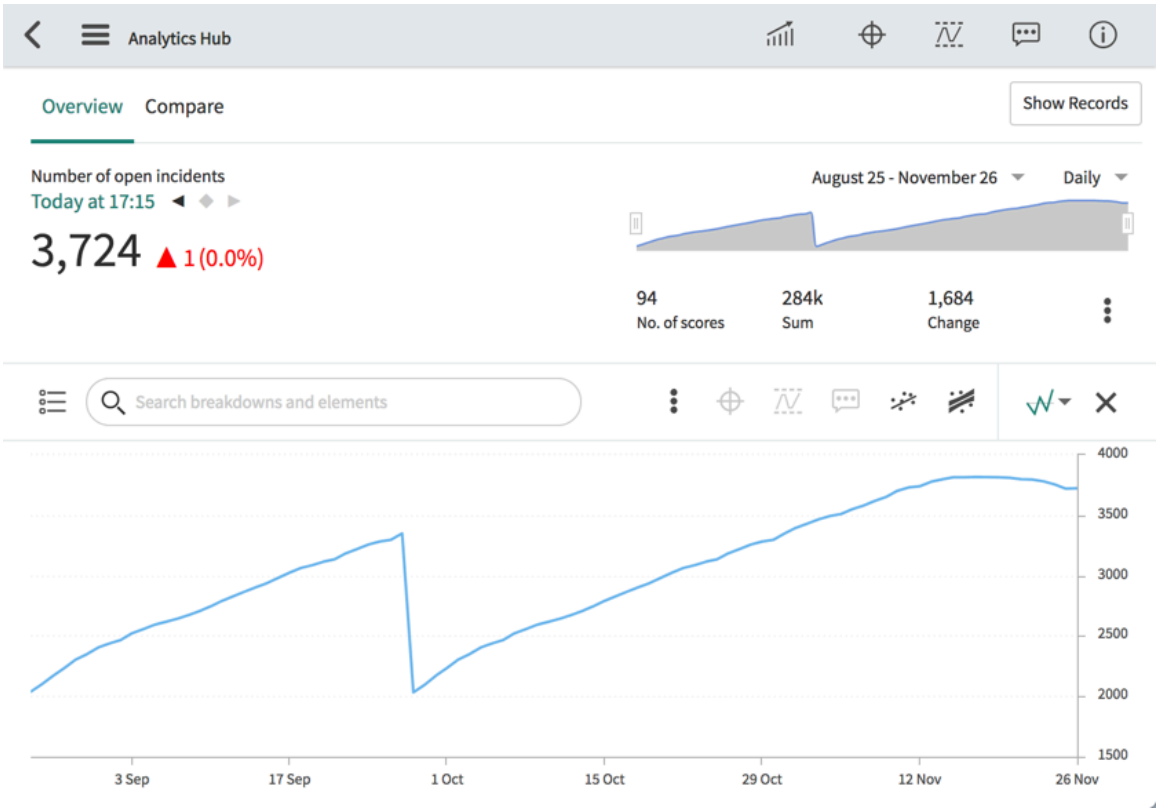
- Performance Analytics indicators
- Performance Analytics targets and thresholds
- Dependency Assessment
- Continual Improvement Management

View scores and statistics

The Analytics Hub Overview tab shows the score for a time period, statistics, and a time series. You can set the time period for the statistics and time series. You can also filter scores by breakdown and element.

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Overview tab



Note:
The ability to view formula indicator calculations, which had been available in Detailed Scorecard before Madrid, is not supported on the Analytics Hub . For more information, see the Performance Analytics: Formula calculation is not shown for scores on Analytics Hub [KB0783438] article in the Now Support Knowledge Base.

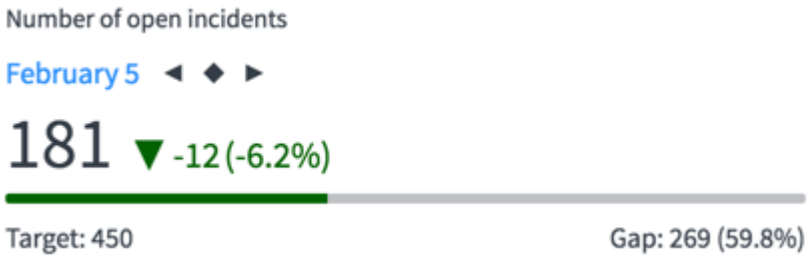
Indicator summary

The top of the View tab summarizes information about the indicator being viewed.

At the top of the tab, you see the following information:

- The score for a chosen time period
- The change, both absolute and percentage, between that score and the score for the previous time period
- If a target is set, the difference between the score and that target
- Controls for switching to the previous, next, or last time period
- A calendar for selecting a time period or the real-time score

Score section showing compliance with a target



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Results are color-coded to show favorability. If the direction of an indicator is Maximize, increases in scores are shown in green and decreases in red. If the direction of an indicator is Minimize, increases in scores are shown in red and decreases in green. Similarly, a color bar indicates whether the target has been met or missed. The colors depend on the color scheme that has been set for the target. For more information, see Create a target color scheme.

The time period that is associated with a score is shown above the score. Controls let you move to the next time period, the previous time period, or the last time period. The date you select here is reflected in the statistics and the time series graph. The selected time period is carried over when you change to another tab. The length of a time period (day, month, quarter...) is the same as the frequency of the indicator.

You can also select the date by clicking along the time series chart. Furthermore, if you navigate to this Analytics Hub from a widget, the date that you select in the widget persists when you open the Analytics Hub.

Viewing real-time scores on the Analytics Hub

You can select real-time scores to view instead of the last score.

You can view real-time scores in the following circumstances:

- The indicator is an automated indicator.
- It is configured to show real-time scores.
- The aggregate function for the indicator does not use a script.
- The indicator source does not use a database view.
- None of the breakdowns that are applied to the indicator use a scripted breakdown source.

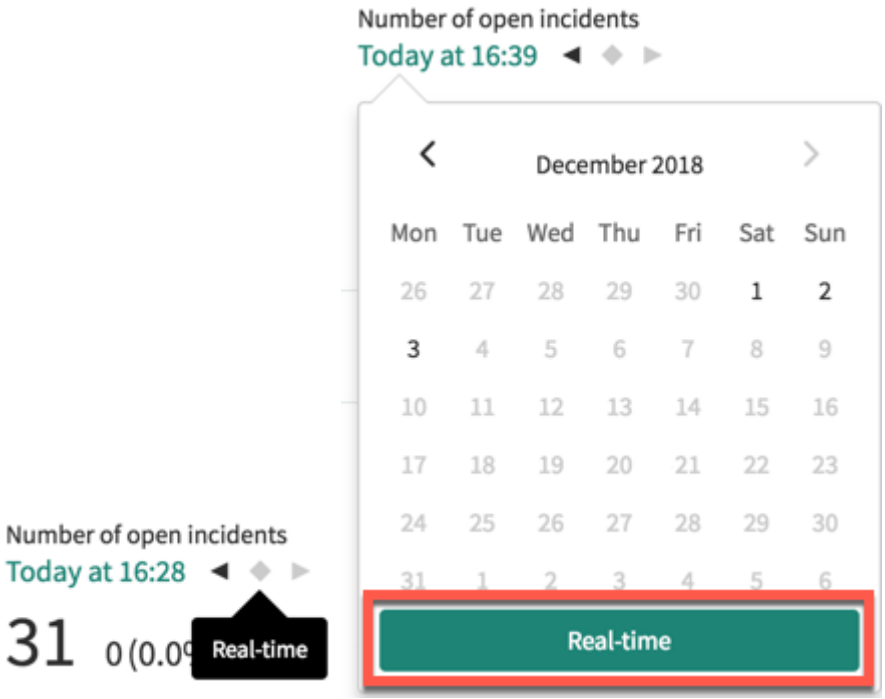
⚠ Warning:

- Real-time scores can differ per viewer and differ from collected scores. Real-time scores are taken directly from the relevant facts tables. Therefore, the Access Control Lists (ACL) of those facts tables determine the real-time scores that each logged-in user sees.
- The Analytics Hub does not refresh real-time scores automatically. To get the most up-to-date score, refresh the browser page.

If you can select real-time scores, select them in the date selector or by selecting the current time period in the **Records** view. However, when viewing real-time scores, you cannot see records that do not match a breakdown element in the **Records** view.

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Selecting to show real-time score



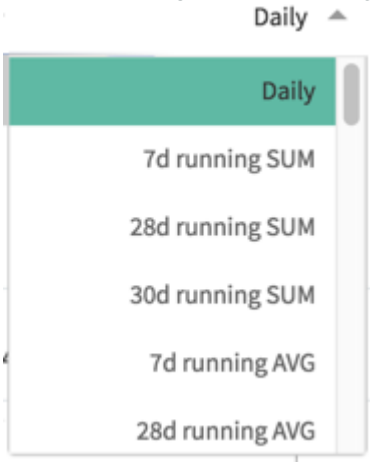
Note:
You can show real-time scores to dashboard users in some widgets. For more information, see Real-time scores.

Time-series aggregations in the Analytics Hub

On the Analytics Hub, you can aggregate changes in indicators into discrete time intervals.

In the top-right corner, you can set the time series aggregation for the Analytics Hub.

Menus of daily time series aggregations



The time series aggregation is reflected in the score, the statistics, the time series graph, and the charts in other tabs. The available time series depend on the frequency of the indicator. For more information, see Applying time series aggregations. For examples and a deeper exploration of using time series aggregations with indicators, see this Performance Analytics Academy video, Leveraging Time Series with Performance Analytics.

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Note:

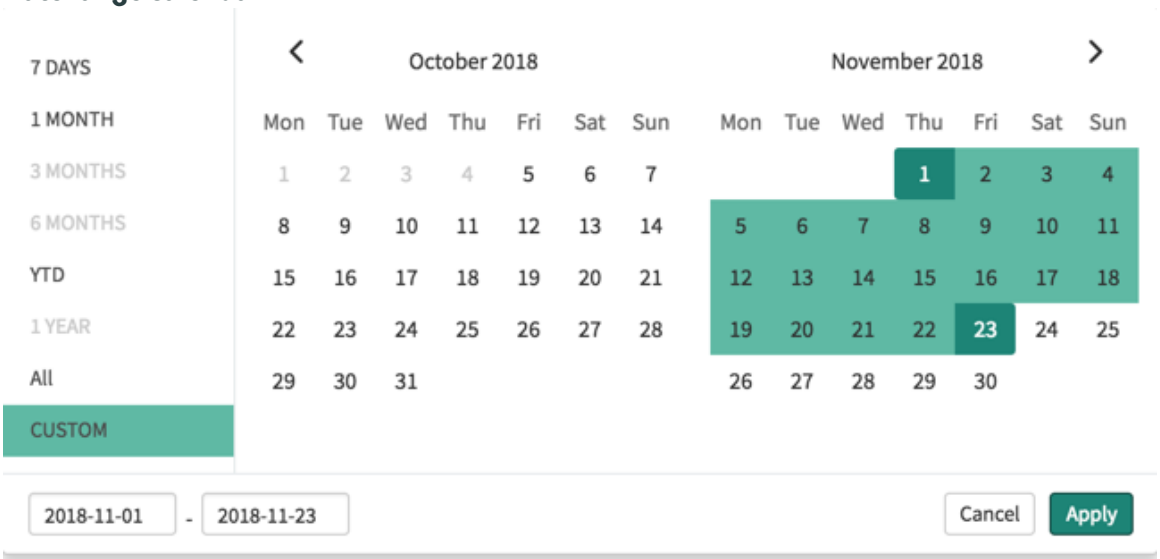
- Business and fiscal calendars do not support time series aggregations. You cannot set a time series aggregation for an indicator that uses such a calendar.
- Selecting a time series aggregation overrides the **Render continuous lines** option that is set on the indicator. This option causes the Analytics Hub to show unbroken data lines for this indicator, even when there is no data for a specific date.
- You cannot compare records in the Compare tab if you set a time series aggregation. You can compare aggregated scores.

Date ranges of scores in the Analytics Hub

You can set the time period of scores that the Analytics Hub describes.

The controls for selecting a date range are above the statistics and to the left of the time series aggregation. The time period you choose is reflected in the statistics and the time series graph. You have two control options to set the time period:

- **Date range calendar**



- The sliders with the navigation bar:



Note:
If you specify a date range such as 3 MONTHS with a time series aggregation such as By month SUM, you may see one more time period than you expect. The instance interprets a period such as three months as 0-3 months and may show four months of scores.

Statistics on the Analytics Hub

In the View tab of the Analytics Hub, you can set various statistics to apply to the indicator score.

You cannot customize the statistics display on the Analytics Hub. However, because not all statistics are relevant to all indicators, you can exclude statistics on the indicator record. For example, you can exclude Change % for an indicator with a score expressed as a percentage. For more information, see Create an automated indicator.

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Breakdowns, elements, and element filters

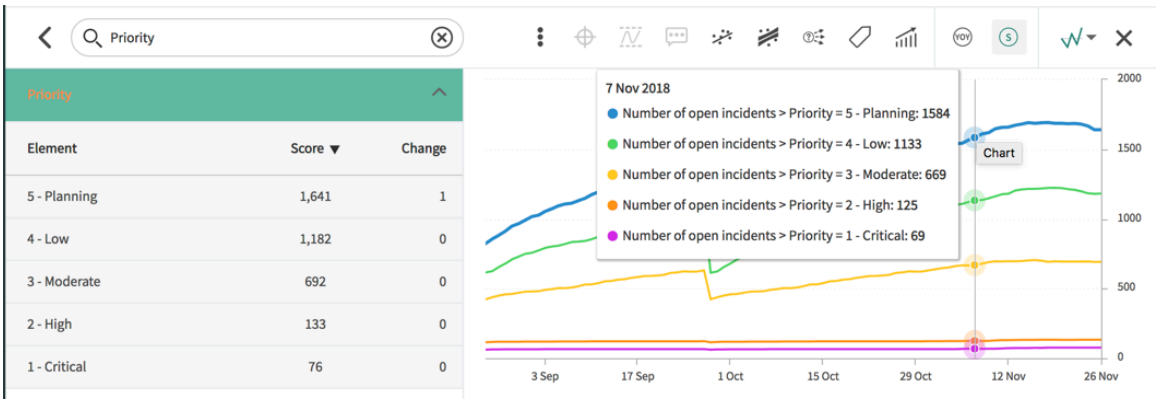
On the Analytics Hub, you have several options for viewing breakdowns and breakdown elements.

You can show a separate line or column on the chart for every element of a breakdown. You can also filter the scores by selecting a breakdown and an element. You can search for breakdowns and elements by name or you can open a breakdown and element selection dialog.

Breakdown menu and search field

If you select a breakdown but not an element, the chart shows each element of the breakdown.

Chart with all elements of a breakdown

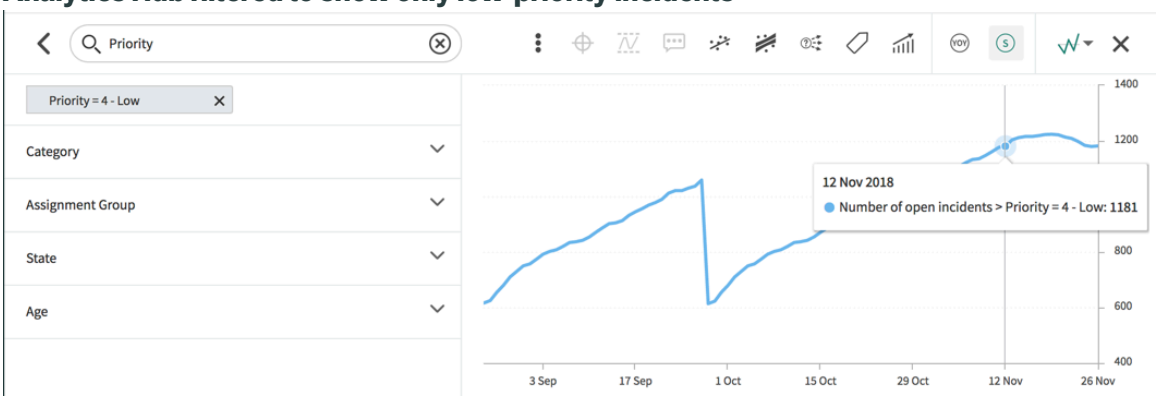


Note:

- The scores are not shown when no element from the breakdown applies. This rule also applies to Choice [sys_choice] table breakdowns when a label defined in NULL_OVERRIDE replaces the value of `none`.
- If you try to apply a breakdown to a formula indicator but not all contributing indicators support the breakdown, the breakdown is not applied. Instead, you see the score for the formula indicator without the breakdown. A message appears to let you know this has happened.

If you select a breakdown and an element, you filter the entire Analytics Hub to show only the values for that breakdown and element.

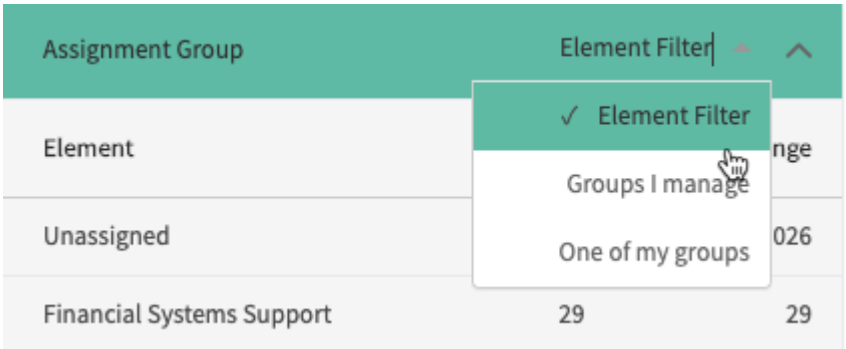
Analytics Hub filtered to show only low-priority incidents



If the breakdown has an elements filter defined for its breakdown source, you can choose one of those elements filters. For more information, see Element filters.

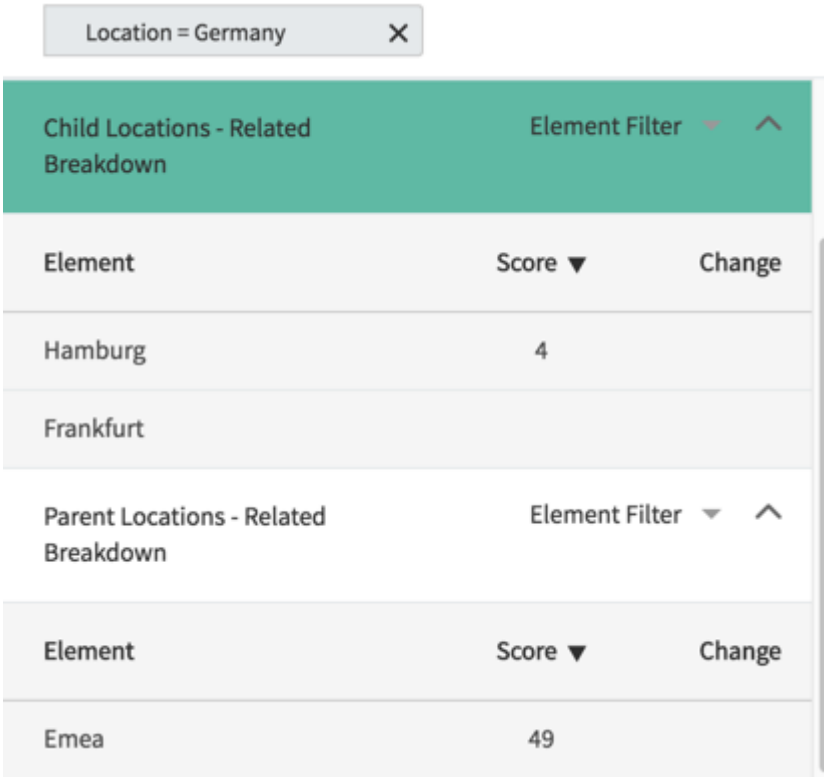
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Element filter



If breakdown relations are defined for the indicator, after you select a first-level breakdown and element, you can navigate to a related element. The element can be in a parent-child relationship in the same breakdown, or it can be in another breakdown. For more information about breakdown relations including procedures for creating them, see Navigating breakdown elements with breakdown relations.

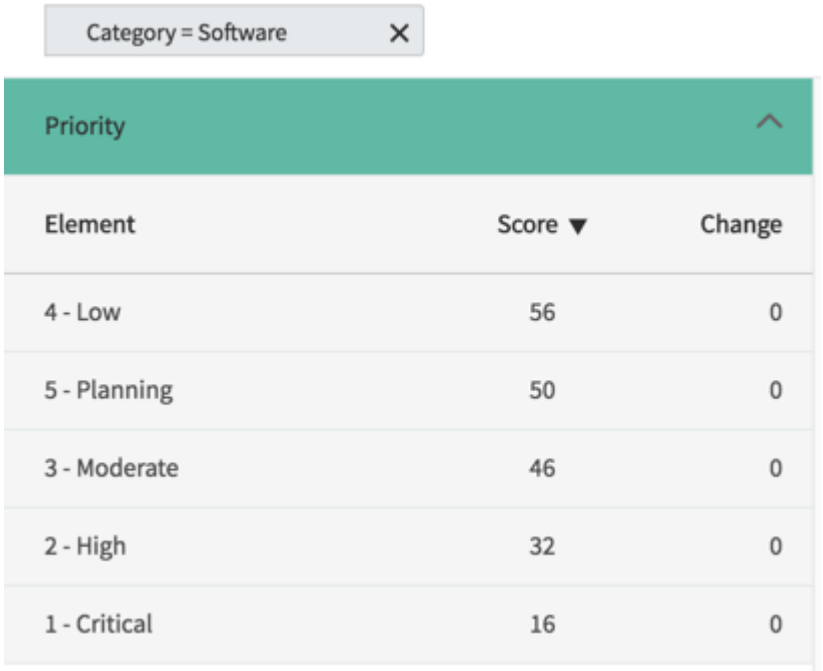
Breakdown relations



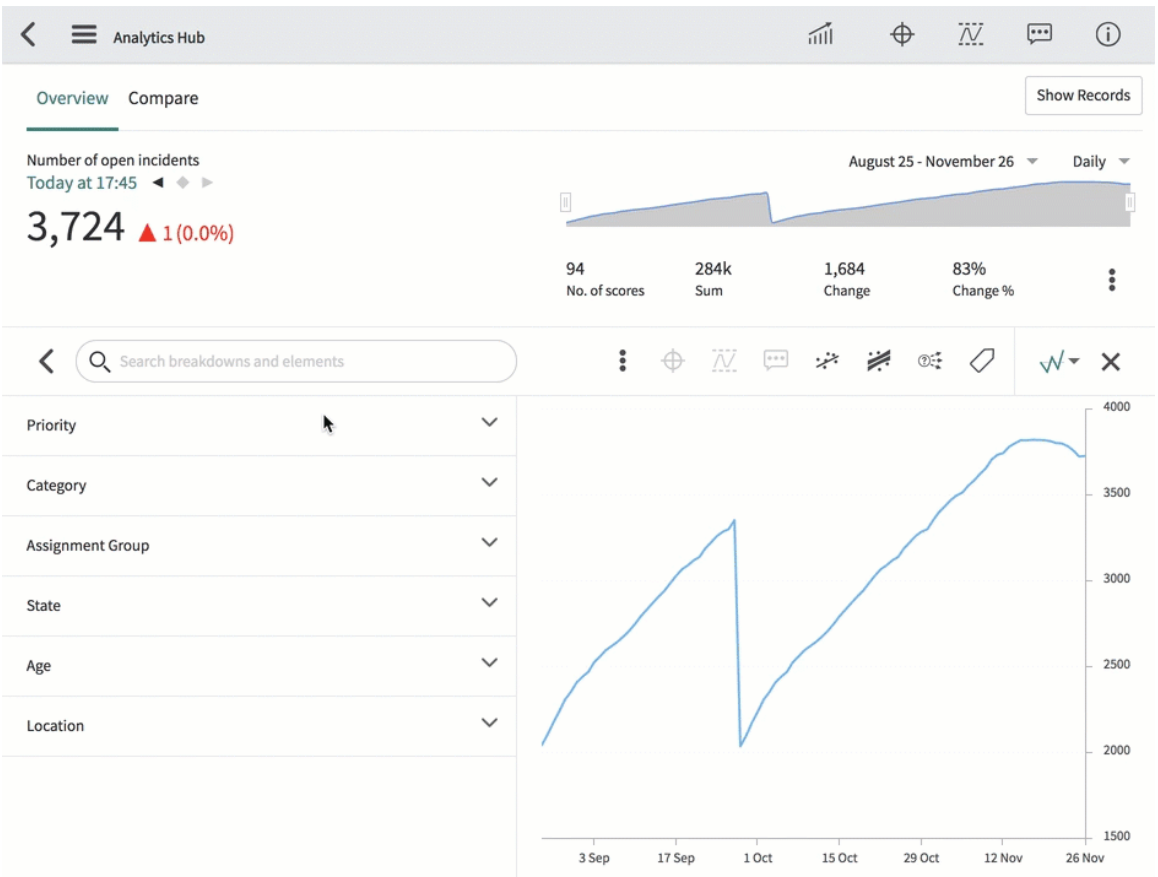
After you select a first-level breakdown and element, you can select a second-level breakdown and element. You cannot select more than two levels of breakdown in total.

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Selecting breakdowns and elements



The following animation shows the selection and clearing of a first- and second-level breakdown and element:



You can clear either the first- or second-level breakdown and element combination by clicking the X in the tile for that breakdown/element pair. If you clear the first-level breakdown/element, the second-level breakdown/element becomes the first-level breakdown/element. You can also clear the selection by following the breadcrumbs above the score.

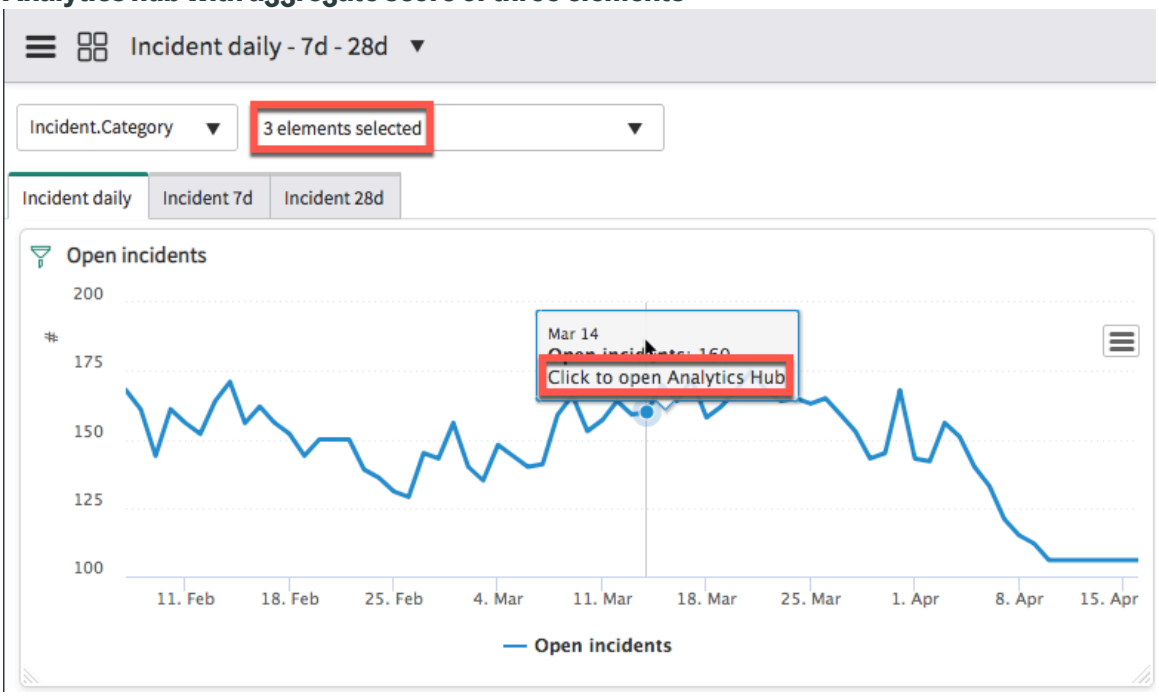
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Viewing aggregate scores for multiple elements

If you click a value on a chart in a widget on a dashboard, you open the Analytics Hub on that indicator. If you are on a breakdown dashboard and have multiple elements selected, and the widget shows the aggregate of those elements, the Analytics Hub also shows the aggregate of those elements.

For more information about the aggregate view of multiple elements selected on a dashboard, see Showing multiple elements separately or aggregated.

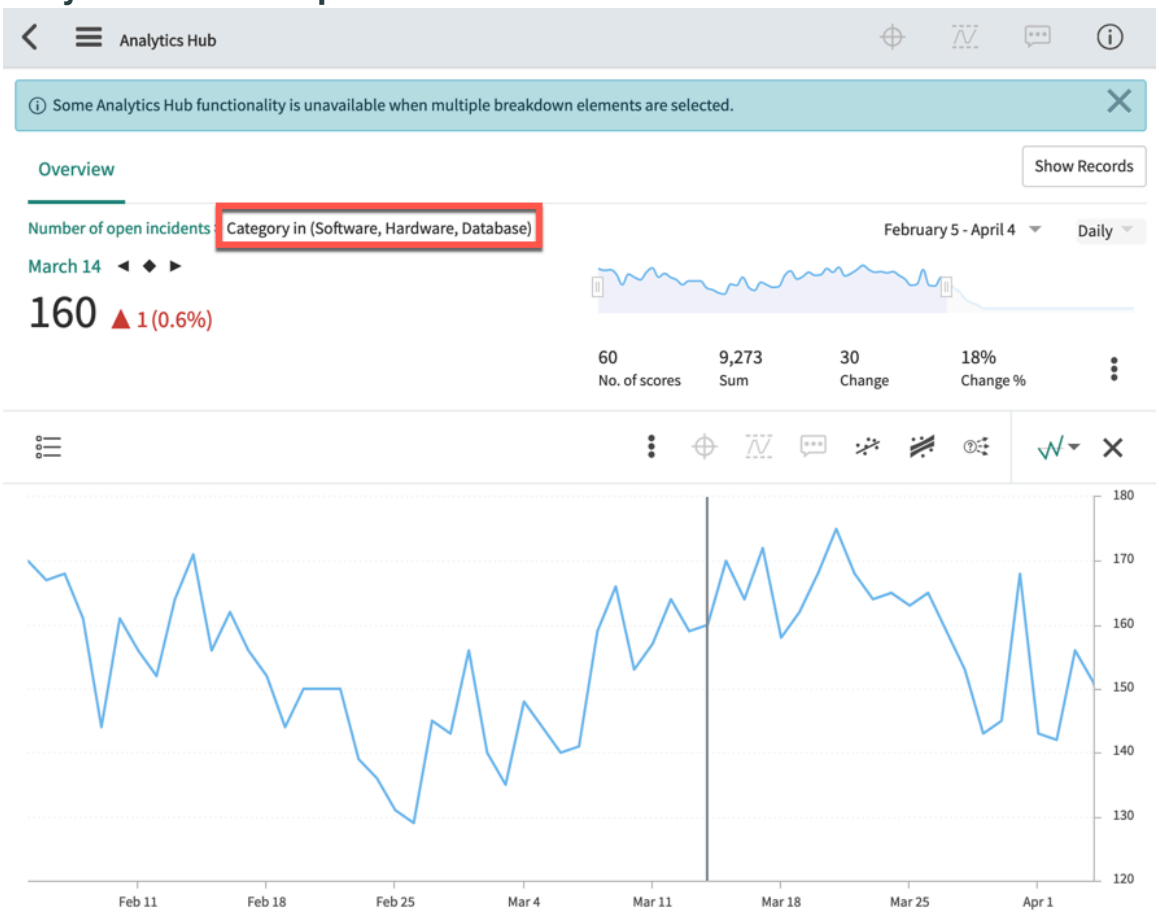
Analytics hub with aggregate score of three elements



The Analytics Hub opens on whichever date was selected in the widget. The multiple elements are shown in the format **{Breakdown} in (element_1, element_2, element_3, +x more)**.

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Analytics Hub with multiple elements



Note:
Targets, thresholds, and comments are not available when you navigate to the Analytics Hub from a widget with multiple breakdown elements selected in an aggregate view. The breakdown selector and search functionality are also unavailable. If you then select **Show Records** on the Analytics Hub, you see the records that match any of the elements you selected on the dashboard.

Showing records in the Analytics Hub

You can toggle between showing a time series of indicator scores and a list of the records used to calculate those scores.

Click **Show Records** or **Hide Records** in the upper right corner to toggle. In either case, the scores or records are shown for the time period that is chosen at the top of the tab. The scores or records are also filtered by any breakdown/element pairs that you selected.

If you opened the Analytics Hub from a breakdown dashboard with multiple elements selected, what you see depends on the dashboard widget. If the widget displays each element value separately, you see the records that match the element you selected. If the widget displays an aggregate score of the elements, you see the records that match any of those elements.

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Note:

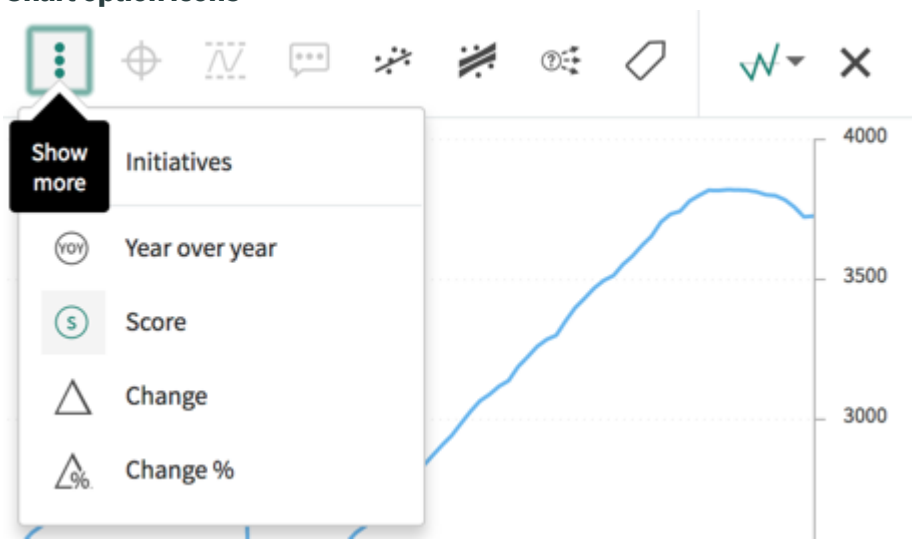
- Records are shown only for automated indicators.
- The Show Records function is not supported for real-time scores of unmatched breakdown elements. If you are viewing scores in real time, records that are not assigned to any breakdown element are not displayed.
- You can change the view of the list of records in the context menu of the Records list, depending on the views available to the facts table. The default view is set on the indicator source.
- In some cases, when you collect second-level breakdowns, the score and the number of records do not agree. When these values do not agree, the score is correct. For more details and an example, see KB0748969.

Chart options on the Analytics Hub

You can change what the chart displays in the View tab of the Analytics Hub.

Click the **Show more** icon, and a toolbar of additional icons appears.

Chart option icons

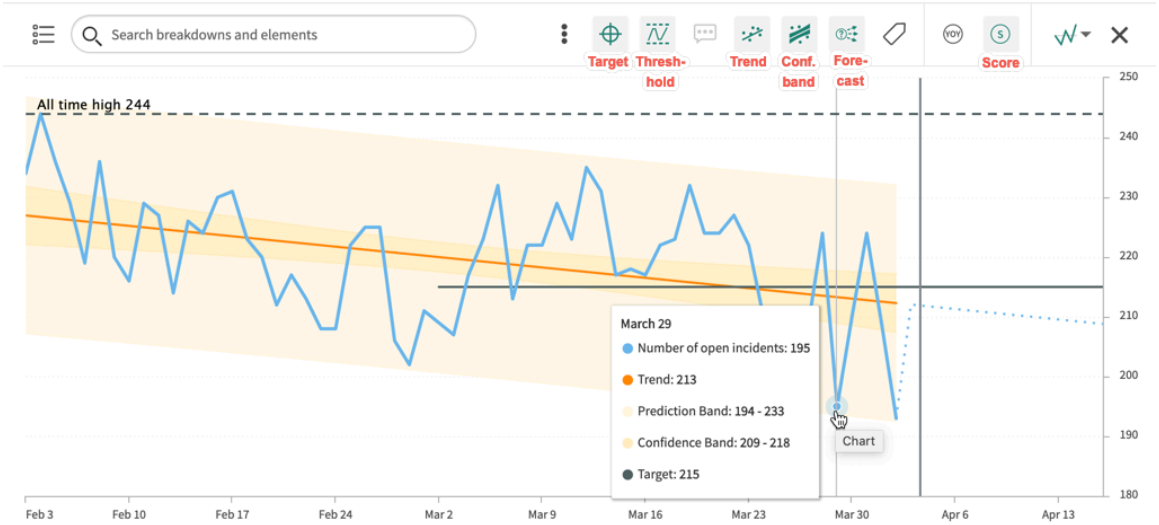


A tooltip for each icon identifies which chart option the icon turns on and off. The chart options include:

- The type of measurement that is displayed.
- Displaying labels
- Displaying a forecast of future scores, depending on how forecasting is set up on the indicator.
- Displaying confidence bands
- Displaying the trend line
- Displaying comments
- Displaying thresholds
- Displaying targets
- Selecting the chart visualization

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Chart showing multiple options selected



If you have the Continual Management Improvement application installed, you also have an icon to show or hide Improvement Initiatives ( ). If you also have the sn_cim.improvement_requester role, you can create an improvement initiative by clicking the identical icon in the toolbar, as described in Analytics Hub for a specific indicator.

The available measurements are:

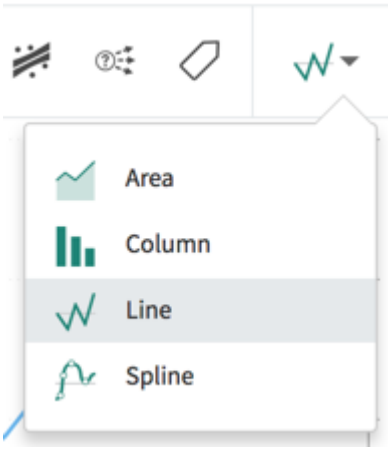
- Year-over-year
- Change
- Change percent
- Score

Score is the default measurement. All measurement types except Year-over-year can be shown together. Year-over-year can apply to only one other measurement at a time, such as Score or Change, but not both. A full year of data is necessary to make Year-over-year meaningful.

Visualizations on the Analytics Hub

To change the visualization used for the graph, select a visualization from the list menu. Area, column, line, and spline visualizations are available.

Available chart visualizations



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User preferences on the Analytics Hub

You can set display preferences per indicator and have them persist for each time you view that indicator.

The Analytics Hub tracks the following user preferences:

- All display settings
- Chart visualizations
- Time period

All preferences are stored per indicator and user, so each user can configure each Analytics Hub to display as preferred.

Note:
If you are upgrading from a version with scorecards instead of the Analytics Hub, the table with old user preferences is preserved. The first time a user opens the Analytics Hub for an indicator, the preferences are imported from the old table. This import is overridden if the preferences for that user and indicator are set manually in the PA Analytics Hub Preferences [pa_ds_preference] table before the user opens the Analytics Hub.

Domain separation on the Analytics Hub

The Analytics Hub follows whichever domain you have selected in the System Settings. You see only the scores that are collected in that domain.

Any target, threshold, or comment you add is automatically associated with the current domain. The **Edit scores** option is not available.

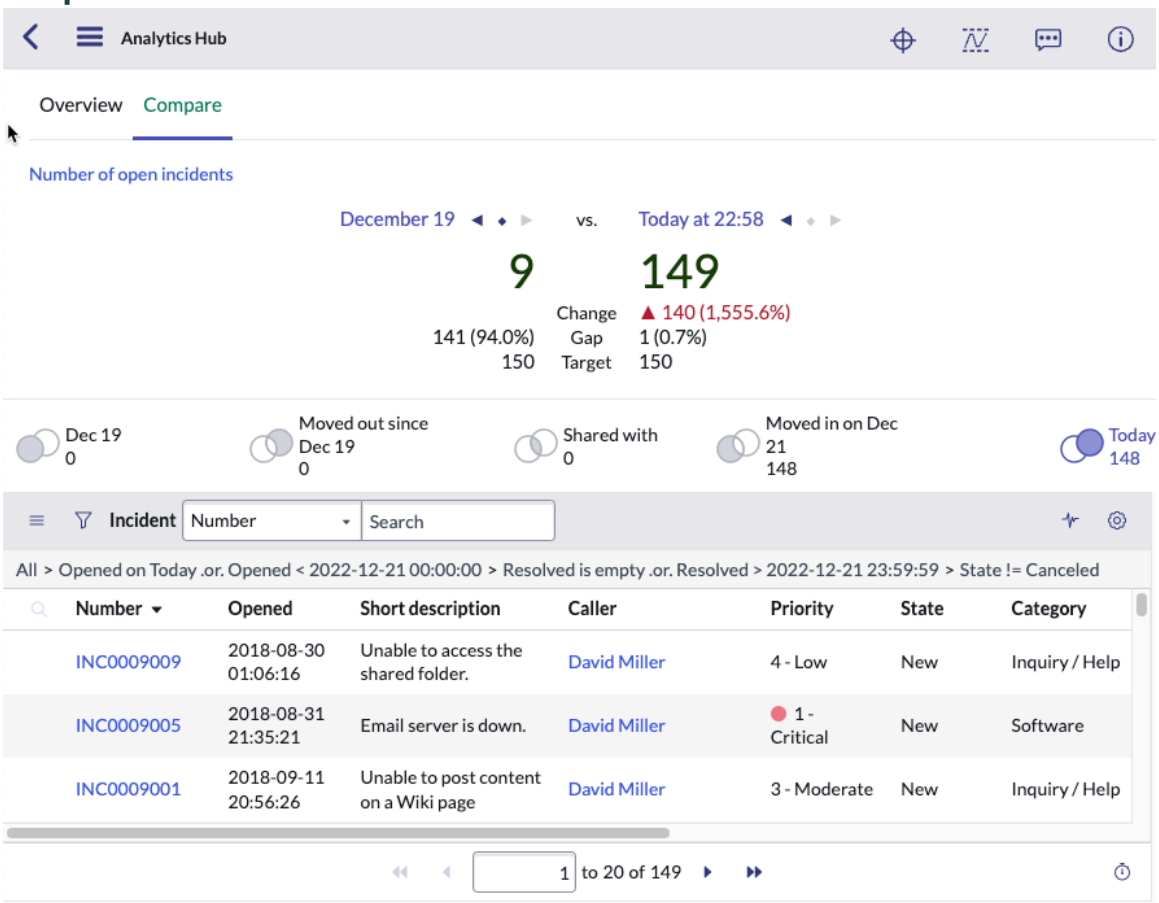
Besides system settings, some dashboards are configured so that you can select the domain on the dashboard. If you navigate to the Analytics Hub from a widget on such a dashboard, you see only the scores that are collected for that domain. For more information, see Associate a domain configuration with a dashboard.

Compare scores

In the Analytics Hub Compare tab, compare scores on any two dates, or compare scores against linked benchmark scores.

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Compare tab



Note:
The Compare tab is available only for automated indicators.

You can compare the scores of an automated indicator on two dates. Date selection works the same way as in the Overview tab. Furthermore, any dates selected on one tab persist when you change to another tab.

If the scores refer to a count, below the scores, you see the following information, from left to right:

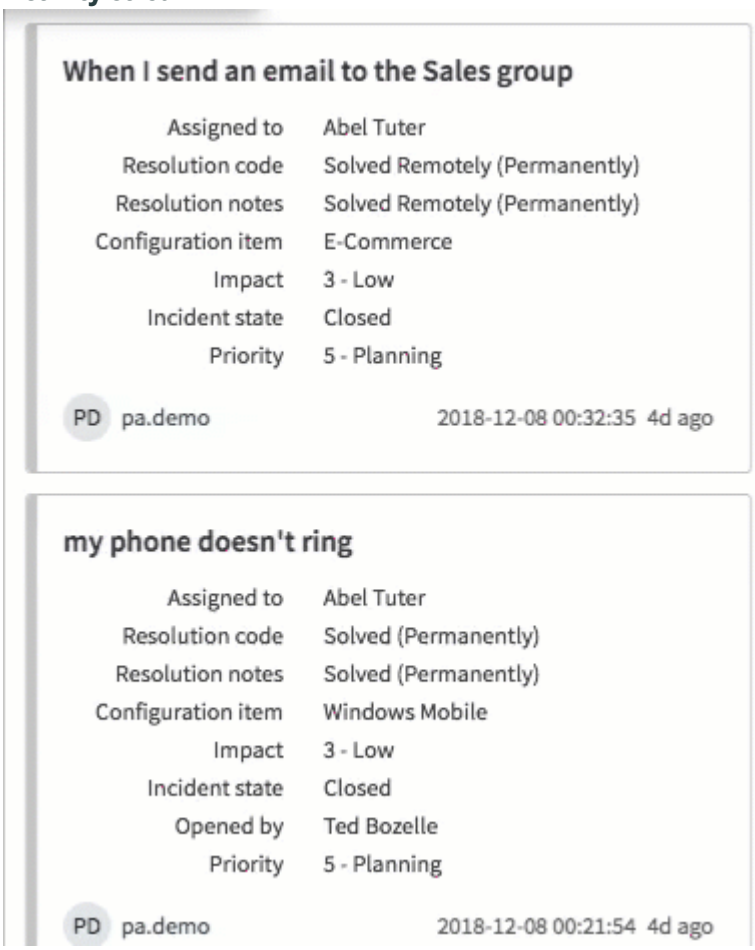
- The score on the earlier date
- The number of records that have moved out, or left the indicator since the earlier date
- The number of records that are shared by the indicator on both dates, meaning the records are in the indicator on both the earlier and later date
- The number of records that moved in, or were added to the indicator on the later date
- The number of records on the latest date

A list of records in the indicator is in the lower pane. If you are comparing dates, click the graph icon ( ) to open the Activity Stream. The Activity Stream shows, for each record, the fields most relevant to the latest activity on the record and its current state. Hovering the cursor over the timestamp of an activity reveals the **Comment** link. This link opens a dialog where you can leave either an Additional Comment or a Work Note.

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Note:
If you apply a time series aggregation to the indicator, you cannot compare records. The scores are aggregated, but the underlying records are not. You can compare aggregated scores.

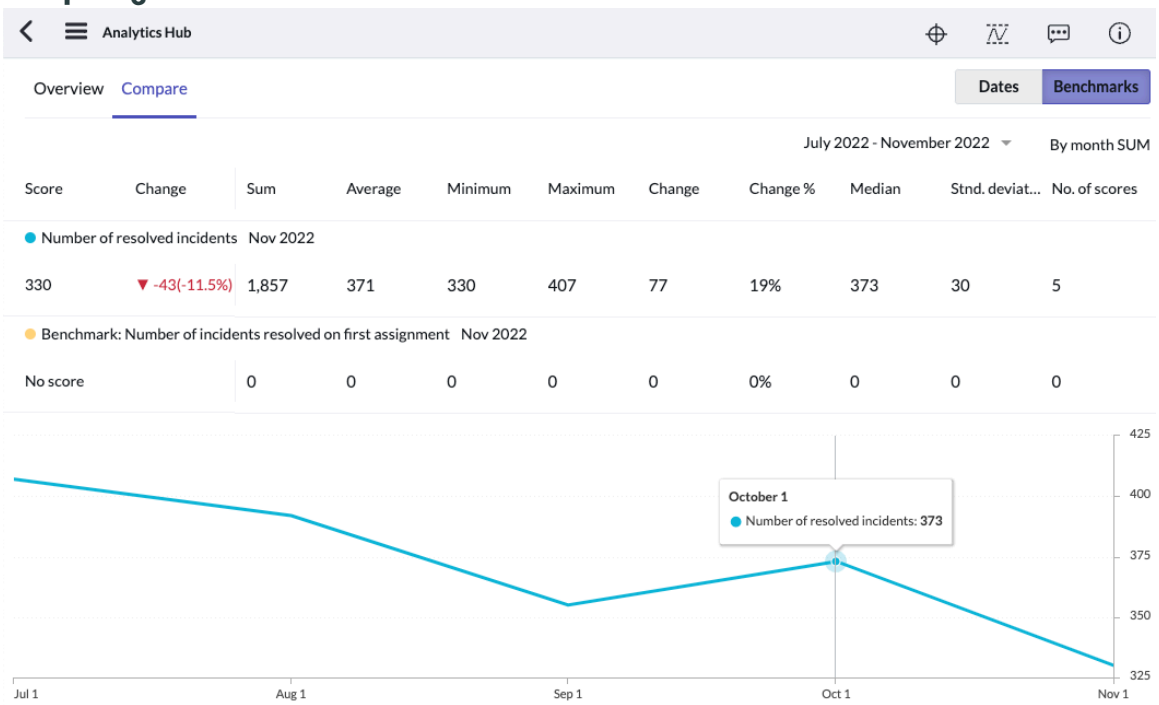
Activity stream



If the indicator is linked to a benchmark indicator, select **Benchmarks** to compare the two indicators. Select a date range for comparing the indicators as you would in the **Overview** tab.

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Comparing the indicator to a linked benchmark indicator



Related topics

Link an automated indicator to a benchmark

Analytics Hub UUIDs

Every combination of breakdowns, elements, a time series aggregation, and a domain that you specify for an indicator has a unique identifier (UUID). To write scripts or just to understand how the Analytics Hub works, you should understand how these UUIDs are constructed.

In the Analytics Hub and the workspace KPI Details, you select an indicator and can specify it further by the following:

- Up to two levels of breakdown
- Element filter
- Up to two levels of breakdown element, including multiple elements per level (aggregate score)
- A time series aggregation
- Domain separation

Each combination is represented by a so-called UUID. The UUID is concatenated from the sys_IDs of the indicator and any of these specifiers, in the following order (note the semicolon before the domain id):

<indicator_sys_id>:<breakdown_sys_id>:<elements_filter_sys_id or element_sys_ids>:<lvl-2 breakdown_sys_id>:<lvl-2 elements_filter_sys_id or element_sys_ids>:<aggregate_sys_id>;<domain_sys_id>

All specifiers other than *`indicator_sys_id`* are optional, with one exception: If a *`breakdown_sys_id`* is specified, so must be at least one *`element_sys_id`*. To specify a breakdown and not specify elements, for example to get a list of all elements, the breakdown sys_id goes in a separate parameter. For an example, see this GET/now/pa/scorecards REST API example. To refer to those scores that do not match any elements of the specified breakdown, the string `unmatched` goes in place of an *`element_sys_id`*.

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Targets, thresholds, and other Analytics Hub and KPI Details functions apply per UUID. In other words, they apply separately to each unique combination of indicator, breakdowns, elements and element filters, time series aggregation, and domain. The KPI Signals application also monitors each fully specified indicator separately, per UUID.

Related topics

Integrate Performance Analytics

KPI Details

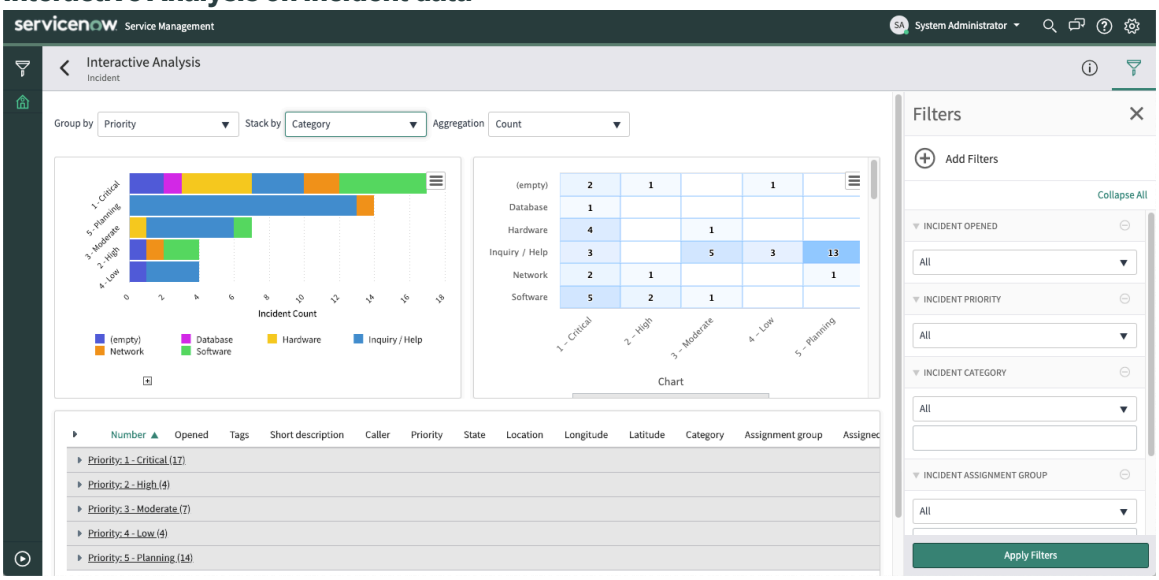
Interactive Analysis

Interactive Analysis enables you to quickly explore data on a list of records.

Note:
Platform Analytics does not support interactive analytics.

From any Core UI list of records, you can access an interactive set of reports on the list data. You can also manipulate the data by grouping, stacking, aggregating, and applying interactive filters. Click the visualization to drill down into the data. Click the information icon ( ) to edit the source filter, view the list of applied filters, and copy the URL of the analysis.

Interactive Analysis on Incident data



Launch Interactive Analysis

Launch Interactive Analysis from any list.

Before you begin

Role required: none.

You must have access to the list of records that you want to analyze.

Procedure

1. Navigate to any list.
2. **Optional:** Configure the columns that are displayed on the list.
   The columns that appear on the list when you launch Interactive Analysis determine which fields are included in the analysis. The included fields determine which **Group by** and **Stack by** options are available, and which interactive filters appear by default.

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3. Right-click the column header for a reference, choice, date/time, integer, or boolean field and select **Launch Interactive Analysis**.
   The column that you launch Interactive Analysis from is used as the default **Group by** value.
4. **Optional:** Change how data is aggregated by selecting different values in the **Group by** and **Stack by** choice lists, or filter the data by applying one or more interactive filters.
5. **Optional:** Drill down into a subset of the data by clicking a visualization, such as a bar in the bar chart or a cell in the heatmap.

Interactive Analysis information panel

The **Filter Info** panel summarizes what the current filter shows and enables you to edit the source filter condition, bookmark an interactive analysis, and share an interactive analysis with colleagues.

Interactive analysis assumes that there are interactive filters on the tables you are working in. To create filters, see Creating Interactive Filters of different types.

Click the information icon ( ) to open the **Filter Info** panel.

The information panel has the following features:

Source Filter

Shows the conditions that apply to the filter. Click the star to add this interactive analysis to your favorites.

Edit Source Filter

Click the **Edit Source Filter** button to open the condition builder. You can edit the source filter here instead of reopening the definition page of the interactive filter.

Applied Filter

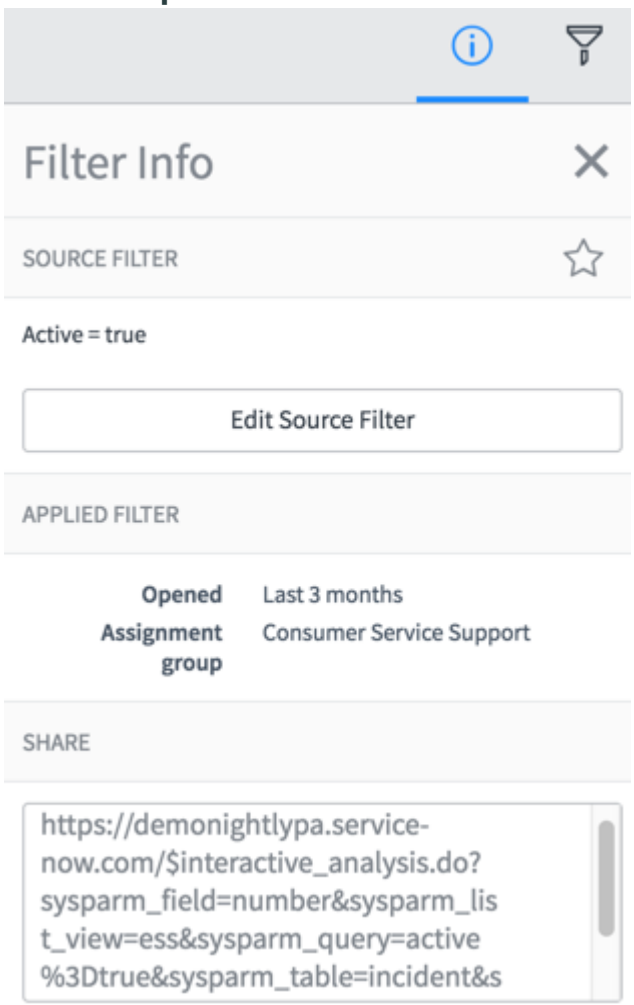
Shows a summary of the filters that are applied to the current interactive analysis.

Share

Shows the full URL of the analysis. Click the URL to highlight it. For more information, see .

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Information panel



Bookmark an interactive analysis

To save an interactive analysis for later use, you can add it to your favorites.

Before you begin

Role required: none.

You must have access to the list of records that you want to analyze.

Procedure

1. Navigate to the table that you want to analyze.
2. Right-click on the header of the column you want to analyze and select **Launch Interactive Analysis**.
3. Click the information icon ( ) to open the **Filter Info** panel.
4. Apply filters to the interactive analysis and click **Apply Filters**.
5. Click the star icon to add the interactive analysis to your favorites.

Result

The favorites list on the navigation panel is updated with a bookmark for the current interactive analysis.

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Share an interactive analysis

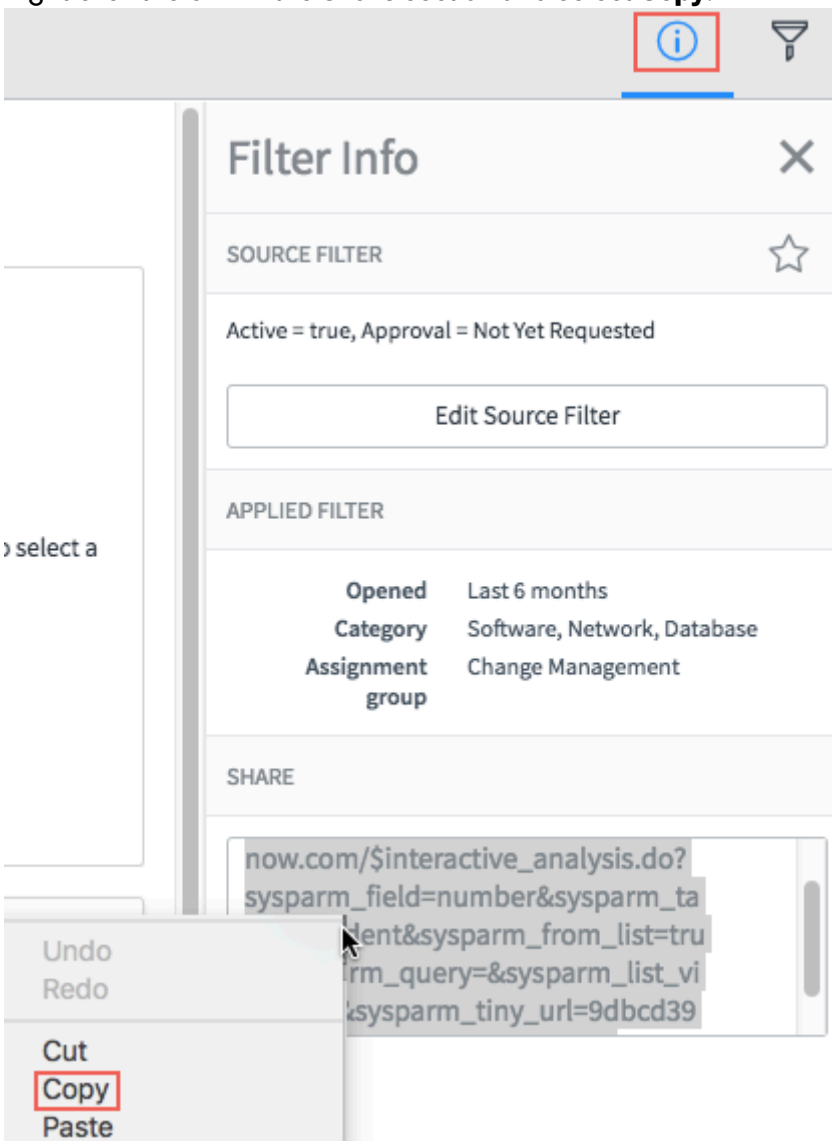
You can share the URL of an interactive analysis with other users.

Before you begin

Role required: none
You must have access to the list of records that you want to analyze.

Procedure

1. Navigate to the table that you want to analyze.
2. Right-click on the header of the column you want to analyze and select **Launch Interactive Analysis**.
3. Click the filter icon ( ) to show the interactive filters.
4. Make the desired filter changes and click **Apply Filters**.
5. Click the information icon ( ) to open the **Filter Info** panel.
6. Right-click the URL in the **Share** section and select **Copy**.



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Result

You can share the URL for the interactive analysis via email with users who have rights to the information in the analysis.

Add a filter to Interactive Analysis

Add a filter to show more refined information in your Interactive Analysis.

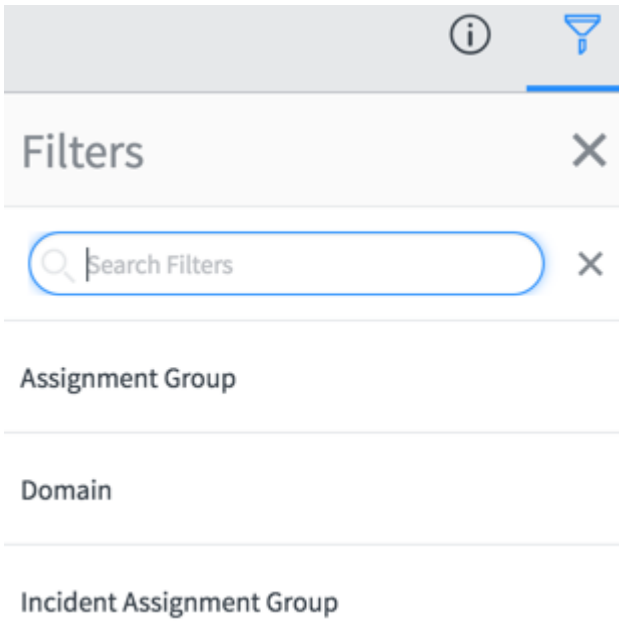
Before you begin

Role required: none

You must have access to the list of records that you want to analyze.

Procedure

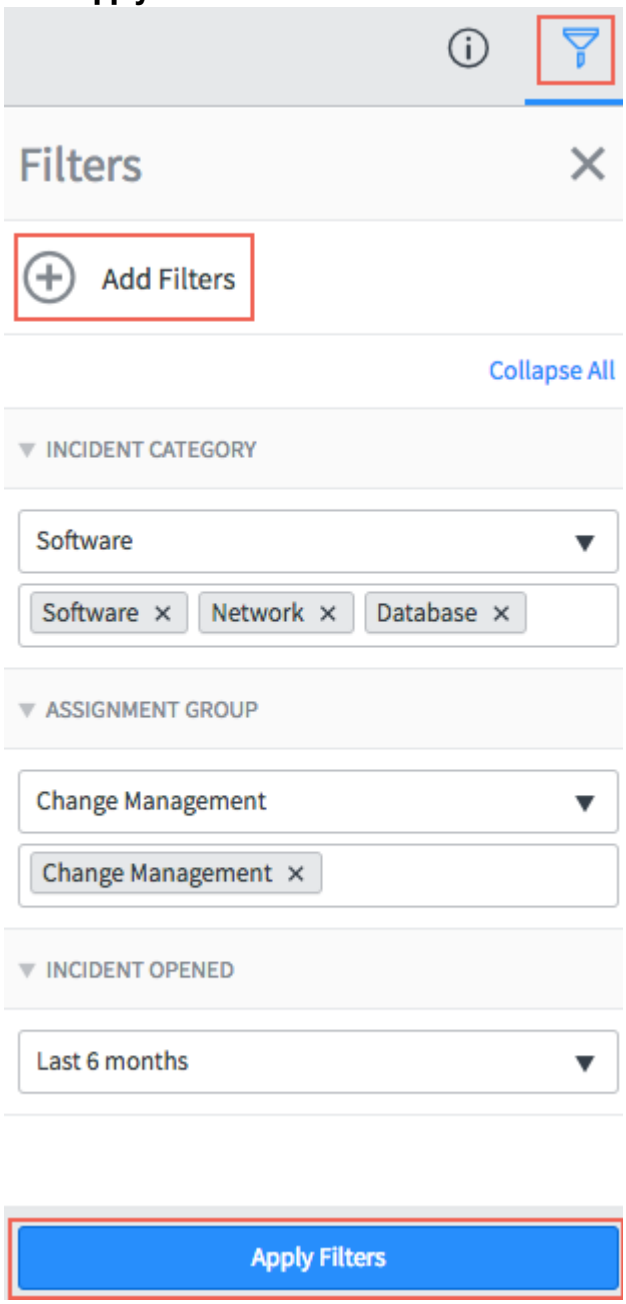
1. Navigate to the table that you want to analyze.
2. Right-click on the header of the column you want to analyze and select **Launch Interactive Analysis**.
3. Click the filter icon ( ) and click **Add filters**.
   Use the **Search Filters** bar to limit the number of filters displayed.



4. Select the filter to add.

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5. Click **Apply Filters**.



Result

The new filter is applied to the interactive analysis. Click the information icon ( ) to view the filters in the source filter summary.

Remove a filter from Interactive Analysis

You can remove a filter from Interactive Analysis and specify whether to remove the filter element from Group by and Stack by lists in the analysis.

Before you begin

Role required: none.

You must have access to the list of records that you want to analyze.

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Procedure

1. Navigate to the table that you want to analyze.
2. Right-click on a column header and select **Launch Interactive Analysis** or open a dashboard that you own to show the interactive filters.
3. Click the filter icon ( ) to show the interactive filters.
4. Point to the filter you want to remove and click the **Remove filter** icon.



Result
The filter is removed from the Interactive Analysis.

Edit source filters

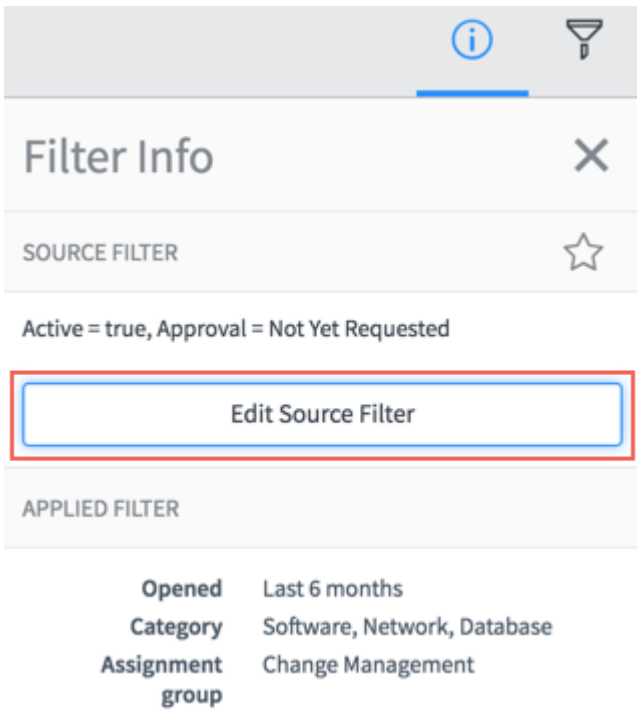
You can edit a source filter in the Interactive Analysis **Filter Info** panel.

Before you begin
Role required: none.

You must have access to the list of records that you want to analyze.

Procedure

1. Navigate to the table that you want to analyze.
2. Right-click on the header of the column you want to analyze and select **Launch Interactive Analysis**.
3. Click the information icon ( ) to open the **Filter Info** panel.
4. Click **Edit Source Filter**.



5. Click **Load Filter** and select the filter to edit.

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6. Edit the existing conditions and add new conditions.
7. Click **Save changes**.

Result

The interactive analysis updates with the new source filter. The **Filter Info** panel shows the updated conditions.

Related topics

Condition builder

Interactive Analysis filter deduplication

Upon launching Interactive Analysis, duplicate filters are removed automatically from the **Filters** panel. You do not have to clean up the filter panel.

Duplicate filters are removed according to the following criteria:

- If the configuration is the same, the UI control determines which filter is shown on initial launch. Multiple input filters have first priority, then single input, check box, and radio buttons. For reference on available UI control type field options for displaying the filter, see .
- If the configuration is the same, except that some filters have only one target and others have multiple targets, then only the last updated filter is retained.
- If both the configuration and the UI control are the same, then the last updated filter is retained.
- If the configuration is the same, but some filters have multiple target columns in the same target table, then all the filters are considered as separate filters and retained. An example of multiple target columns in the same target table is the **Date opened** and **Date escalated** columns in the incident table.
- If the configuration and the UI control are the same, but the base condition is different for any two filters, then they are considered separate filters and retained.

Interactive Analysis persistence

The filters that you select persist between uses of Interactive Analysis per view and per user.

When you launch Interactive Analysis on a view, a specific column in a table, for the first time, all filters are set to their default values. The next time you launch Interactive Analysis on the same view, selections including filters, filter order, group by, stack by, and aggregation parameters persist from the previous visit.

In addition, **Group by** and **Stack by** elements are updated when filters are added to an analysis. For example, add a manager filter to an Interactive Analysis page. You can immediately group and stack your widgets by manager.

Synchronize Group by and Stack by elements in filters

Synchronize Group by and Stack by elements in an interactive analysis when filters are added to the filter panel and when they are removed from the filter panel. You can also remove a filter without synchronizing group by and stack by elements.

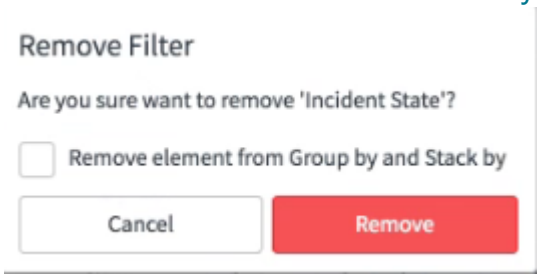
Before you begin

Role required: none
You must have access to the list of records that you want to analyze.

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Procedure

1. Navigate to the table that you want to analyze.
2. Right-click on the header of the column you want to analyze and select **Launch Interactive Analysis**.
3. In the **Filters** panel, click **Add Filters** and add a new filter.
4. Click **Apply Filters**.
   The new filter element appears in the **Group by** and **Stack by** lists.
5. Remove the filter from the interactive analysis to remove the filter from the **Filters** panel.



6. **Optional:** Select **Remove element from Group by and Stack by**.
   The option **Remove element from Group by and Stack by** is not shown if:
   - There is another filter on the **Filters** panel that has the same target field as the filter you are removing.
   - You have personalized the source list before launching interactive analysis. You cannot synchronize **Group by** and **Stack by** elements by adding or removing a filter if the column is part of a personalized list.

Interactive Analysis aggregations

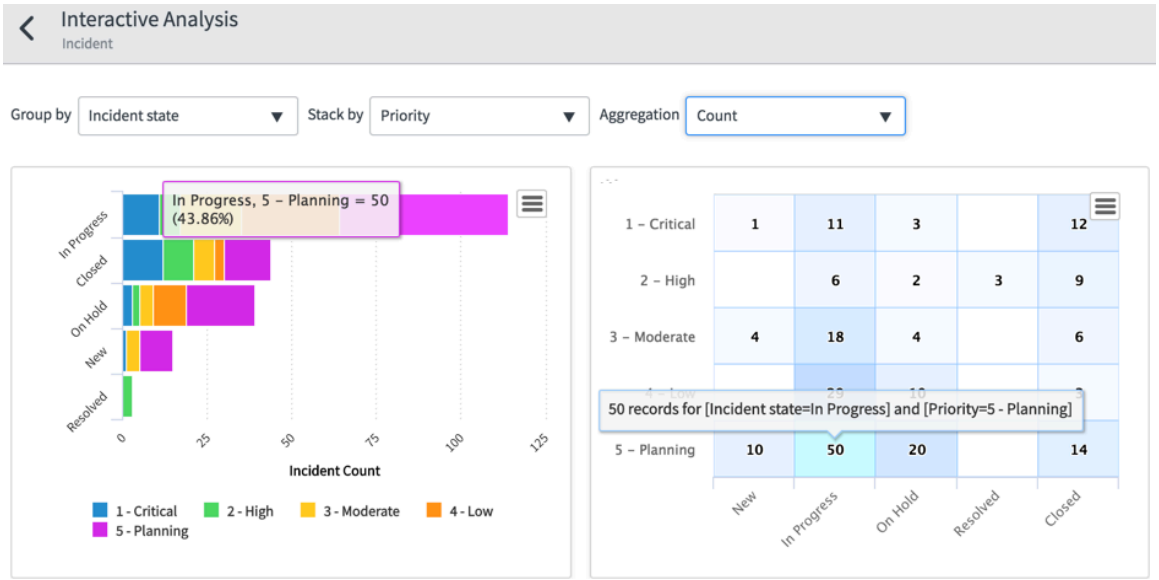
When you work with Interactive Analysis, you can view data from the perspectives of record counts, sums, averages, and distinct counts.

Aggregation types

Count

Count is the default aggregation and shows when you launch Interactive Analysis. The Count aggregation shows the number of records selected. For example, an analysis of incidents grouped by state, stacked by priority, and aggregated by count shows the number of incidents in each category in hints and in the cells of multidimensional reports.

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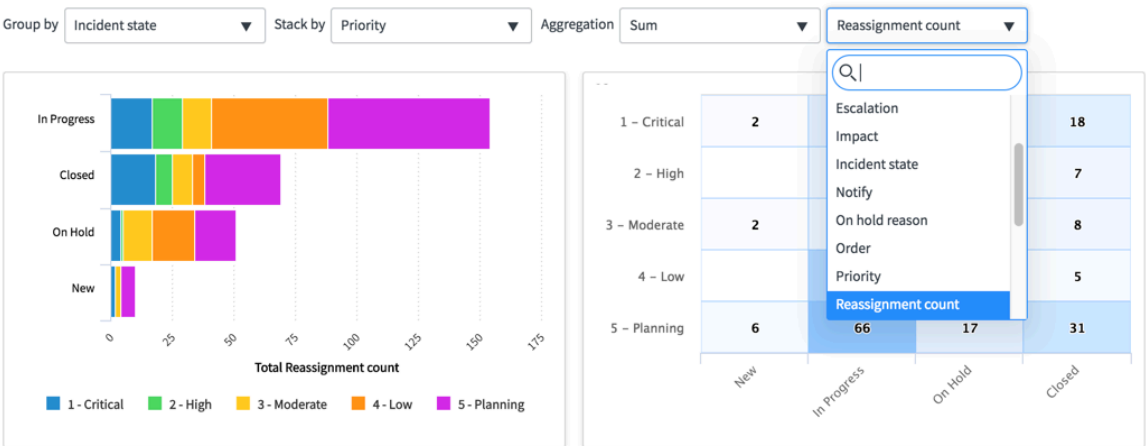


Average, Sum, Count Distinct

Select **Average**, **Sum**, or **Count Distinct**, to show a list of fields from the selected **Table**. You may further be able to aggregate on fields from extended tables. See How to report on extended tables. Select a field to **Aggregate by** from this list. For example, if you select an integer field, such as **Reassignment count**, the data is expressed as a decimal value number. For more information, see Column reports.

> **Note:**
> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.

If you select **Count Distinct**, only unique records are counted. For example, you want to generate a report with a distinct number of users who have one or more of the roles in a given list of roles. Users with more than one role would be counted twice unless you use **Count Distinct**.



Automation Discovery

ServiceNow® Automation Discovery helps you identify automation opportunities for your workflows. Use the discovery reports to implement or improve automation solutions like Virtual Agent (VA), and Agent assist.

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Summary usage

Important:
Starting with the Zurich release, Automation Discovery is deprecated. It will be hidden and no longer installed on new instances but will continue to be supported in Yokohama. Support will be withdrawn in a future release. For details, see the Deprecation Process [KB0867184] article in the Now Support Knowledge Base.

Automation Discovery analyzes your records to help you identify opportunities for automation.

With the app, you can run discovery reports that analyze a specified dataset of records against a pre-built taxonomy. The model identifies over 180 possible opportunities for automation from your records. Think of the opportunities as intents that the system can respond to your users' queries automatically.

The report groups records by the predicted opportunity for automation. For uncategorized records, the report groups the records together in related clusters.

For applications such as Virtual Agent, Automation Discovery helps you implement automation opportunities that can lead to deflections and faster incident resolutions.

Installation

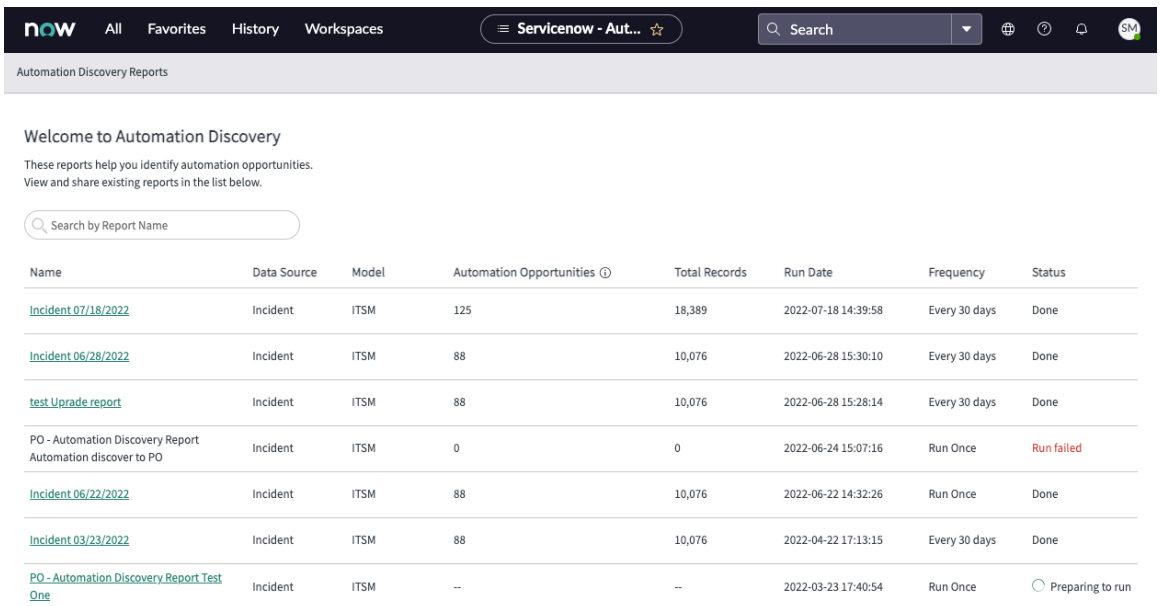
Automation Discovery is available from the ServiceNow Store. For more information, see Install Automation Discovery.

Language support

Automation Discovery supports English, Spanish, French, German, and Japanese instances, for reports created using the **ITSM** taxonomy.

Reports created using the **Predictive AIOps** taxonomy support only English, because that model's training data consists of English log messages.

Discovery reports



The **Automation Discovery Reports** page lists your created reports. For each report, the page lists the following information:

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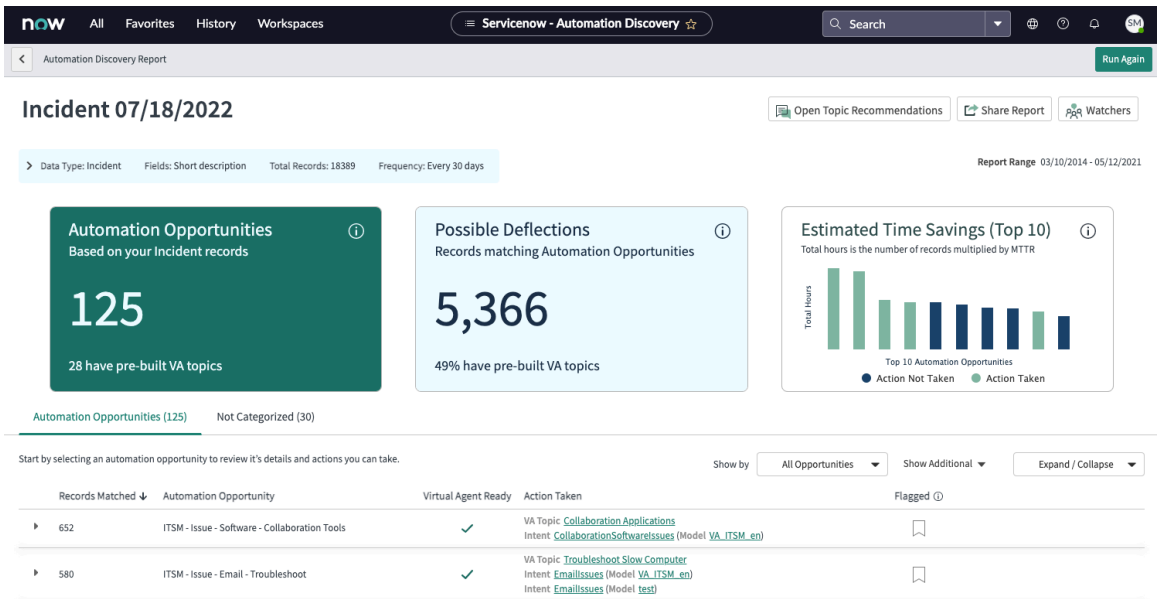
Column	Description
Name	Name given to the report during creation.
Data Source	Source of the records analyzed.
Model	Taxonomy for running the report against.
Automation Opportunities	Number of different pre-built intents that match with your records.
Not Categorized	Number of clustered groups that contain utterances that do not match the pre-built topics.
Total Records	Number of records analyzed in the report.
Run Date	Time and date of the most recent run.
Frequency	Number of times to run the report.
Status	Status of the report.

To create a new report, see Create an Automation Discovery report.

To view results, select the name of the report.

Report breakdown

For each successful report, the report page shows information about automation opportunities.

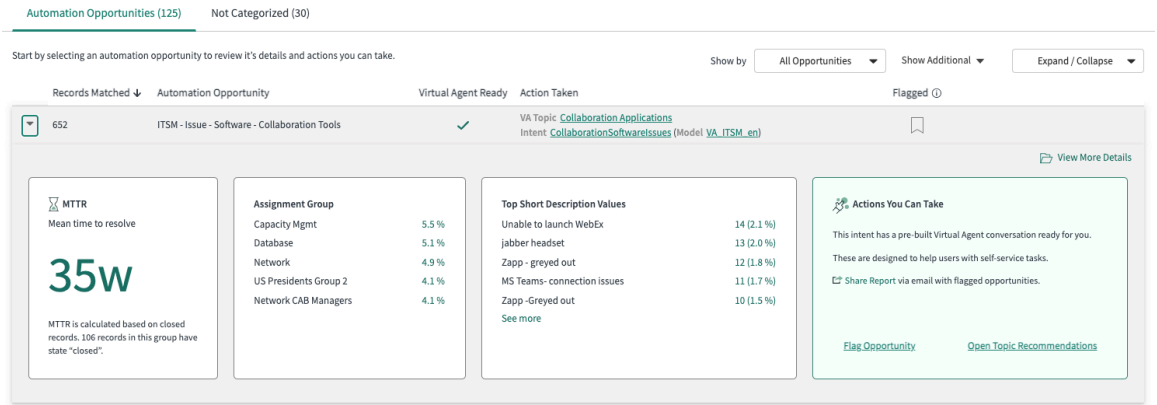


The report groups matching records together by opportunity. In this example, Automation Discovery found 125 opportunities for automation from the thousands of incidents analyzed. Several records group to the same opportunities because the incidents match the same intents.

Deflections refer to incidents that could have been immediately resolved through automation. Automation Discovery adds up all the records that match an automation opportunity to get the **Possible Deflections** number. Some opportunities have matching pre-built VA topics, marked as **Virtual Agent Ready.**

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MTTR or mean time to resolve refers to the average amount of time it takes to resolve incidents. The report multiplies the number of matching records by the MTTR to get the **Estimated Time Savings** for the top 10 opportunities.



The **Automation Opportunities** tab lists the automation opportunities that match your data. Select the list icon on each row to see more information about the records for that opportunity.

The **Not Categorized** tab shows the clusters of records that do not match prebuilt intents. The report attempts to group uncategorized records into clusters based on similarities. Click the list icon on each row to see more information about the records in that cluster.

Adding opportunities to Topic Recommendations

Virtual Agent Topic Recommendations helps you improve the automation for Virtual Agent. You can add automation opportunities from your Automation Discovery reports to Topic Recommendations.

The **Actions You Can Take** card shows what you can do with the automation opportunities from your reports. For opportunities that are **VA Ready**, select **Open Topic Recommendations** to add the opportunity to Topic Recommendations.

In Topic Recommendations, you can add topics to your Natural Language Understanding (NLU) models and to Virtual Agent. If you add an opportunity to a model, the **Action Taken** shows the corresponding intent or model.

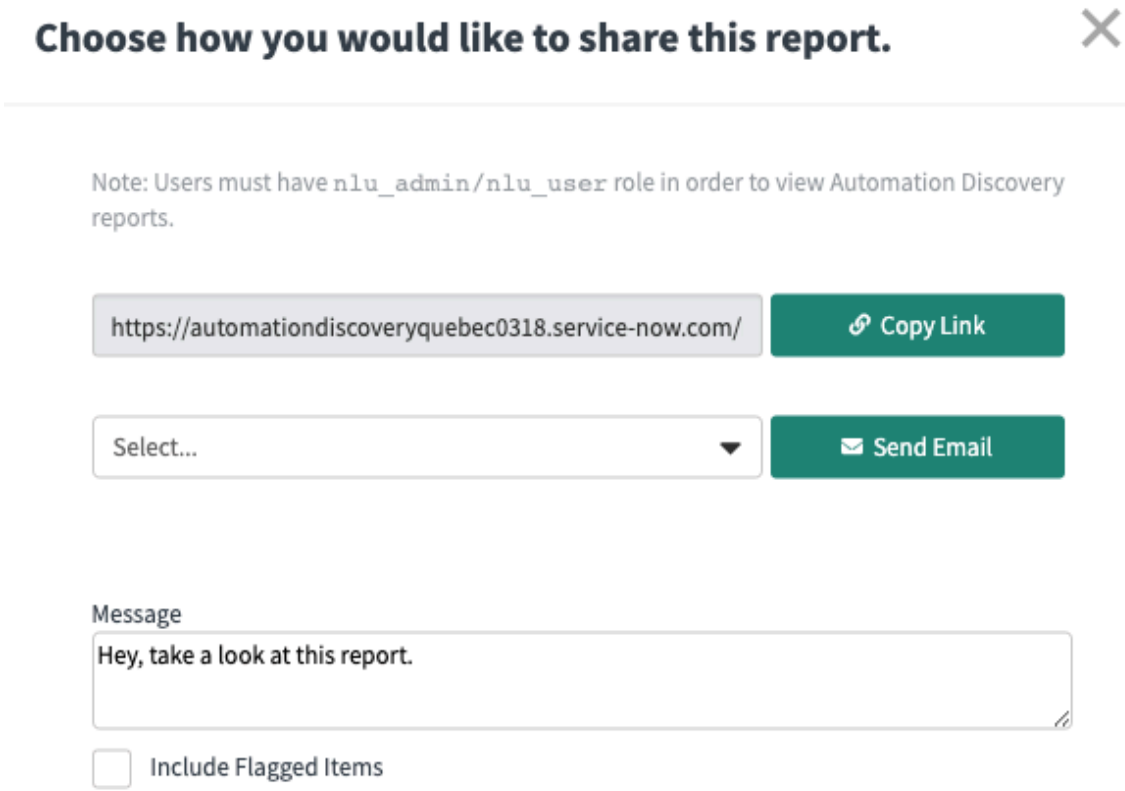
To learn more see Using Virtual Agent Topic Recommendations and NLU models.

You can also create custom topics for opportunities that are not VA ready. For more information about creating custom topics, see Creating Virtual Agent Topics on the ServiceNow Developer Site.

Sharing and flagging

You can share your discovery reports with other members on your team. On a report page, click **Share Report** to open the report sharing pop-up.

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You can share the report with the provided link or by sending the report via email.

Note:
User must have the nlu_admin or nlu_user role to view Automation Discovery reports.

You can also flag specific automation opportunities that you want to highlight. To flag an opportunity, click the flag icon. To include flagged items when you share the report, select the **Include Flagged Items** check box.

Properties

The Automation Discovery **Properties** page lets you control the settings for the discovery reports.

Setting a minimum and maximum number of records helps you control the amount of data that you want to analyze. You can also set the number of unique unmatched records for clustering to work on your report.

Enabling sampling of data before clustering is run can help speed up the report generation. However, the report clusters a smaller amount of the unmatched records.

Related topics

Virtual Agent

Install Automation Discovery

You can install the Automation Discovery application (sn_auto_discovery) using the admin role. The application activates related plugins if they are not already activated.

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Before you begin

- Ensure that the application and all of its associated ServiceNow Store applications have valid ServiceNow entitlements. For more information, see Get entitlement for a ServiceNow product or application.

Role required: admin

About this task

The following items are installed with Automation Discovery: plugins, roles, and tables.

For more information, see Components installed with Automation Discovery.

Procedure

1. Navigate to **All** > **System Applications** > **All Available Applications** > **All**.
2. Find the Automation Discovery application (sn_auto_discovery) using the filter criteria and search bar.

   You can search for the application by its name or ID. If you can't find the application, you might have to request it from the ServiceNow Store.
3. In the Application installation dialog box, review the listed application dependencies.

   Automation Discovery is dependent on the Predictive Intelligence (com.glide.platform_ml) and NLU Workbench (com.glide.nlu) plugins. These plugins are activated when Automation Discovery is installed, if they are not already activated.
4. Select **Install**.

What to do next

Confirm that the activation of Predictive Intelligence has successfully installed a sharedservice.worker user with the following roles.

- platform_ml_create
- platform_ml_read
- platform_ml_write

For more information see Install Predictive Intelligence or article KB1641602 on the Now Support Knowledge Base.

For best results, install the VA Conversations for ITSM (sn_itsm_va) and the NLU model builder (com.snc.nlu_studio) plugins. For more information, see Additional plugins for Virtual Agent and Activate the NLU Workbench.

Components installed with Automation Discovery

Tables and roles are installed with activation of the Automation Discovery plugin.

Note:
The Application Files table lists the components that are installed with this application. For instructions on how to access this table, see Find components installed with an application.

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Tables installed

Table	Description
Automation Discovery Processed Message [sn_auto_discovery_processed_message]	References to the original data source records (ex: incidents). Does not include duplicated records.
Automation Discovery Param [sn_auto_discovery_param]	Table containing parameters for reports.
Automation Discovery Label [sn_auto_discovery_labelled_message]	References to the report records.
Automation Discovery Intent [sn_auto_discovery_intent]	Table containing automation discovery reports. Referenced by the processed message and report trace.
Automation Discovery Group [sn_auto_discovery_group]	Table containing the automation opportunities in a report.
Automation Discovery Message Content [sn_auto_discovery_message_content]	References to the original data source records (ex. incidents). Includes duplicated records.
Automation Discovery Report [sn_auto_discovery_report]	Reports previously created using Automation Discovery.
Automation Discovery Job [sn_auto_discovery_job]	Table that manages the execution of Automation Discovery reporting jobs.
Automation Discovery Report Trace [sn_auto_discovery_report_trace]	History of the Natural Language Understanding (NLU) intents added due to the report's intents or clusters.
Automation Discovery Report Definition [sn_auto_discovery_report_definition]	Table defining how a report runs and the report status. Multiple reports can run from a single report definition.
Automation Discovery Cluster [sn_auto_discovery_cluster]	Uncategorized clusters of records from the report. Referenced by the processed message and report trace.

Roles installed

Discovery author [sn_auto_discovery.DiscoveryAuthor]

Create automation discovery reports, flags automation opportunities, and takes actions on them.

Contains Roles

The Discovery author [sn_auto_discovery.DiscoveryAuthor] role contains the nlu_user role.

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Groups

List of groups this role is assigned to by default.

None.

Special considerations

None.

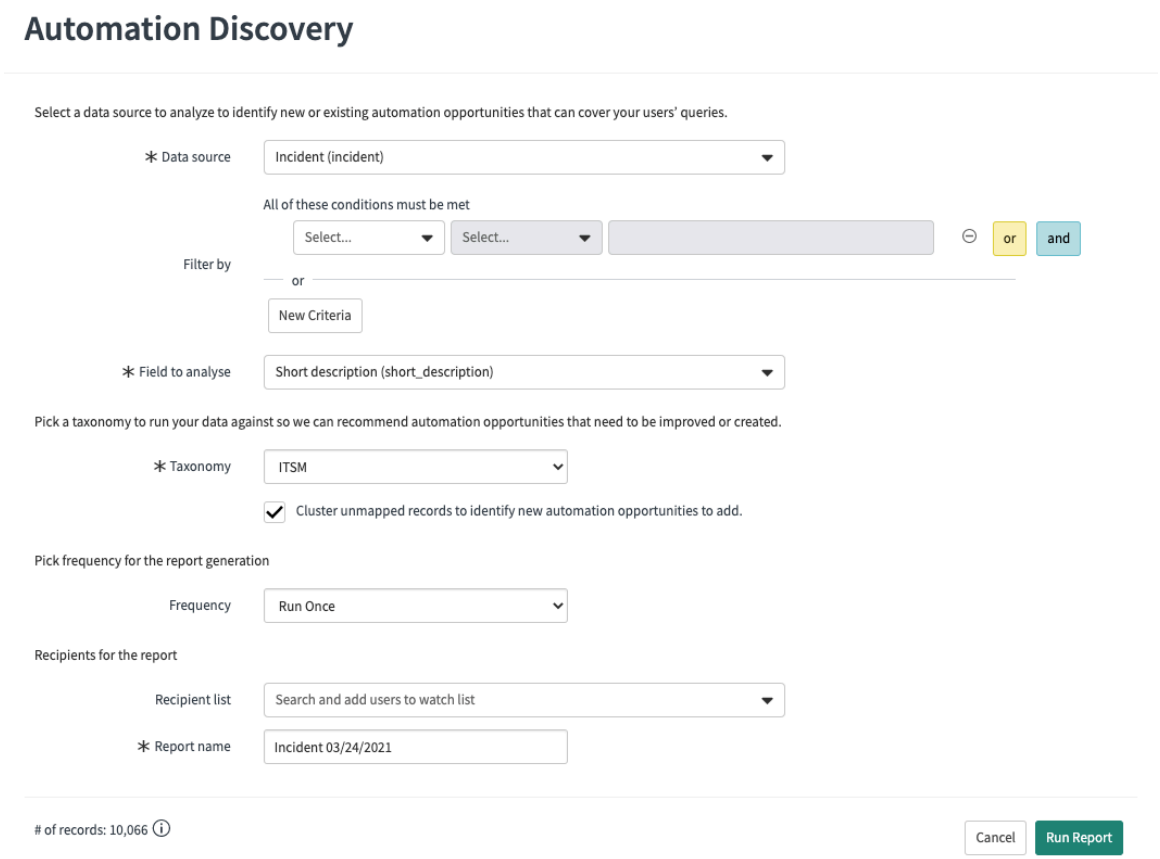
Create an Automation Discovery report

Create an Automation Discovery report to analyze your records for automation opportunities.

Before you begin
Role required: admin, nlu_admin, or sn_auto_discovery.DiscoveryAuthor

Procedure

1. Navigate to **All** > **Automation Discovery** > **Automation Discovery Reports**.
2. Select **New Report**.



3. Fill in the form fields.

Field	Description
Data source	Type of records that you want to analyze.

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Field	Description
	Default is **Incident (incident)**.
Filter by	Criteria for selecting the records you want to analyze.
Field to Analyze	Field on the data tables that you want Automation Discovery to analyze.
Taxonomy	Model to run the data against. The default is **ITSM**, which supports English, French, German, Japanese, and Spanish. The **Predictive AIOps** taxonomy supports only English. Select the check box to use the same taxonomy to group unmatched records together.
Frequency	How often the report runs with the given conditions. Default is **Run Once**. You can choose to continuously run a report after adding opportunities to your model to check the improvement.
Recipient list	Users to receive the report via email.
Report name	Name of the report.

Note:
The **# of records** number provides an estimate of how many records meet your criteria.

4. Select **Run Report**.
   Your report appears at the top of the list on the **Discovery Reports** page. The page lists the **Status** of your report. After the analysis completes, you can select the report to view the results.

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