Geneva ServiceNow Performance Analytics and Reporting
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Performance Analytics and Reporting

You can visualize your ServiceNow data with both Performance Analytics and Reporting.

Performance Analytics

Performance Analytics enables you to track and aggregate data over time, such as to measure how many tickets are resolved each week per assignment group. Performance Analytics is enabled for the Incident table by default. To track data for other tables and applications you must license Performance Analytics Premium.

Explore
- Performance Analytics Release Notes
- Upgrade to Geneva
- Watch Performance Analytics videos

Data Architecture
- Indicators
- Breakdowns
- Data collection and cleanup

Visualizing Data
- Performance Analytics scorecards on page 17
- Performance Analytics widgets on page 27
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Use
- Performance Analytics for Incident Management on page 5
- Performance Analytics Premium on page 14

Develop
- Developer training
- Developer documentation

Troubleshoot and get help
- Ask questions and share your expertise
- Search the HI Knowledge Base
- Contact ServiceNow Support
- Performance Analytics training

Get started with Performance Analytics

Get started with Performance Analytics by reviewing key concepts and using example functionality. Watch the videos below to familiarize yourself ServiceNow Performance Analytics concepts, data architecture, and how to create Performance Analytics widgets and dashboards.

Performance Analytics concepts

Use Performance Analytics to visualize data that is collected over time. This data reveals trends, which you can use to make real-time adjustments and improve how your business functions. You can use performance analytics to align resources, systems, and employees to strategic objectives and priorities.

The single system of record approach within the ServiceNow platform allows you to measure and drive performance faster, easier and more engagingly within and across all service request management processes. Provide time-based perspectives of relevant data and focus on trend anomalies to prompt action.
With Performance Analytics, companies can:

- **Drive performance**: Provide actionable insight on each level and for every role using key indicators, mobile-enabled scorecards, time charts, analytics, drill-downs, and dashboards.
- **Establish a single version of truth**: Share clear, up-to-date visualizations of performance across teams and organizations, establishing a single version of truth as the basis for objectively discussing service delivery and driving behavioral change.
- **Realize fast time-to-value**: Implement business intelligence within the base ServiceNow system within days, instead of months, and make better use of the time and money that currently go into labor-intensive manual reporting.

Managing business performance facilitates the effective delivery of strategic and operational goals. There is a clear and immediate correlation between using performance management applications and improved business and organizational results. Performance Analytics can yield a range of direct and indirect benefits, operational efficiency benefits, and by unlocking the latent potential in every employee’s workday. That is, to help employees focus on work activities that really matter.

Benefits of using performance management may include:

- Align the organization with company goals.
- Decrease time required to create strategic or operational changes by communicating the changes through a new set of goals.
- Increase overall quality of services.
- Lower cost of services.
- Improve availability of services.

When working with Performance Analytics, you can use:

- **Indicators**: also known as metrics, business metrics, or KPIs, are a type of performance measurement, used by businesses to measure current conditions and to forecast business trends. Indicators are commonly used to evaluate success or the success of a particular activity. Success may be defined as making progress toward strategic goals, or as the repeated achievement of some level of operational goal (for example, zero defects, or 10/10 customer satisfaction). Choosing the right indicator requires a good understanding of what is important to a department in the organization - for example, the KPIs important to finance are quite different from the KPIs important to sales. To help develop this understanding of importance, indicator selection is often closely associated with techniques to assess the present state of the business, and its key activities. These assessments help identify potential improvement areas; so KPIs are usually associated with performance improvement initiatives. Indicators are usually presented in graphs to make them easier to read and understand.
- **Breakdowns**: also known as dimensions or drill-downs, these divide data in different ways. For example, incidents can be divided by priority or by assignment group. In Performance Analytics, data can be subdivided two levels deep for further analysis. A first-level breakdown could be by priority, for example grouping all Critical incidents. In this example, a second-level breakdown could be by assignment group, subdividing Critical incidents into, for example, Service Desk, Database, CAB, and so on. The breakdowns can also be turned around; for example, first by assignment group and then by priority, creating a so-called breakdown matrix.
- **Scorecards**: a graphical visualization of the scores of an indicator. The basic feel and look of a scorecard can not be changed. Scorecards can be enhanced by adding targets, thresholds, trendlines, and useful comments for significant changes. In a scorecard the scores of an indicator can be analyzed further by viewing the scores by breakdowns (scores per group), aggregates (counts, sums, and maximums), time series (totals and averages applied to different time periods) and drilling down to the records on which the scores are based.
- **Dashboards**: a dashboard can have multiple tabs and each tab can hold one or more widgets. A dashboard tab is actually a homepage that can hold all kinds of content blocks, not only Performance Analytics widgets. And any homepage can hold Performance Analytics widgets. A user can have one or more dashboards assigned for viewing.
• **Widgets**: determine how data is presented on dashboards. Widget configurations are used to view, set up, edit, and manage properties for dashboards and visualization types: time series, scores, lists, and breakdowns. For example, as a chart, latest score, speedometer, dial, scorecard, or column. Many variations are possible. Widgets are only visible when added to a dashboard.

• **Data collector**: the engine that collects scores from your database on a regular basis by running jobs.

### Performance Analytics for Incident Management

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. You can upgrade to the premium version of Performance Analytics for complete Performance Analytics functionality.

Performance Analytics for Incident Management comes with several predefined elements that you can use to assess organizational performance.

- automated indicators
- formula indicators
- **dashboards**
- **data collection jobs**

---

**Note:** Performance Analytics for Incident Management is available only in the global domain. To use Performance Analytics in a different domain you must upgrade to the premium version of Performance Analytics.

Use the following procedures to configure the predefined elements for incident management.

#### Table 1: Configure predefined elements for incident management

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Check Indicator Sources</strong></td>
<td>Verify that the sample indicator sources match your ServiceNow configuration.</td>
</tr>
<tr>
<td><strong>Check Breakdown Sources</strong></td>
<td>Verify that the sample breakdown sources match your ServiceNow configuration.</td>
</tr>
<tr>
<td><strong>Schedule Data Collection</strong></td>
<td>After validating the sources for the indicators and the breakdowns, configure and activate the data collection job. Two sample jobs are provided, a daily collection and an on-demand collection for historical scores.</td>
</tr>
<tr>
<td><strong>Schedule Historical Collection for Indicators</strong></td>
<td>Optional. This job loads the last 60 days of scores for the indicators and breakdowns for which historic collection is possible.</td>
</tr>
</tbody>
</table>

**Note:** The number of days can be changed, but it is best to limit the historical collection.
Elements Provided

Performance Analytics for Incident Management includes automated indicators, formula indicators, dashboards, and data collection jobs.

Automated Indicators

The following automated indicators are provided.

Table 2: Automated Indicators for Incident Management

<table>
<thead>
<tr>
<th>Automated Indicator</th>
<th>Sort Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new incidents</td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>Number of open incidents</td>
<td>• by age</td>
</tr>
<tr>
<td></td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
<tr>
<td>Summed age of open incidents</td>
<td>• by age</td>
</tr>
<tr>
<td></td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
<tr>
<td>Number of resolved incidents</td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>Number of resolved incidents by first assignment group</td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>Summed duration of resolved incidents</td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>Number of open incidents not updated in the last 5 days</td>
<td>• by age</td>
</tr>
<tr>
<td></td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
</tbody>
</table>
Formula Indicators

Formula indicators are calculated with the automated indicators. The following formula indicators are provided.

Table 3: Formula Indicators for Incident Management

<table>
<thead>
<tr>
<th>Formula Indicator</th>
<th>Sort Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of incidents resolved by first assignment group</td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>% of new critical incidents</td>
<td>None</td>
</tr>
<tr>
<td>% of open incidents not updated in the last 5 days</td>
<td>• by age</td>
</tr>
<tr>
<td></td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
<tr>
<td>% of open incidents not updated in the last 30 days</td>
<td>• by age</td>
</tr>
<tr>
<td></td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
<tr>
<td>Incident backlog growth</td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td>Average age open incidents</td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
<tr>
<td></td>
<td>• by state</td>
</tr>
<tr>
<td>Average resolution time of resolved incidents</td>
<td>• by assignment group</td>
</tr>
<tr>
<td></td>
<td>• by category</td>
</tr>
<tr>
<td></td>
<td>• by priority</td>
</tr>
</tbody>
</table>
The following dashboards are provided. The Incident Management Dashboard contains the following tabs.

### Table 4: Incident Management Dashboard

<table>
<thead>
<tr>
<th>Tab</th>
<th>Contains</th>
</tr>
</thead>
</table>
| Incident Overview | • Number of open incidents  
                      • Number of open incidents not updated for 30 days  
                      • Number of open incidents not updated for 5 days  
                      • Table showing the last 7 days of data  
                      • Number of new incidents  
                      • Number of resolved incidents  
                      • Incident backlog growth  
                      • Number of open incidents  
                      • Number of new incidents  
                      • Number of new incidents by priority |
| Incident Open     | • Number of open incidents  
                      • Average age of open incidents  
                      • Open incidents by priority  
                      • Average age of open incidents by priority  
                      • Open incidents by age  
                      • Incident backlog growth |
| Incident New      | • % of new critical incidents  
                      • Number of new incidents by priority  
                      • Number of new incidents |
| Incident Resolved | • Number of resolved incidents  
                      • Average resolution time  
                      • Number of resolved incidents by priority  
                      • Average resolution time by priority |

The Incident by Group Dashboard is a dynamic dashboard that allows you to choose an assignment group. The tabs it contains tabs reflect information for the selected assignment group.
Table 5: Incident by Group Dashboard

<table>
<thead>
<tr>
<th>Tab</th>
<th>Contains</th>
</tr>
</thead>
</table>
| **By Group daily**        | • Number of open incidents  
• Number of new incidents  
• Number of resolved incidents  
• Average time to resolve  
• Number of open incidents not updated for 7 days  
• Number of open incidents not updated for 30 days |
| **By Group 7d running**   | • Number of open incidents 7 day running AVG  
• Number of new incidents - 7 day running SUM  
• Number of resolved incidents - 7 day running SUM  
• Average time to resolve - 7 day running AVG  
• Number of open incidents not updated for 7 days - 7 day running AVG  
• Number of open incidents not updated for 30 days - 7 day running AVG |
| **By Group 28d running**  | • Number of open incidents - 28 day running AVG  
• Number of new incidents - 28 day running SUM  
• Number of resolved incidents - 28 day running SUM  
• Average time to resolve - 28 day running SUM  
• Number of open incidents not updated for 7 days - 28 day running AVG  
• Number of open incidents not updated for 30 days - 28 day running AVG |

From the detailed scorecard, all daily measurements can be rolled up and analyzed with the following time series filters:

• 7-28-30 days running SUM & AVG  
• Weekly - monthly - quarterly - yearly SUM/AVG

Data Collection Jobs

The following data collection jobs are included:

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Table 6: Incident Management Data Collection Jobs

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[PA Incident] Daily Data Collection</td>
<td>Collects daily snapshot data for all indicators and breakdowns.</td>
</tr>
</tbody>
</table>
| [PA Incident] Historic Data Collection   | Collects 60 days of data for all indicators except for these, for which historical collection is not possible: 
                                           • Number of open incidents not updated for 30 days 
                                           • Number of open incidents not updated for 5 days |

**Warning:** All breakdown scores will represent the values on the collection date and not the reported date. For example, if the priority status has changed between the reporting date and the collection date, this change is not represented.

Get started with Performance Analytics for Incident Management

Performance Analytics for Incident Management is included in the base system. Use it to familiarize yourself with Performance Analytics before upgrading Performance Analytics Premium.

Performance Analytics for Incident Management:
• Consists of an Incident Management dashboard with 15 indicators  
• Indicators cannot be added or deleted  
• A maximum of 180 days of historic scores are visualized  
• Is usable only in the global domain

Check an indicator source

Verify that the sample indicator sources match your configuration.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to Performance Analytics > Data Collector > Indicator Sources.
2. Open one of the sample indicator sources.
3. Go to the Source section.
4. Change the **Facts table**, if needed.
5. Change the **Conditions**, if needed.

A good indication to see if the conditions are set up correctly is the number of matching records found. Click the matching records link to view the results in a new tab. Check to see if these are the expected records based on the conditions.

6. Click **Update**.
7. Repeat this procedure for each sample indicator source.

**Note:** For Eureka Patch 6 and later versions, including Fuji, if an indicator source has a condition on a field or column that does not exist, the condition does not appear in the UI (although it is there). Therefore, you cannot change the condition through the UI. Instead, you can export the XML and import of the indicator source record.
Schedule a historical collection for an indicator

This job loads the last 60 days of scores for the indicators and breakdowns for which historic collection is possible.

Role required: pa_data_collector or admin

1. Navigate to **Performance Analytics > Data Collector > Jobs**.
2. Open the *[PA Incident] Historic Data Collection* job.
3. Go to the **Job Parameters** section.
4. Change the **Run as**, if needed.
5. Change the **Run as tz** (time zone), if needed.
6. Select the **Active** check box.
7. Click **Update**.

**Note:** You may want to increase the number of days in the **Relative start** field. Keep in mind that in ServiceNow instances with a bigger history it will take longer to collect the data. Performance Analytics for Incident Management collects a maximum of 180 days worth of historical data.

When the job is **Active**, it appears under **System Scheduler > Scheduled Jobs**, where you can change the time to start the job, if needed.

Check a breakdown source

Verify that the sample breakdown sources match your instance configuration.

1. Navigate to **Performance Analytics > Data Collector > Breakdown Sources**.
2. Open one of the sample breakdown sources.
3. Go to the **Source** section.
4. Change the **Facts table**, if needed.
5. Change the **Conditions**, if needed.

A good indication to see if the conditions are set up correctly is the number of matching records found. Click the matching records link to view the results in a new tab. Check to see if these are the expected records based on the conditions.

6. Change the **Security type**, if needed.
7. Add breakdown elements to the **Elements Security List**.
8. Click **Update**.
9. Repeat this procedure for each sample breakdown source.

Schedule data collection

After validating the sources for the indicators and the breakdowns, configure and activate the data collection job. Two sample jobs are provided, a daily collection and an on-demand collection for historical scores.

1. Navigate to **Performance Analytics > Data Collector > Jobs**.
2. Open the *[PA Incident] Daily Data Collection* job.
3. Go to the **Job Parameters** section.
4. Change the **Run as**, if needed.
5. Change the **Run as tz** (time zone), if needed.
6. Select the **Active** check box.
7. Click **Update**.

When the job is **Active**, it appears under **System Scheduler > Scheduled Jobs**, where you can change the time to start the job, if needed.

---

**Note:** Setting up Performance Analytics to support domain separated ServiceNow instances requires special configuration.

---

**Performance Analytics indicators available by default**

Multiple indicators are available by default in Performance Analytics for Incident Management.

**Table 7: Indicators for the incident table**

<table>
<thead>
<tr>
<th>Name</th>
<th>Unit</th>
<th>Key</th>
<th>Direction</th>
<th>Frequency</th>
<th>Indicator source</th>
<th>Display by default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summed duration of resolved incidents</td>
<td>Hours</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Resolved</td>
<td>true</td>
</tr>
<tr>
<td>Number of resolved incidents</td>
<td>#</td>
<td>false</td>
<td>Maximize</td>
<td>Daily</td>
<td>Incidents.Resolved</td>
<td>true</td>
</tr>
<tr>
<td>Number of resolved incidents by first assigned group</td>
<td>#</td>
<td>false</td>
<td>Maximize</td>
<td>Daily</td>
<td>Incidents.Resolved</td>
<td>true</td>
</tr>
<tr>
<td>Number of new incidents</td>
<td>#</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.New</td>
<td>true</td>
</tr>
<tr>
<td>Number of open incidents not updated in last 5 days</td>
<td>#</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>Number of open incidents not updated in last 30 days</td>
<td>#</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>Summed re-assignment of open incidents</td>
<td>#</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>Summed age of last update of open incidents</td>
<td>Hours</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>Name</td>
<td>Unit</td>
<td>Key</td>
<td>Direction</td>
<td>Frequency</td>
<td>Indicator source</td>
<td>Display by default</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Number of open incidents</td>
<td>#</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>Summed age of open incidents</td>
<td>Hours</td>
<td>false</td>
<td>Minimize</td>
<td>Daily</td>
<td>Incidents.Open</td>
<td>true</td>
</tr>
<tr>
<td>% of incidents resolved by first assigned group</td>
<td>%</td>
<td>true</td>
<td>Maximize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>Average age of last update of open incidents</td>
<td>Days</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>% of new critical incidents</td>
<td>%</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>Average resolution time of resolved incidents</td>
<td>Days</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>Average re-assignment of open incidents</td>
<td>#</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>Average age open incidents</td>
<td>Days</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>% of open incidents not updated in last 30 days</td>
<td>%</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
<tr>
<td>% of open incidents not updated in last 5 days</td>
<td>%</td>
<td>true</td>
<td>Minimize</td>
<td>Daily</td>
<td>Formula indicator</td>
<td>true</td>
</tr>
</tbody>
</table>

Predefined dashboards

Performance Analytics dashboards show the most relevant indicators for specific users or groups. Performance Analytics for Incident Management includes the following dashboards:

- An Incident Management dashboard containing the following tabs:
• Incident Overview, contains an area compare chart.
• Incident Open
• Incident New
• Incident Resolved

• An Incident daily - 7d - 28d dashboard. This is a dynamic dashboard that allows you to choose an assignment group. The dashboard contains the following tabs that reflect information for the selected assignment group:
  • By Group daily
  • By Group 7d running
  • By Group 28d running

From the detailed scorecard, all daily measurements can be rolled up and analyzed with the following time series filters:
  • 7 - 28 - 30 days running SUM & AVG
  • Weekly - monthly - quarterly SUM/AVG

Predefined data collection jobs

Data collection jobs collect and send data to Performance Analytics as indicator and indicator breakdown scores.

Performance Analytics for Incident Management includes the following data collection jobs.

• The [PA Incident] Daily Data Collection job collects daily snapshot data for all indicators and breakdowns.
• The [PA Incident] Historic Data Collection job collects 60 days of data for all indicators except for these, for which historical collection is not possible:
  • Number of open incidents not updated in last 30 days
  • Number of open incidents not updated in last 5 days

⚠️ Warning: All breakdown scores will represent the values on the collection date and not the reported date. For example, if the priority status has changed between the reporting date and the collection date, this change is not represented.

Performance Analytics Premium

For unlimited access to all Performance Analytics features, you can upgrade to the premium version.

When you subscribe to the premium version, the limits in the application are removed. Additionally, you can benefit from the predefined content packs for these IT processes:

• Change Management
• Incident SLA Management
• Problem Management
• Request Management
• Human Resources

Note: For additional, unofficial, content packs on these and other processes or apps, see the ServiceNow Share Portal.
To upgrade to the premium version, see *Activate Performance Analytics Premium* on page 15. After the premium version is active, *set up and configure* additional elements to meet organizational needs.

**Activate Performance Analytics Premium**

Use this procedure when your organization is ready to upgrade to the premium edition of Performance Analytics.

Role required: none

To purchase a subscription, contact your ServiceNow account manager. The account manager will arrange to have the plugin activated on your organization's production and sub-production instances, generally within a few days.

If you do not have an account manager, decide to delay activation after purchase, or want to evaluate the product on a sub-production instance without charge, follow these steps.

1. In the HI Service Portal, click **Service Catalog > Activate Plugin**.
2. Fill out the form.

<table>
<thead>
<tr>
<th>Target Instance</th>
<th>Instance on which to activate the plugin.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plugin Name</td>
<td>Name of the plugin to activate.</td>
</tr>
<tr>
<td>Specify the date and time you would like this plugin to be enabled</td>
<td>Date and time must be at least 2 business days from the current time.</td>
</tr>
</tbody>
</table>

**Note:** Plugins are activated in two batches each business day in the Pacific timezone, once in the morning and once in the evening. If the plugin must be activated at a specific time, enter the request in the Reason/Comments.

| Reason/Comments | Any information that would be helpful for the ServiceNow personnel activating the plugin such as if you need the plugin activated at a specific time instead of during one of the default activation windows. |

3. Click **Submit**.

**Use Performance Analytics Premium**

Performance Analytics Premium is an application you must subscribe to. It unlocks the restrictions, and preserves any configuration made in the complimentary version.

Once activated, go through the following features for further personalization and configuration of Performance Analytics Premium:

1. Define *indicator sources*, which form the basis for the data that is collected and can be reused for multiple indicators.
2. Create *automated indicators*, the most commonly used indicators. They are collected frequently and automatically from the ServiceNow instance, for example, the number of open incidents.
3. Define *breakdown sources*, which are needed to be able to create breakdown charts for further analysis of breakdown elements.
4. Define **breakdowns**, listing the elements the breakdowns consist of. Breakdowns are sometimes also called dimensions, because they divide data up by making a cross-section in a different way, for example, incidents can be broken up by priority or by assignment group.

5. Define **bucket groups**, which are used to group data in user-defined ranges.

6. Create scripts and link them to bucket groups, to quickly place data in user-defined bucket groups. Bucket groups are also often used when defining scripts.

7. Create and schedule the **jobs** that collect data for scorecards and dashboards.

8. Check the **job logs** to see if the data collection jobs have run successfully.

9. View the **job events** queue for Performance Analytics and the actions that have been triggered in your ServiceNow instance, such as notifications and business rules.

To do more advanced configuration of Performance Analytics, you can:

- apply time series (analytical functions)
- define additional and multi-level breakdowns (also called dimensions or drill-downs)
- use indicator groups for easy retrieval and search
- set up improvement programs with targets and thresholds or create new, calculated indicators for existing indicators with formulas

When scores and data for these indicators have been collected, start visualizing your indicators by defining widgets and applying them in dashboards.

**Warning:** Skipping any of the setup steps, such as not creating jobs for data collection, can result in scorecards and dashboards not being populated with any data.

Performance analytics HR content pack

An optional content pack is available with Performance Analytics for tracking human resources data.

The content pack contains preconfigured records, such as indicators, breakdowns, and widgets, to track and report on human resources data with minimal setup required.

The human resources content pack is available by request only.

Context-sensitive analytics example

Performance Analytics includes an optional example feature that allows you to view contextual analytics based on an incident.

To use this functionality, you must activate the Performance Analytics - Example Context Sensitive Analytics for Incident plugin.

After activating the plugin, context sensitive buttons appear on the Incident form. Click the **Context Sensitive Analytics on Category** or **Context Sensitive Analytics on Group** buttons to view the Context Sensitive Analytics - Incidents dashboard broken down by the category or group from the current incident.

You can use these buttons as a template for creating your own context-sensitive analytics. Each button is defined in a UI action record. Copy the UI action and modify the **Script** field. The `showPAGroup()` function specifies the URL of the dashboard to display and the properties of the popup window such as the size and title. The selected breakdown element is determined based on the current record using the `g_form.getValue('<field_name>')` function. The jQuery function defines the button appearance. You can update this function to define a new button, or remove this function and use one of the standard UI action control types, such as **Form button**.

Supported browsers for Performance Analytics

ServiceNow supports Performance Analytics in UI15 and UI16.
All browsers supported by these interfaces are supported by Performance Analytics.

Visualize data

Display collected data using scorecards, widgets, and dashboards.

Performance Analytics scorecards

Scorecards are used to access indicators directly. Scorecards do not have the formatting options that are available when you use widgets on a dashboard.

From the indicator overview you can: select scorecards, view the detailed scorecard, edit the chart settings and change the chart type, drill down into the details and save the chart.

Scorecard indicator overview

Use the scorecard indicator overview to view and filter a list of scorecards for each indicator.

To access the scorecard indicator overview, navigate to Performance Analytics > Scorecards.

Click the list settings icon beside the list header search box to apply filters and breakdowns, or to control which columns appear in the overview list. The condition filter at the top of the list displays any currently-selected filter options. You can remove, but not add filter conditions using this filter.

The following options are available in the indicator scorecards overview.

•

Click the context menu icon on the top left side to set the number of rows that are displayed in the scorecard list per page. You can also use this menu option to set the number of breakdowns displayed when viewing the Breakdown tab of a detailed scorecard.

• Display indicators based on performance:

  • Best: Shows all indicators with a target that are outperforming their target (green) ordered by Gap %. (Best performers on top)

  • Worst: Shows all indicators with a target that are under performing their target (red) ordered by Gap %. (Worst performers on top)

  • For example, if an indicator has a score of 150, a previous score of 200, a target of 100, and a "maximize" direction, that indicator will show up in two lists:

    • Best performer: 50% over target.
    • Degraded: 25% degraded.

  • Improved: Shows all indicators with a direction that have improved compared to the previous data collection (moving in the right direction).

  • Degraded: Shows all indicators with a direction that have degraded compared to the previous data collection (moving in the wrong direction).

• You can search for an indicator or indicator group indicator group from the Scorecards search bar. The results are ordered by name and then by indicator group.

• A solid blue star beside an indicator name indicates that it is a favorite. Click the star beside the scorecard to toggle between selecting and deselecting it as 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.
• If the column Trend is selected, a miniature version of the chart is shown in the scorecards list and on the breakdowns tab. By pointing at the chart, a red bar appears and the actual scores are shown.

Clicking the list settings icon ( ) on the top right side of the list header next to the search box gives you the following options:

• Filters: filter which indicators are shown by selecting Key Indicators, indicators With a target, indicators based on a Formula, or Manual indicators. If an indicator has been marked as Favorite, both the criteria in the filter and the favorite criteria have to be met.
• Breakdown Source: select indicators that are based on a specific breakdown source (for example Groups.Active).
• Element: select indicators that contain a specific element (for example, CAB Approval) from the breakdown source you selected. Only available if a breakdown source is selected.
• Columns: choose the columns you want to display in the scorecards list: Change, Trend, Bullet chart, Date, Target, Gap, Frequency (for example, daily or weekly), or Direction (none, minimize, or maximize).
• Other: select Show percentages to display the change column as a percentage instead of as a value.

Note: If no scores have been collected and there are no active data collection jobs, the Performance Analytics welcome screen is displayed in scorecards and dashboards. This option can be turned on or off by setting the system property system property com.snc.pa.show_welcome_page to false.

Detailed scorecard

The detailed scorecard shows the default chart type—line, column, spline, or area—defined for the indicator configuration.

Click an indicator Name on the indicator overview list to open a chart of the Indicator. The chart shows the values based on the frequency defined for the indicator.
Figure 1: Detailed scorecard

The following options are available in the detailed scorecard.

- To display an available time series instead of a line chart, use the choice list at the top right of the scorecard.
- To show the actual value for the indicator on a certain collection date, point to that date on the chart. If a comment or a target is available for this date, it is shown.
- To change the period for which the chart is drawn, you can either choose to use one of the fixed time frames (7d, 1m, 3m, 6m, YTD, 1y, All) or select specific from and to dates.
- To expand or narrow down the time frame, or to move to a different time frame, use the date selector at the bottom of the chart. The chart data and the from and to dates are adjusted accordingly.

Other options are:
- **Add a comment** for that day, for example to explain a sudden change.
- **Add a target** starting from that day. Requires the pa_admin, pa_power_user, or pa_target_admin role.
• **Set a threshold.** Indicate when you want to be notified: if the indicator hits an all time high, an all time low, or when it is less than or more than a specified number. Requires pa_admin, pa_power_user, or pa_threshold_admin role.

![Scorecard context menu](image)

**Figure 2: Scorecard context menu**

Click the context menu icon (¶) at the top left before the indicator title to:

• Edit the indicator you are viewing. This brings you to the create indicator form. Only available for users with the pa_admin and pa_power_user roles starting with Fuji.
• **Edit scores** for the indicator you are viewing. Only available for users with the pa_admin and pa_power_user roles starting with Fuji.
• Save the detailed scorecard as PNG or JPG.
• Export the detailed scorecard to PDF and CSV format.
• Set the number of rows shown in the detailed scorecard. Click **Show** and select 10 - 15 - 20 - 50 or 100.

Click the chart settings menu icon (⚙️) at the top right of the scorecard to:

• Change the **chart settings** for this indicator.
• Change the **chart type**.
**Note:** When very large numbers have to be visualized in for example, scorecards, widgets or breakdowns, these will be rendered with the appropriate abbreviation. For example, K for thousands and M for millions.

*Detailed scorecard Scores tab*

The Scores tab on a Performance Analytics detailed scorecard displays a list of collected scores by date, and the formula values for formula indicators.

When viewing the Scores tab for a formula indicator, you can click on portion of the formula to view the scorecard for that data. For example, on the scorecard Average age of last update of open incidents, you can click the **Number of open incidents** link on the Scores tab to view the Number of open incidents scorecard.

*Chart settings*

Use the chart settings to configure which columns should be displayed.

Click the gear icon (🔧) at the top right to access the chart settings. Use chart settings to compare the indicator with:

- **Target** set for this indicator. The option can only be selected if a target is set for the indicator. For more information, see *Create a Performance Analytics target* on page 68.
- **Thresholds** set for this indicator. A threshold can help to give a warning about abnormal scores. For example, an all time high or an all time low scores. Thresholds are displayed as dashed light grey lines in the detailed scorecard. The option can only be selected if an active threshold is set for the indicator. For more information, see *Create a Performance Analytics threshold* on page 70.
- **Trendline** that is generated by the system based on the indicator scores for the selected period.
- **Confidence band** that displays the bandwidth between which the indicator scores are moving. The dark yellow band displays values that are with a 95% certainty within the bandwidth. The light yellow bands display the prediction band. The prediction band is broader than the confidence band, because outlying values are also taken into account for the calculation. Confidence bands are available starting with Eureka Patch 3 Hotfix 1.
- **Comments** can be switched on or off in the detailed scorecard. If a comment was added for a data point, a balloon is displayed above it. When you point to the balloon, the comment itself is shown.
- **Labels** can be enabled or disabled to show data labels for all data points in the chart.
- **Statistics** can be switched on or off in the detailed scorecard. Chart statistics include average, minimum, maximum and number of scores.

**Note:** If a new date range is selected in the detailed scorecard, targets, thresholds, trendlines, and confidence bands are redrawn for that new date range.
To change the Type of chart to display for the scorecard:
1. Click the chart settings menu icon ( ) at the top right.

2. Select the type of chart from the choice list:
   - Line Chart
   - Column Chart
   - Spline Chart
   - Area Chart

3. Click the chart settings menu icon ( ) again to close the menu.

No matter which chart type you choose, the trend is always shown as a line.

Breakdown details

Beside the Chart tab, there is a Breakdowns tab with breakdown information and records for the indicator. If no breakdowns are configured for an indicator, the Breakdowns tab is unavailable.

On the Breakdowns tab, you can choose the breakdown and optionally the element, known as the breakdown instance, for which a chart is drawn. Choose one of the following chart types from the choice list above the chart.
   - Scorecard (default)
   - Column
   - Pareto
   - Line
   - Columns & total
   - Stacked bar
   - Relative compare
   - Breakdown matrix
If the Collect breakdown matrix option has been activated for an indicator, you can select which one of these breakdowns you want to see and click to view its details. From the details of one breakdown, for example, Priority, navigate to the Breakdowns tab to view the second breakdown, for example, Category. After selecting a breakdown element from that second breakdown, for example Network, you can dot-walk one level up by clicking the first breakdown from the title bar, for example, Priority, to return to the first breakdown level.

If you want to get a hierarchical view of the breakdowns, select Breakdown matrix. This enables you to choose a second breakdown level that is shown indented below the first breakdown. For example, all incidents can be listed by Category (Software), and then by Priority (Critical, High, Moderate, Low, or Planning), or vice versa. Any combinations of breakdowns that result in zero scores are suppressed. Available starting with the Fuji release.

To mark favorites in the breakdown list, click the star icon (🌟) before the breakdown element. If favorites have been marked in the breakdown list, these are shown by default. Click the filter icon (🌟) beside the Name field to switch between showing only favorite breakdown elements and showing all breakdown elements.

**Note:** Favorites are user-specific. The system stores the state of the breakdown list as a user preference. If you are showing only favorites in the breakdowns list when you log out, the breakdowns list shows only favorites when you log back in.
A **Records** tab is available only for *automated indicators*. By default, it shows the records that were used at data collection time to calculate the indicator. For example, the **Records** tab for the **Number of Open Incidents** indicator shows the incidents that matched the criteria at the collection date.

Use the record information in combination with the **Zoom into date** option on the chart, to view records for every single collection date. For example, if you click a specific date in the chart, a horizontal bar appears in the chart ‘locking’ the date and the breakdowns and records are displayed for that date. If you want to see the whole date range again, click **Reset selected date**.

**Note:** Access control rules (ACLs) may apply that prevent showing records for the **Records** tab.

A **Comments** tab is available if comments have been added for data points in the chart.

A **More Info** tab is available with information on the chart’s description, update frequency, last updated, direction, and formula (if applicable).

You can save the chart as a JPG or PNG file by clicking the context menu icon ( ).

### Viewing historic data

You can view and compare historic data for collected Performance Analytics scores.

You can view historic data in the **Records** tab of a detailed scorecard. Several buttons appear allowing you to toggle between current and historic data. When viewing the historic data, you can compare the data on certain dates.

A date picker allows you to specify which date's data you want to compare your data with, and a choice list appears allowing you to display certain sets of data:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Displays all records from the historic data set.</td>
</tr>
<tr>
<td>Shared with</td>
<td>Displays only records that are in both data sets.</td>
</tr>
<tr>
<td>Moved in</td>
<td>Displays only records that are in the newer data set, but are not in the earlier data set.</td>
</tr>
<tr>
<td>Moved out</td>
<td>Displays only records that are in the earlier data set, but are not in the newer data set.</td>
</tr>
</tbody>
</table>

**Note:** You cannot view and compare historical data when viewing real-time scores.

The **Show delta** check box on the Indicator form must be selected for the indicator to show historic data, and for the comparison options to appear on the detailed scorecard.

### Navigate scorecards using breakdown relations

Relations defined for a breakdown appear when you view a scorecard Breakdowns tab. You can select a related breakdown to filter the scorecard data.

**Role required:** pa_viewer or admin

Before starting this procedure, create a breakdown with one or more breakdown relations.
Note: You can use breakdown relations for first-level breakdowns only. For example, when viewing the scorecard Number of resolved incidents / Assignment Group / Database / Priority / 1 - Critical, you can use only those breakdown relations defined for the Assignment Group breakdown. Any breakdown relations defined for the Priority breakdown are not available on this scorecard. Change the scorecard breakdown to Number of resolved incidents / Priority / 1 - Critical / Assignment Group / Database to use Priority breakdown relations.

For example, when viewing the scorecard Number of resolved incidents / Assignment Group / Database, the Breakdowns tab displays Child Groups related breakdowns. Click on a child breakdown to view the scorecard specific to that child group, such as Database Atlanta.

1. Navigate to Performance Analytics > Scorecards.
2. Select a scorecard with a breakdown that has one or more breakdown relations.
3. Click the Breakdowns tab.
4. In the first choice list, select a breakdown field, such as Assignment Group.
5. In the list that appears, select a breakdown element, such as Database.
6. Click the Breakdowns tab again.

If any breakdown relations exist for the selected breakdown, the first choice list displays the default relation.

7. In the first choice list, select the related breakdown to apply, such as Child Groups.

8. Select a related breakdown element, such as Database Atlanta.
The scorecard now displays data broken down for the Database Atlanta group.

**Supported scorecard parameters**

You can pass certain parameters in the URL when navigating directly to a scorecard.

Parameters passed to a scorecard must follow the format `/scorecard.do? <parameter>=<value>&<parameter2>=<value2>.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>indicator_group</td>
<td>Enter the sys_id of an indicator group. The scorecard displays only indicators from the specified group.</td>
</tr>
</tbody>
</table>

**Real time scorecard data**

A detailed scorecard or breakdown scorecard can display real-time data when using a non-formula and non-scripted indicator.

You can view the real-time data by clicking **Real-time** in the date picker when a different date is selected. You can view real-time data in the **Records** tab by clicking on the current date and time within the tab.

The indicator must have real-time score enabled for these options to appear on a scorecard. You can enable real-time data for an indicator by selecting the **Show real-time score** check box on the **Other** tab of the Indicator form. You may want to disable real-time data when using the indicator in an integration that does not provide real-time data.

**Performance Analytics widgets**

Widget configurations are used to view, set up, edit, and manage properties for dashboards and visualization types—time series, score, list, and breakdown—determining how data is presented on dashboards.

For example, data can be presented as a chart, latest score, gauge, scorecard, or column. Many variations are possible. A widget determines how data is presented on dashboards. For example, as a chart, latest score, speedometer, dial, scorecard, or column. Widgets are always linked to an indicator.

Users with the pa_admin and pa_power_user roles can create and manage widget configurations.

Widgets are global, so:

- Anyone can see a widget you created
- Anyone can use the widget when creating their dashboard
- Anyone can edit your widget
- Always create a new widget when you need an alternate view.
- Do not change an existing widget when you did not create it.

**Create a widget**

Widget configurations are used to view, set up, edit, and manage properties for dashboards and visualization types: time series, score, list, and breakdown. Widgets determine how data is presented on dashboards. Widgets are always linked to an indicator.

Role required: pa_admin, pa_power_user, or admin
Widgets are global, so keep the following details in mind.

- Anyone can see a widget you create.
- Anyone can use your widget when creating a dashboard.
- Anyone can edit your widget.
- Always create a new widget when you need an alternate view.
- Do not change an existing widget if you did not create it.

1. Navigate to **Performance Analytics > Widgets**.
2. Click **New**.
3. Enter a **Name** to identify what the widget does. For example, *Last score number of open incidents*.
4. Optional: Enter a **Lookup name**. The lookup name appears instead of the **Name** when adding the widget to a dashboard.
5. Enter a more detailed description. For example, *Widget to represent the last score of open incidents*.
6. Select the type of widget to create.
7. Fill in the rest of the form according to the **Type** selected.
   For more information about filling out the fields for a specific type, see the appropriate topic.

*Create a time series widget*

Create a time series widget to display changes in scores over time.

Role required: pa_power_user

1. In the **Type** field of the Widget Configuration form, select **Time Series**.
2. In the **Visualization** field, select the visualization you want to use to display the data.
3. Select an **Indicator**. For example, **Number of open incidents**.
4. Optional: Select **Previous period chart** if you want to compare data from previous periods side-by-side. This can be used, for example, to compare the number of open incidents per week. Each week is represented in a different color in the same chart for the number of weeks you selected.
5. In the Previous Period Settings section, enter the **Range of periods**. This field is only shown if you selected the **Previous period chart** field.
6. Enter the **Number of periods**. This field is only shown if you selected the **Previous period chart** field.
7. Select the **Breakdown** to show a chart for a specific breakdown element, for example, **Category**.
8. Select the **Element** to show if **Breakdown** is selected, for example, **Software**. If you do not select an **Element**, the widget uses the unmatched breakdown element.
9. Select the **2nd Breakdown** to show a chart for a second level breakdown element, for example, **Priority**.
10. Select the **Element** to show for the second breakdown, for example, **1 - Critical**. If you do not select an **Element**, the widget uses the unmatched breakdown element.
11. Select a **Time series**.
    A **Time series** applies a mathematical aggregation to the widget's data for a specific time period. For example, you can display the average yearly score or a weekly sum. You can select only time series that are available for the widget's indicator. A plus sign (+) at the end of the time series indicates that scores for a partially completed period will be included.
12. Select **Follow element** to show a selected breakdown rather than the general scores for the indicator.
13. If **Follow element** is selected, select a breakdown to follow in the **Followed breakdown** field. The parent breakdown and **excluded breakdowns** are not shown in the selection.
14. Enter a **Label** for the main series label. The main series label can be used to easily search for similar widgets to be added to a dashboard. Only shown if you did not select **Previous period chart**.
15. Select the **Color** or **Color scheme**. If a specific color is defined for an indicator, that color overrides this setting. If no chart color scheme is selected, the default color scheme from the properties is used to render charts.

16. In the Date Settings section, set the **Period**. 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 for which scores are shown. Date settings are only available if you selected a **Time series**.

17. [Optional] In the Date Settings section, select **Show date range selector** if you want to show a date selector on the resulting chart. This allows you to select a 7d, 1m, 3m, 6m, YTD, 1y or all range for the scores displayed in the chart. This also enables you to click and drag a selection on the chart to zoom into that selection.

18. In the **Y-axis from** and **Y-axis to** fields, specify a range of values for the scores on the vertical axis on the left side of the chart. For example, 1 to **100**.

19. In the **2nd Y-axis from** and **2nd Y-axis to** fields, specify a second range of values for the scores on the vertical axis on the right side of the chart. For example, 1 to 1000.

   **Note:** The 2nd Y-axis can be used if scores normally move between a limited bandwidth, but you have some exceptions that would otherwise distort the chart. For example: a bandwidth of 40 to 60, with an exception of 1000.

20. In the Display settings section, select **Show target** if you want to compare the scores of this chart with the target **Create a Performance Analytics target** on page 68, if defined. Only shown if you did not select a **Previous period chart**.

21. Select **Show thresholds** if you want to show thresholds, like an all time high, or an all time low. Only available if **thresholds** have been defined for this indicator.

22. Select **Show data labels** if you want to show the scores for the data points in the chart.

23. Select **Show trend** if you want to include the trend line in this chart. Only shown if you did not select a **Previous period chart**.

24. Select **Show confidence bands** if you want to include **confidence bands** in this chart.

25. Select **Show comments** to display comments for data points in the chart. Only available if comments have been added.

   **Note:** Targets, trends, and confidence bands can be toggled with the Chart settings in the scorecard.

26. Click **Submit**.

   After submitting the widget, you can reopen the Widget Configuration form and use the **Widget Indicators** related list to add more indicators for this widget.

   You could for example have an area chart displaying the indicator **Number of open incidents** and then add the widgets to display a second or even a third indicator, for example, **Number of open incidents not worked on in the last 30 days** and **Number of open incidents not updated in the last 5 days**. For these additional widget indicators, similar configuration options are available as for the main indicator widget. You could have them displayed as an area chart, or as lines within the area chart for **Number of open incidents**.

*Create a score widget*

Create a score widget to display an aggregate score.

Role required: **pa_power_user**

1. In the **Type** field of the Widget Configuration form, select **Score**.

2. In the **Visualization field**, select the appropriate option.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latest Score</td>
<td>Shows the latest score of an indicator as a dial.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Speedometer</td>
<td>Shows the performance of a single indicator in the form of a meter.</td>
</tr>
<tr>
<td>Dial</td>
<td>Shows a dial for an indicator. This is similar to a regular speedometer, but it shows a round meter where the part in which scores are shown is filled out with a color.</td>
</tr>
<tr>
<td>Real-time Score</td>
<td>Shows the current score as well as the historical score as a line.</td>
</tr>
</tbody>
</table>

3. If you select Latest score or Real-time Score, select a display Template. Select Template 1 to use the legacy look and feel, or Template 2 to use an updated look and feel.

4. Select an Indicator, for example, Resolved incidents.
5. Select the Breakdown to show a chart for a specific breakdown element, for example, Category.
6. Select the Element to show if Breakdown is selected, for example, Software. If you do not select an Element, the widget uses the unmatched breakdown element.
7. Select the 2nd Breakdown to show a chart for a second level breakdown element, for example, Priority.
8. Select the Element to show for the second breakdown, for example, 1 - Critical. If you do not select an Element, the widget uses the unmatched breakdown element.
9. Select a Time series.
A **Time series** applies a mathematical aggregation to the widget's data for a specific time period. For example, you can display the average yearly score or a weekly sum. You can select only time series that are available for the widget's indicator. A plus sign (+) at the end of the time series indicates that scores for a partially completed period will be included.

10. **Select Follow element** if the scores chart should show the selected breakdown, rather than the general scores for the indicator.

11. If **Follow element** is selected, select a breakdown to follow in the **Followed breakdown** field. The parent breakdown and **excluded breakdowns** are not shown in the selection.

12. If you selected **Latest Score** in the **Visualization** field, select a **Compare score with** option. Choices are:
   - **Previous Score**: compares the score with the score from the previous data collection.
   - **Periods Back**: compares the score with the **Number of periods back** entered. For example, if you enter 3, the score is compared with the score that was retrieved three months ago.

13. If you selected **Speedometer** in the **Visualization** field, select the **Auto scale** check box if you want to have the start and end values for the dial automatically determined, depending on the data. For example, if four P1 incidents are collected, the scale runs from zero to six. If **Auto scale** is not selected, you have to enter the start value in **From** and the end value in **To**. After submitting the widget, you can reopen the Widget Configuration form and use the **Widget Indicators** related list to add more indicators for this widget.

---

**Create a list widget**

Create a list widget to display scores as a list.

**Role required:** pa_power_user

1. In the **Type** field of the Widget Configuration form, select **List**.
2. In the **Visualization** field, select the visualization you want to use to display the data.
3. In the **Sort on** field, select either by **Value**, **Name** or **Custom order** as the sort sequence for scorecards.
4. In the **Sort direction** field, select **Ascending** or **Descending**.
5. **Select a Time series.**

   A **Time series** applies a mathematical aggregation to the widget's data for a specific time period. For example, you can display the average yearly score or a weekly sum. You can select only time series that are available for the widget's indicator. A plus sign (+) at the end of the time series indicates that scores for a partially completed period will be included.

6. **Select an Indicator group**, for example, **incident open**. In the Widget Configurations search, you can search for **Indicator group**. All indicators with this indicator group will be included in the list.
7. **Select Follow element** if the list chart should show the selected breakdown, rather than the general scores for the indicator.
8. If **Follow element** is selected, choose which specific breakdown to follow in **Followed breakdown**.
9. In the **Display Settings** section, select what the list should look like on the dashboard. Choices are:
   - **Scorecard options**: Select **All** scorecards, scorecards marked **Key**, or **Favorite** scorecards to show the selected scorecards on the dashboard.
   - **Page size**: Select the number of rows shown on the list scorecard: 5, 10, 15 or 20.
   - **Filter**: Filter the scorecard list for **Best Performing**, **Worst Performing**, **Improved**, **Declined**, or **Deteriorated**. Only indicator scores that match the filter are shown.

The **Filter** field is available only if you selected **Scorecard** in the **Visualization** field.
10. Select columns to display.

The **Column Settings** section is shown only if you selected **Scorecard** in the **Visualization** field.

**Table 10: Column settings check box descriptions**

<table>
<thead>
<tr>
<th>Column name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current score</td>
<td>The score from the latest data collection.</td>
</tr>
<tr>
<td>Trend</td>
<td>Shows the direction that the indicator is moving. The trend is shown in a mini-chart on the dashboard.</td>
</tr>
<tr>
<td>Bullet chart</td>
<td>This option is only visible if the widget has a defined target. The grey tones of the bullet are the boundaries of the target colors. For <strong>less is better</strong> indicators the color coding moves from light to dark. A light color is acceptable, a dark color is unacceptable. For <strong>more is better</strong> indicators the color coding moves from dark to light. The target is always represented by a red horizontal line.</td>
</tr>
<tr>
<td>Multiple scores</td>
<td>Adds additional scores to the scorecard. Select the number of additional scores to display in <strong>Number of periods</strong>. Select the length of each period in <strong>Period step</strong>. If <strong>Current Score</strong> is also selected, the Score column is counted as the most recent period and N-1 periods are added.</td>
</tr>
<tr>
<td>Change</td>
<td>Displays the change in value from the previous score.</td>
</tr>
<tr>
<td>Change %</td>
<td>Displays the percentage change from the previous score.</td>
</tr>
<tr>
<td>Target</td>
<td>Displays the target for the indicator if a target has been defined.</td>
</tr>
<tr>
<td>Gap</td>
<td>Displays 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).</td>
</tr>
<tr>
<td>Gap %</td>
<td>Displays 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).</td>
</tr>
</tbody>
</table>

*Create a breakdown widget*

Breakdown widgets are typically used to zoom in on a particular instance of an indicator. For example, a breakdown widget might be a visualization based on the Priority breakdown for open incidents.
Visualizations based on breakdowns allow users to see a percentage of the total or selected scores. Element filtering in a breakdown widget configuration allows users to display only elements that match a predefined breakdown source filter.

1. In the **Type** field of the Widget Configuration form, select **Breakdown**.
2. In the **Visualization** field, select the visualization you want to use to display the data.
3. Select an option in the **Sort on** field, either **Value** or **Name**.
4. Select the **Sort direction**, either **Ascending** or **Descending**.
5. Select an **Indicator**, for example, **Number of open incidents**.
6. Select a **Breakdown**, for example, **Priority**.
7. Select a **Time series**.

   A **Time series** applies a mathematical aggregation to the widget's data for a specific time period. For example, you can display the average yearly score or a weekly sum. You can select only time series that are available for the widget's indicator. A plus sign (+) at the end of the time series indicates that scores for a partially completed period will be included.

8. In the **Date Settings** section, set the **Period**.
   - 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 for which scores are shown.

The **Period** field is available only if you select **Column, Line, Column and Total**, or **Stacked Column** as the **Visualization**.

9. In the Breakdown settings section, select what the breakdown should look like on the dashboard. Choices vary according to the selected **Visualization**, and include:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements filter</td>
<td>Defaults to Any element. An element is an instance of the breakdown. For example, instances of the breakdown <strong>Priority</strong> can be: <strong>Critical</strong>, <strong>High</strong>, <strong>Moderate</strong>, <strong>Low</strong> or <strong>Planning</strong>.</td>
</tr>
<tr>
<td>Manual elements</td>
<td>Breakdown elements can be selected automatically or manually. Select the <strong>Manual elements</strong> check box to display the <strong>Widget Elements</strong> related list for adding elements. Clear the <strong>Manual elements</strong> check box to automatically use the elements that belong to the breakdown.</td>
</tr>
<tr>
<td>Show top x</td>
<td>If there are many breakdown instances, the breakdown chart may become too large. Enter a number to show only the top x of the instances. The maximum <strong>Number of elements in the breakdown charts</strong> can also be specified at <strong>System &gt; Properties</strong>. The top x cannot be larger than the number entered there.</td>
</tr>
</tbody>
</table>
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, 6.4% of the total incidents are Critical, 11.8% are High, and so on.

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.

The score for each instance is represented by a bar.

The **Color scheme** field is only shown if you selected **Pie, Column, Pareto, Line, Column and Total**, or **Stacked Column** in the **Visualization** field.

### 10. Select columns to display.

The **Column Settings** section is available only if you selected **Scorecard** in the **Visualization** field.

**Table 12: Column Settings Check Box Descriptions**

<table>
<thead>
<tr>
<th>Column name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current score</td>
<td>The score from the latest data collection.</td>
</tr>
<tr>
<td>Trend</td>
<td>Shows the direction the indicator is moving. The trend is shown in a mini-chart on the dashboard.</td>
</tr>
<tr>
<td>Multiple scores</td>
<td>Adds additional scores to the scorecard. Select the number of additional scores to display in <strong>Number of periods</strong>. Select the length of each period in <strong>Period step</strong>. If <strong>Current Score</strong> is also selected, the Score column is counted as the most recent period and N-1 periods are added.</td>
</tr>
<tr>
<td>Change</td>
<td>Displays the change from the previous score.</td>
</tr>
<tr>
<td>Change %</td>
<td>Displays the percentage change from the previous score.</td>
</tr>
<tr>
<td>Target</td>
<td>Displays the target for the indicator if a target has been defined.</td>
</tr>
<tr>
<td>Gap</td>
<td>Displays 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).</td>
</tr>
<tr>
<td>Column name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Gap %</td>
<td>Displays 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).</td>
</tr>
</tbody>
</table>

After creating widgets, navigate to **Performance Analytics > Dashboards** to add the widget to a dashboard. You can check if the widget definition works and looks like you intended.

**Monitor a workflow with a workbench process widget**

A workbench process widget is a collection of indicators that tell a story, and that allows 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.

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.
When you create a workbench widget, you choose only main and supporting indicators. The score, trend, and breakdown sections of 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.

- 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

1. Navigate to Performance Analytics > 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 eight.
   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 left to right).
   d) Fill in other fields, as appropriate.

### Table 13: Additional indicator configuration options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown and Element</td>
<td>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 <strong>Number of open Incidents</strong> and you select <strong>Breakdown</strong> for <strong>State</strong> and <strong>Active</strong> for <strong>Element</strong>, only scores for incidents in the active state are included in the widget.</td>
</tr>
<tr>
<td>2nd Breakdown and Element</td>
<td>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 <strong>Number of open incidents</strong> and the first breakdown filters for active state. You then select <strong>Category</strong> for <strong>2nd Breakdown</strong> and <strong>Software</strong> for <strong>Element</strong>. The indicator will now display only scores for open incidents that are active and in the software category.</td>
</tr>
<tr>
<td>Time series</td>
<td>Adds the specified time period and aggregation to the widget's trend visualization.</td>
</tr>
</tbody>
</table>
### Field | Description
--- | ---
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.

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) Right-click the form header and select **Save**. The Supporting Widget indicators list appears.

   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) Click **New** in the **Supporting Widget Indicators** related list.
   b) Select an **Indicator**.
   c) Set the **Order** to define where indicator appears (from left to right).
   d) Fill in other fields, as appropriate. You can configure supporting indicators the same way as main indicators. See step 5 for configuration options.
   e) Click **Submit** to return to the Main Indicator record.
   f) Repeat step 6 until you have added all supporting indicators.

7. Click **Update** to return to the widget record.
8. Click **Update** to save the widget.
9. 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.
10. Repeat steps 5 - 9 until you have added all indicators.

Your widget is complete.

### Show breakdown relations on widgets

Performance Analytics widgets can display related breakdown information if breakdown relations are defined for the selected breakdown.
When creating a widget, select a breakdown that has one or more breakdown relations and select the **Follow element** check box. Leave the **Followed breakdown** field empty. The resulting widget displays data for each related breakdown.

![Figure 6: A widget with related breakdowns](image)

**Linking to a scorecard from a custom widget**

You can create a custom widget to link to a Performance Analytics scorecard.

Use the function `paDetailedHelper.open('<scorecard sys_id>')` in a widget link to open a scorecard when clicking that link.

The following example demonstrates how to create a dynamic content block including links to Performance Analytics scorecards.

```xml
<?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 src="scripts/pa/pa_detailed_helper.js" />
<a href="#" onclick="paDetailedHelper.open('31efe602d7130100b96d45a3ce610300')">New Incidents</a>
<br />
<a href="#" onclick="paDetailedHelper.open('7dafa602d7130100b96d45a3ce6103c8')">Resolved Incidents</a>
</j:jelly>
```
Add a widget to a dashboard

Display a widget to users by adding the widget to a dashboard.

The dashboard must be in edit mode. To enable edit mode, click the lock icon in the top-right of the dashboard.

Role required: pa_admin or pa_power_user

Click the plus (+) icon at the top of the tab area to add widgets. This functionality is similar to adding content to homepages. A pop-up window appears for choosing which content you want to add to the tab. This can be any content, not only content related to Performance Analytics.

1. Select **Performance Analytics** in the category list.
2. Select the type of content to use.
   - Breakdown
   - List
   - Score
   - Time Series
   - Relative Compare
3. Select an existing widget or select the option to create a new one.
4. Select the on the tab location by clicking the Add here button that indicates the desired location.
5. You can either add another widget or close the pop-up window. The tab you created is saved automatically.

Relative compare visualization to compare multiple data elements over time

Use a relative compare visualization to compare multiple data elements, such as indicators or breakdowns, over time.

Think of a relative compare visualization as a pie chart with an additional time component. 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.
Create a relative compare visualization for a breakdown widget

Create a visualization that compares multiple elements (dimensions) of an indicator over time.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to Performance Analytics > Widgets.
2. Click New.
3. Fill in these fields.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Select Breakdown.</td>
</tr>
<tr>
<td>Visualization</td>
<td>Select Relative Compare.</td>
</tr>
<tr>
<td>Indicator</td>
<td>Select an indicator.</td>
</tr>
<tr>
<td>Breakdown</td>
<td>Select a breakdown. The individual elements of the breakdown will be shown in the visualization.</td>
</tr>
<tr>
<td>2nd Breakdown</td>
<td>Optionally, select a second breakdown.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Show date range selector</td>
<td>Select this check box on the Date Settings tab. This setting lets users dynamically change the amount of time displayed in the visualization.</td>
</tr>
</tbody>
</table>

4. Fill in the other fields, as appropriate.
5. Click Submit.

To view the widget, add it to a dashboard.

Create a relative compare visualization for a time series widget
Create a visualization that compares multiple indicators over time.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to 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.

<table>
<thead>
<tr>
<th>Option</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator group</td>
<td>If you select an indicator group, you cannot select a single indicator.</td>
</tr>
<tr>
<td>Indicator</td>
<td>If you select a single indicator, you must manually add additional indicators in the Widget Indicators related list.</td>
</tr>
</tbody>
</table>

6. Right-click the form header and select Save.
7. If you selected a single indicator, add additional indicators in the Widget Indicators related list.
   If you selected an indicator group, additional indicators are optional.
8. 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.
9. Fill in the other fields, as appropriate.
10. Click Update.

To view the widget, add it to a dashboard.

**Performance Analytics dashboards**

A dashboard is a canvas where you can display your reports and Performance Analytics widgets, and other ServiceNow elements.

Dashboards are the entry point for Performance Analytics users. A dashboard shows the most relevant indicators for specific users or groups. It is divided into tabs to logically group widgets that belong together. You can create separate dashboards according to topic, for example, for incident management, problem management, or request management.

A dashboard is available only to users who have the roles assigned to it.

Users with the pa_admin and pa_power_user can set up and edit dashboards.

Content on a dashboard can be organized with tabs and widgets.
Dashboard principles
A Performance Analytics dashboard shows the most relevant indicators for specific users or groups. This section contains the basic principles of navigating dashboards that are assigned to users with the pa role.

Table 14: Dashboards basic principles

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dashboards</td>
<td>Users with any pa role can have one or more dashboards assigned for viewing. Users with the pa_admin and pa_power_user role can set up and edit dashboards.</td>
</tr>
<tr>
<td>Tabs</td>
<td>Each dashboard may contain one or more dashboard tabs.</td>
</tr>
<tr>
<td>Rows</td>
<td>A tab can have multiple rows. For each row, you can specify the number of “placeholders” or columns. Each placeholder can hold a widget.</td>
</tr>
<tr>
<td>Widgets</td>
<td>Widgets contain information about one or multiple indicators.</td>
</tr>
</tbody>
</table>

Create a dashboard
Create a dashboard to show the most relevant indicators for specific users or groups.
Roles required: pa_admin or pa_power_user
Users must have the pa_viewer role to access dashboards.
You can create separate dashboards according to topic, for example, for incident management, problem management, or request management.

1. Navigate to Performance Analytics > Dashboards.
2. Click the lock icon in the top-right.
3. Click the plus icon in the top left.
4. Enter a Name that indicates what the dashboard shows. For example, Incidents Dashboard.
5. Enter an Order number to indicate the order the dashboard should appear on the dashboards choice list.
   Dashboards with lower numbers are listed before dashboards with higher numbers.
6. Select Active to make the dashboard available in the dashboards choice list.
7. Optional: Select No tabs to disable the tab header.
   Dashboards with the tab header disabled can display only one tab. You cannot add additional tabs to the dashboard if you select this option.
8. In the Visible to field, select one of the following options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone</td>
<td>Make the dashboard available to all users with the pa_viewer role.</td>
</tr>
<tr>
<td>Requires Roles</td>
<td>Select any roles that are required to access the dashboard, in addition to the pa_viewer role.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Users and Groups</td>
<td>Select specific users or groups that can access the dashboard. Users must have the pa_viewer role.</td>
</tr>
</tbody>
</table>

9. Optional: Select one or more breakdown sources in the **Breakdown Source** related list.
Breakdown dashboards have extra options in the dashboard header to select a breakdown and an element.

**Modify, delete, or copy a dashboard**
You can change dashboard properties while editing the dashboard.

Role required: pa_admin, pa_power_user, or admin

1. Click the lock icon at the top right to enter Edit mode.
2. Click the gear icon that appears and select one of the following options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify</td>
<td>Change the basic dashboard settings, as described in <em>Create a dashboard</em> on page 43.</td>
</tr>
<tr>
<td>Delete</td>
<td>Remove the dashboard entirely.</td>
</tr>
<tr>
<td>Duplicate</td>
<td>Create a copy of the dashboard, with the name <em>Copy of &lt;name&gt;</em>. The copy contains all tabs and their content. Widgets are not copied, only widget links are copied.</td>
</tr>
</tbody>
</table>

You can add, delete, rename, and change the layout of tabs in a copy without affecting the original dashboard. However, changing the configuration of a widget on the copied dashboard also affects the original dashboard, since they share the same widgets. Use the **Modify** option to change the name and update the look and contents of the dashboard copy.

**Create a dashboard tab**
By default a dashboard is created with a **Home** tab. You can create additional tabs for each dashboard to group information in a logical order.

Role required: pa_admin, pa_power_user, or admin

For example, the tabs **Daily Indicators**, **Weekly Indicators**, and **Home** could display the key indicators for incident management.

1. From a dashboard, click the unlock icon (🔒).
2. Click the plus (+) icon beside the existing tabs.
3. In the pop-up window, enter a name for the new tab.
4. Do one of the following

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter a name for the new tab and click Create tab.</td>
<td>Adds a new empty tab to the dashboard.</td>
</tr>
<tr>
<td>Select an existing tab from a different dashboard and click Link this tab</td>
<td>Adds the tab to the dashboard. This option allows you to share a tab across multiple dashboards.</td>
</tr>
</tbody>
</table>
### Option

<table>
<thead>
<tr>
<th>Select an existing homepage and click Link this homepage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adds the homepage to the dashboard. This option allows you to display a homepage within the dashboard.</td>
</tr>
</tbody>
</table>

To add or change content for the tab you just created, click the plus (+) icon at the top left of the tab area.

To change the appearance of the tab you just created, click **Change Layout**.

### Edit a dashboard tab

Edit a tab to rename, reorder, or delete the tab.

**Role required:** pa_admin, pa_power_user, or admin

1. Navigate to the dashboard that you want to edit.
2. In edit mode, click the down arrow beside the name of the active tab to access options for manipulating tabs.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rename</td>
<td>Change the name of the tab.</td>
</tr>
<tr>
<td>Delete this tab</td>
<td>Delete the tab completely. When deleting the tab, it is also removed from all other dashboards.</td>
</tr>
<tr>
<td>Set as homepage</td>
<td>Make this tab the homepage for the dashboard. When a user selects the dashboard, this tab appears as the first page. The homepage icon is added before the title of the tab.</td>
</tr>
<tr>
<td>Change tab order</td>
<td>Change the order of the tabs by giving them a number. The tab with the lowest number starts on the left and the tab with the highest number appears on the right.</td>
</tr>
</tbody>
</table>

### Add a widget to a dashboard

Display a widget to users by adding the widget to a dashboard.

The dashboard must be in edit mode. To enable edit mode, click the lock icon in the top-right of the dashboard.

**Role required:** pa_admin or pa_power_user

Click the plus (+) icon at the top of the tab area to add widgets. This functionality is similar to adding content to homepages. A pop-up window appears for choosing which content you want to add to the tab. This can be any content, not only content related to Performance Analytics.

1. Select **Performance Analytics** in the category list.
2. Select the type of content to use.
   - Breakdown
   - List
   - Score
   - Time Series
   - Relative Compare
3. Select an existing widget or select the option to create a new one.
4. Select the on the tab location by clicking the **Add here** button that indicates the desired location.
5. You can either add another widget or close the pop-up window. The tab you created is saved automatically.

*Change the layout of a dashboard tab*

You can change the layout of a tab the same way you change the layout of homepages.

1. In edit mode, click **Change Layout**.
2. In the pop-up window, select one of the available layouts.
   - 3 columns with 2 wide columns and a narrow right column.
   - narrow left column, large right column, with a header.
   - Minimalistic approach to the CMS layout.
   - 2 columns with wide right column, header and footer.
   - 3 columns of equal size only.
   - a single cell centered on screen.
3. Click **Change Layout** to apply the new layout to the tab.

*Breakdown dashboards*

The breakdown dashboard is a dynamic dashboard that allows users to preselect a breakdown element.

For example, a breakdown dashboard for the breakdown **Category** enables users to select a category from the list. After this selection the entire dashboard shows the data of indicators for that specific category, provided **Follow element** is selected for the widget that is used to render the chart or list in the **widget configuration**.
Convert a dashboard to a breakdown dashboard

You can turn an existing dashboard into a breakdown dashboard. Breakdown dashboards enable specific behavior and navigation.

Role required: pa_admin, pa_power_user, or admin

If you selected Follow element for a widget in the widget configuration, that widget can follow the breakdown by showing values for the indicators based on the selected breakdown instance. To change this setting while editing the dashboard, click the pencil at the top right of the widget. The Widget Configuration form appears and you can change the setting.

If you did not select Follow element for a widget, that widget shows information that is not related to a specific breakdown instance.

1. Navigate to Performance Analytics > Dashboards.
2. Open the desired dashboard and click Edit.
3. Click Properties and select Modify from the choice list.
4. Select Breakdown Source dashboard.
5. Select the desired Breakdown source. For example, Incident.Category.
6. Click Update.

Copy a dashboard URL

You can quickly generate a URL directly to a dashboard.

Role required: pa_viewer

1. Navigate to Performance Analytics > Dashboards
2. Select a dashboard.
3. Optional: Select a specific tab, breakdown, and breakdown element.
4. Click the Copy URL icon ( ).

Distribute the URL to share the dashboard.

Dashboard URL format

You can link to a Performance Analytics dashboard from within ServiceNow.

All URLs to Performance Analytics dashboards follow this format: https://<instance>.service-now.com/$pa_dashboard.do?.

This base URL is followed by several query parameters.

Table 15: URL parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dashboard=&lt;sys_id&gt;</td>
<td>The sys_id of the dashboard to display.</td>
</tr>
<tr>
<td>tab=&lt;sys_id&gt;</td>
<td>The sys_id of the dashboard tab to display. If you do not specify a tab, the default tab is displayed.</td>
</tr>
<tr>
<td>breakdown_source=&lt;sys_id&gt;</td>
<td>The sys_id of the dashboard breakdown to display.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>element=&lt;value&gt;</td>
<td>The dashboard breakdown element to select. This value may be the sys_id of a referenced record, or the database value for a choice list choice.</td>
</tr>
<tr>
<td>embedded=&lt;true/false&gt;</td>
<td>Controls if the dashboard header appears. When true, all choice lists and buttons are hidden. On dashboards with a breakdown, only the breakdown element choice list appears.</td>
</tr>
<tr>
<td>header=&lt;true/false&gt;</td>
<td>Controls if the dashboard header appears. This value overrides the embedded parameter.</td>
</tr>
<tr>
<td>tabs=&lt;true/false&gt;</td>
<td>Controls if the dashboard tabs bar appears.</td>
</tr>
</tbody>
</table>

When linking to ServiceNow from an outside source, such as a text document or presentation, use nav_to.do instead.

**Export a homepage or dashboard to PDF**

You can generate a PDF file for any homepage or Performance Analytics dashboard.

Roles required: pa_viewer

The Webkit HTML to PDF plugin must be activated before you can export homepages or dashboards to PDF.

1. Navigate to a homepage or a Performance Analytics dashboard.
2. Click the export to PDF icon ( ) on a homepage or the Export to PDF button on a dashboard.
3. In the Export to PDF dialog box, select formatting options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>Select page orientation of the exported PDF, portrait or landscape.</td>
</tr>
<tr>
<td>Paper size</td>
<td>Select the paper size for the PDF. Available sizes match common paper sizes such as Letter and A4.</td>
</tr>
<tr>
<td>Zoom factor</td>
<td>Set the percentage for scaling the displayed widgets. This value must be a positive number.</td>
</tr>
<tr>
<td>Avoid page break inside widget</td>
<td>Select the check box to prevent widgets from being printed across multiple pages. Widgets that would span multiple pages are moved to the top of the following page.</td>
</tr>
<tr>
<td>Smart shrink</td>
<td>Select the check box to automatically use the zoom factor necessary for all content to fit in the width of the selected paper size.</td>
</tr>
</tbody>
</table>

**Note:** This option may cause incorrect page formatting when used with Avoid page break inside widget or a zoom factor greater than 100.
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery</td>
<td>Select a delivery method.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Generate now</strong> generates the PDF immediately and displays a button for downloading.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Send as an email</strong> displays an additional field for entering an email address. After you click <strong>Export</strong> the PDF file is generated and sent to the email address.</td>
</tr>
</tbody>
</table>

4. Click **Export**.
5. If you selected the **Generate now** option, wait for the rendering to complete and click **Download**.

*Activate WebKit HTML To PDF*
You must activate the WebKit HTML To PDF plugin before users can export homepages and dashboards as PDF documents. Activating this plugin also activates the OAuth 2.0 plugin if it is not already active.

Role required: admin
1. Navigate to **System Definition > Plugins**.
2. Right-click the plugin name on the list and select **Activate/Upgrade**.
   If the plugin depends on other plugins, these plugins are listed along with their activation status.
3. Optional: If available, select the **Load demo data** check box.
   Some plugins include demo data—sample records that are designed to illustrate plugin features for common use cases. Loading demo data is a good policy when you first activate the plugin on a development or test instance. You can load demo data after the plugin is activated by repeating this process and selecting the check box.
4. Click **Activate**.

*Move a dashboard with an update set*
Dashboard tabs are not automatically transferred in update sets. You must manually add the tab content to the update set and associate that content with a new tab on the target instance.

Role required: admin
1. Navigate to **Performance Analytics > Dashboards**.
2. Inspect the HTML element for one of the dashboard tabs.
3. Find the element containing `sysparm_view=pa_`.
   Record the value following `sysparm_view=`, such as `pa_incident_overview`. This is the **View** of the dashboard portal page record.
4. Navigate to **Homepage Admin > Pages**.
5. Find the portal page record with the **View** value you previously recorded.
6. Right-click the record and select **Unload Portal Page**.
   The page is added to the current update set.
7. Move the update set to another instance using standard update set functionality.
8. In the target instance, navigate to **Performance Analytics > Dashboards**.
9. Select the dashboard you want to add the tab to.
10. Add a new tab to the dashboard.
11. Enter **pa_dashboards.list** in the navigation filter.
12. Select the dashboard that you added the tab to.
13. In the Dashboard Tabs related list, select the new tab.

**Note:** You may need to configure the form to add the Dashboard Tabs->Dashboard related list.

14. Open the Tab record.
15. Change the Page value to the portal page that you moved in the update set.
16. Save the tab record.

### Control access to a dashboard

You can control which users, groups, or user roles can access a dashboard.

Role required: pa_admin

If users can access a dashboard, they can see all widgets on that dashboard.

1. Navigate to Performance Analytics > Dashboards.
2. Select the dashboard you want to give access to.
3. Click Edit.
4. Click the properties icon ( ).
5. Select Modify.
6. Limit access using one of these options:
   - To limit access to users with certain roles, select the roles in Requires Roles field.
   - To limit access to certain users and groups, select Users and Groups in the Visible to choice list and specify which users and groups have access.

### Forecasting Performance Analytics data

Performance Analytics allows you to forecast future data based on existing trends.

You can forecast data on Performance Analytics time series widgets and detailed scorecards. Forecast data appears as a dotted line following the trend line.

To enable forecasting for a time series widget, select the Show forecast check box in the Display Settings section of the Widgets form.

To enable forecasting on a detailed scorecard, click the chart settings icon ( ) and enable the Forecast option.

The number of data points included in the forecast depends on the indicator score frequency.

**Note:** The score frequency is based on the selected aggregation. For example, the 7d running SUM aggregation is a daily frequency, whereas the By week SUM aggregation is a weekly frequency. The score frequency may vary from the indicator Frequency field value.
Table 16: Forecast points

<table>
<thead>
<tr>
<th>Score frequency</th>
<th>Number of forecast points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>28</td>
</tr>
<tr>
<td>Weekly</td>
<td>4</td>
</tr>
<tr>
<td>Monthly, Quarterly, and Fiscal Quarterly</td>
<td>3</td>
</tr>
<tr>
<td>Biweekly, Bimonthly, and Half Yearly</td>
<td>2</td>
</tr>
<tr>
<td>Yearly and Fiscal Yearly</td>
<td>1</td>
</tr>
</tbody>
</table>

Performance Analytics data architecture

Define key metrics and data structure to generate scores.

Performance Analytics indicators

Indicators are statistics that businesses track to measure current conditions and to forecast business trends. They provide you with key information on how your business is doing.

You can present them in scorecards and in user-friendly dashboards. Before creating indicators, you need to define the sources from which the data is retrieved. Users with the pa_admin, pa_power_user and pa_data_collector roles can set up and edit indicators.

Setting up indicators

Indicators are at the heart of Performance Analytics. They provide you with the key information on how your business is doing. You can present them in your scorecards and in user-friendly dashboards. Before you can create indicators, you need to define the sources from which the data is retrieved.

Users with the pa_admin, pa_power_user and pa_data_collector roles can set up and edit indicators.

Indicator sources

Indicator sources are based on a facts table (for example, Incident [incident]) and the conditions to gather data for indicators. One indicator source can be shared by multiple indicators (1:n relationship).

If you want to use the indicator source to create a snapshot of the situation on a certain date, the conditions should include a date related filter, so you can schedule a historic data collection for it. Choose your indicator sources carefully. Since an indicator is linked to an indicator source, it is not easy to change the indicator source after you created it.

Note: Indicator sources must be created before an indicator can be created. Also, in the indicator definition an aggregation needs to be applied (count, sum, average, max, min) to the record set of the indicator source and, if needed, additional conditions.

Create indicator source by incident state

To create indicators based on the states of incidents, use the following indicator sources: Incidents.New, Incidents.Open, and Incidents.Resolved. You can also define an incident dashboard with tabs grouping the incidents by state, and adding the appropriate indicators to this dashboard.

Define an indicator source
An indicator source is a source record that identifies a table or view of interest and a set of conditions for which to gather data.

Role required: pa_data_collector or admin

1. Navigate to Performance Analytics > Data Collector > Indicator Sources.
2. Click New.
3. Enter a name by which you can easily see what the indicator source is used for. For example, Incidents.Open.
4. Optional: Enter a more detailed description. For example, Daily collection open incidents.
5. In the Valid for Frequency field, select the interval at which the data for the indicator source must be collected, such as Daily, Weekly, or Bi-weekly.
6. Select the Facts table that the indicator source is based on. For example, Incident [incident].
7. Add Conditions that must be fulfilled before data is included in the subset. For example, [Active] [is] [true] or [Created] [at or before] [date]. Date fields are often used in conditions for time stamping. Any records that match the conditions are shown immediately.

   Conditions should contain high level criteria here because this is meant to extract a large record set. Use the indicator advanced filters to go deeper into the data.
8. Click Submit.
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]

Consider job collection parameters that include these settings:

- **Operator:** Relative
• **Relative start**: 60
• **Relative start interval**: days ago

In this case, the job collects scores up to 60 days from today’s date, even though the indicator source is set to Today.

*Use a database view*

Database views allow you to combine data from tables in your ServiceNow instance that are not connected by default.

By combining these tables in a database view, you can easily access them by calling up the view, and then 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.

To create database views, navigate to **System Definition > Database Views**.

If you select a database view as the facts table for an indicator source, you must provide additional configuration in the Additional conditions section of the Indicator Source form. The choice lists present the available views for the joined tables.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Table</td>
<td>Select the table to collect records from, for example, incident.</td>
</tr>
<tr>
<td>List View</td>
<td>Select the list view used to display collected record sets. Default view is suggested, but you can select any defined view, such as Self Service or Mobile.</td>
</tr>
</tbody>
</table>

*Create an automated indicator*

Automated indicators are used to automatically collect scores on a regular basis.

Role required: pa_admin, pa_power_user, and pa_data_collector

Each indicator is linked to an indicator source. You can define several properties—such as, frequency, direction, and a default time series—to influence the way the data is processed. You can define extra properties in the Source section, such as aggregates or a script that needs to be executed. The Additional Conditions section enables you to define extra conditions that must be met for the data collected.

**Note:** You can add indicator groups for the indicator by entering them in the bar below the indicator title. You can assign more than one indicator group one indicator and remove them by clicking the delete (x) icon. Use indicator groups to search for indicators that belong together when creating a widget.

To create an automated indicator:

1. Navigate to **Performance Analytics > Indicators > Automated Indicators**.
2. Fill in the fields, as appropriate.

*Table 17: Automated indicator*

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Descriptive name of the indicator.</td>
</tr>
<tr>
<td>Description</td>
<td>A more detailed description of what the indicator does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>The frequency used for displaying this indicator on scorecards and widgets, such as <strong>Daily, Weekly, Bi-weekly, 4-Weeks, Monthly</strong>. The frequency of the indicators are independent from the job frequency. For example, you could set an indicator’s display frequency as monthly, while the job collection runs daily. This ensures that when the indicator is shown, it displays recent data. However, when creating a new indicator, you must select indicator sources that match the frequency of the indicator.</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td>When an improvement of the indicator value is taking place. Possible values are <strong>Minimize</strong> (the lower the value the better) or <strong>Maximize</strong> (the higher the value, the better).</td>
</tr>
<tr>
<td><strong>Unit</strong></td>
<td>The unit of measurement for the indicator.</td>
</tr>
<tr>
<td><strong>Precision</strong></td>
<td>Number of digits behind the decimal separator (0 = none).</td>
</tr>
<tr>
<td><strong>Key</strong></td>
<td>Check box to indicate if the indicator is a key metric for the process being monitored. Can be used to filter key indicators when selecting scorecards to be displayed at <strong>Performance Analytics &gt; Scorecards</strong>.</td>
</tr>
</tbody>
</table>

**Source tab fields**

<table>
<thead>
<tr>
<th><strong>Indicator source</strong></th>
<th>The basic source for calculating the indicator. You can select only indicator sources for which the <strong>Valid for Frequency</strong> value for the indicator source is the same as the <strong>Frequency</strong> for the indicator.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collect records</strong></td>
<td>Check box to indicate if the individual records (<strong>sys_ids</strong>) are stored when the indicator is collected. Selecting this check box enables you to drill down to those details in the scorecard and widgets.</td>
</tr>
<tr>
<td><strong>Aggregate</strong></td>
<td>The aggregate function to apply when calculating the indicator on the indicator source. Possible values are <strong>Count, Sum, Average, Minimum, Maximum, or Count distinct</strong>. Count distinct counts the number of unique records rather than the total number of records. So, for example, if the name of a user appears more than once in a list, the user is only counted once.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Scripted</td>
<td>A check box to indicate if the value should be aggregated based on a script. This option is available only if <strong>Aggregate</strong> is set to <strong>Sum</strong>, <strong>Average</strong>, <strong>Minimum</strong>, <strong>Maximum</strong>, or <strong>Count Distinct</strong>. Clear the <strong>Scripted</strong> check box to aggregate the value by a field.</td>
</tr>
<tr>
<td>Field</td>
<td>The field to perform the aggregate operation on. This field appears only if <strong>Aggregate</strong> is not <strong>Count</strong>, and <strong>Scripted</strong> is not selected.</td>
</tr>
<tr>
<td>Script</td>
<td>Select a script or create a new script for the aggregation. This option is available only if the <strong>Scripted</strong> check box is selected. A script is used to add information to a record set that is not stored in the table. This additional, virtual attribute can be used in an indicator to base an aggregation on, or as an attribute to classify scores per bucket. The elements of the breakdown source are not stored in a column in the facts table. The script will add a virtual column and adds an element value to each record. Several sample scripts are available, for example <strong>Incident.Age.Days</strong>. This is a script that determines the age of open incidents by comparing the creation date with the current date. You can adjust the sample script to your needs or define your own script.</td>
</tr>
<tr>
<td>Value when nil</td>
<td>The value that is inserted as the score when no value is collected. <strong>Note:</strong> This value applies only to the indicator score. It does not impact scores for breakdown elements.</td>
</tr>
<tr>
<td>View table</td>
<td>The view to use to filter fields included in the data. If you do not select a view, the default view is used. This field appears only if <strong>Collect records</strong> is selected.</td>
</tr>
<tr>
<td>Additional conditions tab fields</td>
<td></td>
</tr>
<tr>
<td>Facts table</td>
<td>Table for the indicator. This field automatically displays the table associated with the selected <strong>Indicator source</strong>.</td>
</tr>
</tbody>
</table>
### Field

<table>
<thead>
<tr>
<th>Conditions</th>
</tr>
</thead>
</table>
| [Optional] Additional conditions can be added to the conditions in the selected **Indicator source**. Having conditions available at both the indicator source level and the automated indicator level enables you to create extra selections for the indicator data collected. Query conditions on text fields are case-sensitive.  
For example, to view the number of open incidents not reassigned, based on the reassignment count, you could use the indicator source **Incident.Open**. However, to get the number of open incidents not reassigned, you must add these conditions in the Indicator form:  
- [Reassignment count] [is] [0]  
- [Reassignment count] [is] [empty] |

#### Access control tab fields

<table>
<thead>
<tr>
<th>Publish on Scorecards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check box to indicate if the indicator can be used for display. Clear this check box to use the indicator only for formula indicators, for example. When this check box is cleared, the indicator is not shown on the scorecard, but is shown in the widget configurations and on the dashboards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visible by all roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check box to indicate if the indicator is visible to all roles. If this check box is cleared, you can select the roles for which the indicator is visible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>The roles that are required to view this indicator. This field appears only when <strong>Visible by all roles</strong> is not selected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other tab fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>A predefined analytical function, like a 7-days running average, to display the indicator instead of showing the actual values of the indicator.</td>
</tr>
<tr>
<td>Field</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>Live group profile</td>
</tr>
<tr>
<td>Order</td>
</tr>
<tr>
<td>Default chart type</td>
</tr>
<tr>
<td>Render continous lines</td>
</tr>
<tr>
<td>Show real-time score</td>
</tr>
<tr>
<td>Show delta</td>
</tr>
<tr>
<td>Managed source fields</td>
</tr>
<tr>
<td>Managing indicator</td>
</tr>
<tr>
<td>Field</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Collect breakdown matrix</td>
</tr>
</tbody>
</table>

3. Click **Submit**.
Add or remove breakdowns in an automated indicator
Add an existing breakdown to an automated indicator.
Role required: pa_admin, pa_power_user, or admin

1. Open an existing automated indicator.
2. In the **Breakdowns** related list, click **Edit**.
3. Optional: Use **Add Filter** and **Run Filter** to limit the selection of breakdowns.
4. Select one or more breakdowns in the **Collections** or **Breakdowns List**.
5. Use the arrow buttons to move the breakdowns to the other list.
6. Click **Save**.

Exclude a breakdown from the breakdown matrix

Exclude certain combinations of breakdowns by defining a breakdown exclusion matrix.

Role required: pa_admin, pa_power_user, or admin

Sometimes, not all breakdown combinations (including second level breakdowns) give useful information. For example, the combination [Country, Region] will give the same scores as the breakdown Country. You can eliminate these combinations in a list with breakdown matrix exclusions. These exclusions are not shown in the detailed scorecard or in the scoresheet and cannot be selected when creating widgets.

1. Open an existing automated indicator.
2. In the **Breakdown matrix exclusion** related list, click **New**.
3. In the **Breakdown** field, select the breakdown you want to exclude.
4. In the **2nd Breakdown** field, select the second-level breakdown you want to exclude. Both fields are mandatory.
5. Click **Submit**.

Edit a job for the indicator

Add a data collection job to an indicator to collect scores for that indicator.

Role required: pa_admin, pa_power_user, or admin

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**.
5. Use the arrow buttons to move the jobs to the other list.
6. Click **Save**.

Create a manual indicator

Manual indicators are created in the same way as automated indicators. However, manual indicators are not associated with an indicator source.

Role required: pa_admin, pa_power_user, or admin
This means manual indicators are not generated automatically by a data collection job. Instead, you must populate these indicators by adding scores manually or by importing data. Manual indicators are typically used for data that cannot be retrieved from the ServiceNow instance because it comes from an outside system. For example, customer data from a third-party sales system.

• To create a manual indicator, navigate to Performance Analytics > Indicators > Manual Indicators.

  You can assign data contributors for each manual indicator. A data contributor can be a single person or a group. Users with the pa_admin, pa_power_user or pa_contributor role can view the scoresheet entry menu and select the indicators they are allowed to provide and add manual data to.

  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, this also affects the scoresheet, so it determines whether you can enter daily or monthly values.

Create a formula indicator

Use formulas to create a new indicator based on the historic data of other indicators or based on analytical functions.

Role required: pa_admin, pa_power_user, or admin

Formulas are often used to:

• Calculate ratios and percentages
• Combine data from different applications
• Build predictive indicators based on historic performance

1. Navigate to Performance Analytics > Indicators > Formula Indicators.

   The fields of a formula indicator are similar to an automated indicator except for the condition. Formulas can consist of other indicators, constants, and time series, or any combination of these.

2. In the Formula section of the Indicators form, click the Browse for an indicator link.

3. Select an Indicator to display.

4. Optional: Select a Breakdown and breakdown Element to filter the indicator data.

   You can select an additional breakdown and breakdown element to further filter the data.

5. Optional: Select a Time series to use when aggregating the data.

6. Click Select.

   The Formula field is automatically populated based on your selections.

7. Modify the Formula as needed. Enter any operators or numbers to include in the formula. Use valid operator symbols, such as +, -, /, %, >, <.

   For example, if you want to calculate the average age of open incidents based on summed age of open incidents and number of open incidents, you could use this formula: 

   \[
   \text{[[Summed age of open incidents]]} / \text{[[Open incidents]]} / 24
   \]

   Formulas support multi-level breakdowns. For indicators that have Collect breakdown matrix enabled, it is possible to drill down to the second level in the detailed scorecard on the Breakdowns tab. For example, Closed incidents by Category, and then by Priority, or vice versa.

Rounding in formula indicators

Formula indicators round fractional results using Banker's rounding or mathematical rounding depending on the indicator Precision.

When a formula indicator has a Precision of 0, the indicator rounds the result to the nearest even, whole number. For example, if a formula 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 a formula indicator has a **Precision** greater than 0, the indicator rounds to the nearest decimal point for the given precision. For example, a formula indicator with **Precision** 1 rounds a result of 4.45 to 4.5.

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:** Rounding applies only to the formula result. Values within the formula are not rounded.

*Edit an indicator from a scorecard*

You can access and edit the indicator for a scorecard from that scorecard.

Role required: pa_admin or pa_power_user

To edit an indicator from a scorecard, click the context menu icon ( ) and select **Edit Indicator**.

**Indicator Groups**

Use indicator groups to filter or group indicators in Performance Analytics. Indicator groups are used to quickly search for indicators.

You can use indicator groups to filter or group indicators in Performance Analytics, enabling you to quickly search for indicators. For example, group all KPIs related to new incidents in the **incidents new** indicator group.

You can use indicator groups when you create new widgets, enabling authorized users to browse the indicators by indicator group then viewing all indicators in that indicator group.

*Create an indicator group*

Create an indicator group to organize indicators.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to **Performance Analytics > Indicators > Indicator Groups**.
2. Click **New**.
3. Enter a **Label** for the indicator group.
4. Click **Submit**.

*Add an existing indicator to an indicator group*

Add indicators to an indicator group.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to **Performance Analytics > Indicator Groups**.
2. Open an indicator group record.
3. Click **Edit** in the Indicators related list.
   - If you have many indicators, use a filter to limit the number of indicators.
4. Select one or more indicators using the slushbucket.
5. Click the right arrow to add the indicators to the indicators list.
6. Click **Save**.

*Delete an indicator group*

Delete an indicator group from the entire instance.

Role required: pa_admin, pa_power_user, or admin
Deleting an indicator group from the instance automatically removes the group from all indicator records.

1. Navigate to Performance Analytics > Indicators > Indicator Groups.
2. Select the check box for one or more indicator groups to be deleted.
3. From the Actions choice list, select Delete.

Remove an indicator group from an indicator
You can remove indicator groups from individual indicators.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to Performance Analytics > Indicators and open one of these modules: Automated, Manual, or Formula Indicators.
2. Open an indicator.
   The following screen appears.

3. Click the delete icon (X) beside the indicator group.

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.

Roles required: pa_admin or pa_data_collector

1. Navigate to Performance Analytics > System > Units.
2. Click New.
3. Enter the Name of the unit.
   For example, Gallon.
4. Specify the way the unit must be formatted.
   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.

Create an indicator and related records
You can quickly create a Performance Analytics indicator and breakdowns, widgets, and data collection jobs for that indicator.

Role required: pa_contributor, pa_data_collector, pa_power_user, or pa_admin

Ensure there is at least one indicator source and a data collection job for the indicator source facts table.

1. Navigate to Performance Analytics > Indicators > Create New.
2. Enter an Indicator name.
3. Optional: Specify any other descriptive values for the indicator, such as the **Direction** of the chart, the **Unit** of measurement for numerical values, or the indicator **Group**.

4. Click **Next**.

5. Select an **Indicator source**.

6. Select an **Aggregate**, such as **Count** or **Average**.
   If you select an aggregate other than **Count**, you must specify a **Field** or **Script** to use when performing aggregate calculations. You can perform aggregate operations using fields from the indicator source facts table.

7. Optional: Select any additional filtering conditions to filter the indicator data. This filter is applied in addition to any filter defined on the indicator source record.

8. Click **Next**.

9. Select the breakdowns you want to apply to this indicator. Clear the check box for any breakdowns you do not want to apply.

10. Click **Next**.

11. Optional: Select the data collection **Job** you want to use to populate the indicator data.
    Indicator data is populated only by data collection jobs. If an indicator has no associated collection job, the indicator will not contain any data.

12. Optional: Select **Collect data from the past** and a date range to collect historical data.
    If you choose to collect historical data, a new collection job is created and run once to populate the historical data.

13. Click **Next**.

14. Optional: Select any widgets you want to create to display the indicator data.
    You can specify widget values such as the **Time Series** or add the widget to a dashboard tab.

15. Click **Finish**.
    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.

16. Optional: Click **Create another indicator** to restart the process with a new indicator.

If the data collection job is configured to collect historical data, a temporary data collection job with a **Run value of** **Once** is created. You can delete this job record after the job runs.

*Indicator creation widget options*
There are several options for creating widgets to display the indicator data when creating an indicator and related records.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time series widget</td>
<td>Select this check box to create a time series widget to display the indicator data.</td>
</tr>
<tr>
<td>Time series</td>
<td>Select the time series to use when determining what data to display.</td>
</tr>
<tr>
<td>Visualization</td>
<td>Select the chart type to use to display the data, such as <strong>Line</strong> or <strong>Column</strong>.</td>
</tr>
<tr>
<td>Put the widgets on a new tab on dashboard</td>
<td>Select a dashboard you want to add this widget to. If you do not select a dashboard, a widget record is created but is not added to any dashboard.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>New tab name</td>
<td>Enter a name for the new tab created to display this widget. This field is required if you select a dashboard.</td>
</tr>
<tr>
<td>Latest score widget</td>
<td>Select this checkbox to create a score widget with a <strong>Visualization</strong> value of <strong>Latest Score</strong> to display the indicator data.</td>
</tr>
<tr>
<td>Time series</td>
<td>Select the time series to use when determining the score.</td>
</tr>
<tr>
<td>Periods back</td>
<td>Select the number of periods to compare the score with. For example, if the <strong>Time series</strong> is <strong>By week SUM</strong>, enter a <strong>Periods back</strong> value of 4</td>
</tr>
<tr>
<td>Breakdown widgets</td>
<td>Select this check box to create a breakdown scorecard widget for each breakdown applied to this indicator.</td>
</tr>
</tbody>
</table>

**Excluding time series from indicators**

You can exclude specific time series from an indicator.

You can exclude time series on automated, formula, and manual indicators. Excluded time series are not selectable, such as from scorecards. 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.

**Control access to an indicator**

As a user with the pa_admin role, you can control access to specific indicators.

Access to an indicator is regulated in the indicator record.

1. Navigate to 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**.

**Importing scores from Excel or CSV**

Use import sets to import scores data using Excel or CSV files.

To import score data for an indicator from an Excel or CSV file that exactly matches the columns of the table, including sys_ids for each row, use Easy Import.

If the file does not include sys_ids for each row, use import sets.

To use import sets for Performance Analytics, take these points into account.

- Transform Map: select the **Run Business Rules** check box to ensure that all the defined rules are applied when inserting scores.
• **Field Maps:**
  - Set **Choice action** to **Reject** for the target fields **Indicator** and **Breakdown** to ensure that no unknown values are inserted into the table.
  - Set the **Referenced value** field name to **Name** for the target fields **Indicator** and **Breakdown** if you do not have the sys_ids.
  - For the target field **Start**, make sure the corresponding date format is specified in **Date Format**. If you are using a Microsoft Excel spreadsheet, make sure that the column is formatted as **Date**.
  - If you do not have the sys_id for a breakdown score, specify a script for the target field **Element** to get the sys_id into the target field.

See *Import sets*.

### Export scores to CSV

You can export data from a detailed scorecard.

**Role required:** pa_admin

1. Navigate to a scorecard.
2. Click the context menu icon at the top left before the indicator title.
3. Select **Export scores to CSV**.
4. Click **Download**.

### Create a Performance Analytics target

Targets are goals your organization wants to achieve. Targets can be set for indicators, breakdowns, and time series.

**Role required:** the pa_admin, pa_power_user, or admin

Targets can be shown in charts and scorecard widgets to visualize the difference from the actual value of the indicator.

Combining targets with time series can provide useful information. The sum of indicator scores over a period of 28 days, for example, can provide a clearer view on the direction the indicator is moving—closer to the target or further away from it—than the same data for a specific day.

1. Navigate to **Performance Analytics > Indicators > Targets**.
2. Click **New**.
3. Select the **Indicator** you want to set the target for.
4. Optional: Select a **Breakdown**.
   This enables you, for example, to set targets per region or assignment group. When selecting a breakdown, you can set a target for one of its breakdown elements. To set the same target for all breakdown elements, select a breakdown element and select **Any element**.
5. Optional: Select a **Time series**.
   An example of how you can use targets for time series is to measure closed incidents daily and to have monthly targets for closed incidents.
6. Optional: Select a **Color scheme**.
   You can use one of the default color schemes or create your own from the color schemes lookup list.
7. Select the **Active** check box to activate the target.
   This check box is selected by default.
8. Click **Submit**.
Create a target color scheme

A target color scheme can be used to visualize the position of the indicator score relative to its target.

Role required: the pa_admin, pa_power_user, or admin

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 created in Performance Analytics by default: the 3-color traffic light and the 5-color traffic light.

1. Navigate to Performance Analytics > System > Target Color Schemes.
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.
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.
Set target values

After submitting the target, you can set the target values.
Role required: the pa_admin, pa_power_user, or admin

1. Click the information icon (i) beside the indicator name in the Targets list.

2. Click New.

3. Select a start date from the Target at calendar.

   A target value is used from the specified start date until the start date for another target value. For example, to set a target per quarter in a year, add four target values, each starting on the first day of the quarter.

4. Enter the target Value.

5. Click Submit.

   The new target appears in the Target values related list on the Target form.

Create a Performance Analytics threshold

Thresholds are used to implement exception reporting for indicators, breakdowns, and time series.

Role required: pa_admin, pa_power_user, or admin

You can set boundaries that define normal behavior so you get a warning when something abnormal occurs. Thresholds can be set for any indicator in combination with a time series and/or elements of a breakdown. After a threshold is activated, the system generates a message and posts it to email. This message is associated to the indicator and the message is directly available via the detailed scorecard.

1. Navigate to Performance Analytics > Indicators > Thresholds.

2. Click New.

3. Select the Indicator you want to set the threshold for.

4. Optional: Select a Breakdown.

   Use this if the threshold should apply to a specific breakdown. For example, when the number of Priority 1 incidents rises above a predefined value. First select the breakdown, then select the element you want to apply the threshold to. To set the same threshold for all breakdown elements, leave the element field blank.

5. [Optional] Select a Time Series.

   Use this, for example, if you want to get a warning when the sum of Priority 1 incidents in a specific time period rises above a predefined value.

6. Define a condition.

   A condition can be more than a specific value, less than a specific value, an all time high, or an all time low.

7. Enter a Value if the condition is More than or Less than.

   When the threshold is met, an email message is generated.

8. Optional: Select the Create score notes check box if you want the message to be added as a note for the score.

9. Select the Active check box to activate the threshold.
10. Click **Submit**.

**Add threshold user notifications**

Configure which users should receive an email when the threshold is reached.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to **Performance Analytics > Indicators > Thresholds**.
2. Open a threshold.
3. In the **Users** related list, click **Edit**.
4. In the Edit Members screen, use the slushbucket to add members.
5. Click **Save**.

Besides the notifications for each indicator, you can also send notifications with an overview of all indicators for which the threshold is reached.

**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.

Role required: admin

The comment is displayed when you open the detailed scorecard for the indicator. Configure the threshold comment to display different text.

1. Navigate to **System Policy > Events > Script Actions**.
2. Open **PA threshold reached comment**.
3. Modify the **buildMessage** function within the script.
4. Click **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.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to **System Policy > Email > Notifications**.
2. Select **PA Thresholds Notification**.
3. 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. Click **Update**.

**Performance Analytics breakdowns**

Breakdowns, also known as dimensions, show KPIs on a more detailed level. A breakdown can reflect the way a company or department is structured or being measured.

Breakdowns are available to navigate on scorecards and dashboards. Breakdowns can also be based on **bucket groups**, which are custom groups for categorizing data. For example, a breakdown could divide incidents by priority or by assignment group, or divide a geographical area by country or region.

Users with the pa_admin and pa_power_user roles can create, edit and delete breakdowns.
Define a breakdown source

A breakdown source defines what elements the breakdown should contain.

Breakdown sources are based on a facts table that provides breakdown elements, which are the individual components of the breakdown. For example, a breakdown source might be a choice list or a number of conditions to further optimize the element list. A breakdown source can be shared by multiple indicators.

1. Navigate to Performance Analytics > Data Collector > Breakdown Sources.
2. Click New.
3. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Descriptive name of the breakdown source. For example, Incidents by Category.</td>
</tr>
<tr>
<td>Description</td>
<td>A more detailed description of what the breakdown source does and its purpose.</td>
</tr>
<tr>
<td>Security type</td>
<td>Whether to exclude (Blacklist) or include (WhiteList) breakdown source elements by role based on element security lists.</td>
</tr>
<tr>
<td>Facts table</td>
<td>The facts table the breakdown source is based on. For example, if it is based on a choice list, select Choice [sys_choice].</td>
</tr>
<tr>
<td>Field</td>
<td>Select a field for the facts table. Usually the Sys ID.</td>
</tr>
<tr>
<td>Conditions</td>
<td>Conditions for optimizing the element list. For example:</td>
</tr>
<tr>
<td></td>
<td>[Table] [is] [Incident] and</td>
</tr>
<tr>
<td></td>
<td>[Element] [is] [Category] and</td>
</tr>
<tr>
<td></td>
<td>[Language] [is] [en] and</td>
</tr>
<tr>
<td></td>
<td>[Inactive] [is] [false] or</td>
</tr>
<tr>
<td></td>
<td>[Inactive] [is] [empty]</td>
</tr>
<tr>
<td>Label for unmatched</td>
<td>The label to use if an empty value is detected during data collection. The default label is Unmatched.</td>
</tr>
</tbody>
</table>

4. Click Submit.

Any records that match the conditions are shown immediately after you submit the form. If you click a matching record, the result should look like this:
Example of a breakdown source:
Define an elements security list

An elements security list prevents unauthorized access to breakdown elements.

1. Open an existing breakdown source record.
2. In the Elements Security List related list, click New.
3. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Descriptive name of the elements security list.</td>
</tr>
<tr>
<td>Description</td>
<td>A more detailed description of what the elements security list does and its purpose.</td>
</tr>
<tr>
<td>Active</td>
<td>Check box for making the elements security list active (selected) or inactive (cleared).</td>
</tr>
<tr>
<td>All roles</td>
<td>Check box for indicating whether the list applies to all roles (selected). 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.</td>
</tr>
<tr>
<td>Security type</td>
<td>[Read-Only] Security type selected for the associated breakdown source.</td>
</tr>
<tr>
<td>Dimension</td>
<td>[Read-Only] Dimension selected for the associated breakdown source.</td>
</tr>
<tr>
<td>Facts table</td>
<td>[Read-Only] Facts table selected for the associated breakdown source.</td>
</tr>
<tr>
<td>Select elements</td>
<td>Check box for including individual elements in this security list (selected). If this option is cleared, use Conditions to define which elements should be included.</td>
</tr>
<tr>
<td>All elements</td>
<td>Check box for including all elements in the security list (selected). Clear the check box to include individual elements in this security list.</td>
</tr>
</tbody>
</table>
### Show blank option

Controls if users can select a blank breakdown element from the breakdown dashboard element selector. The following conditions affect if a user can select the blank option:

- A user with the admin role can always select the blank option.
- If no blacklist element security lists match the current user's roles, the blank option is available.
- If no whitelist element security lists match the current user's roles, the blank option is not available.
- If a blacklist element security list matches the current user's roles, and **Show blank option** is selected, the blank option is not available.
- If a whitelist element security list matches the current user's roles, and **Show blank option** is selected, the blank option is available.
- If a blacklist element security list matches the current user's roles, and **Show blank option** is not selected, the blank option is available.
- If a whitelist element security list matches the current user's roles, and **Show blank option** is not selected, the blank option is not available.

### Conditions

The conditions that must be met before the security list is applied. For example, `[Category] [is] [Software]`. Conditions are applied on top of the breakdown source conditions. This field is available only if Select elements is not selected.

4. Click **Submit**.

### Create a breakdown for indicators

After creating breakdown sources, create breakdowns to connect them to indicators.

Role required: pa_admin, pa_power_user, or admin

1. Navigate to **Performance Analytics > Indicators > Breakdowns**.
2. Click **New**.
3. Select a type.
   - **Manual** lets you add manual values for a breakdown.
   - **Automated** populates the values for the breakdown from a breakdown source.
4. Enter a **Name** for the breakdown.
5. Enter a **Description** of the breakdown.
6. In the **Access control** section, clear the **Display** check box to disable the display of the breakdown on scorecards and dashboards. Select this check box to enable this display.

Different configuration fields become available depending on the **Type** selected.
Assign an indicator to a breakdown on page 77.

**Breakdown mappings**

Breakdown mappings allow you to define relationships between the indicator source table and the breakdown source table. This behavior allows you to use one breakdown for multiple indicator source tables.

For example, you can map the sys_id from Group [sys_user_group] records in the Group.Active breakdown source with Incident record Assignment group values. You can use the same breakdown to create additional relationships between the Group records in the Group.Active breakdown and other tables that reference the Group table, such as Change or Problem Assignment group values.

Create a breakdown with breakdown mappings for an automated indicator

Create a breakdown with mappings to define a relationship between an indicator source table and the breakdown source table.

Role required: pa_admin, pa_power_user, or pa_data_collector

1. Select the Breakdown source for the breakdown.
2. Optional: Select or create a Default elements filter for selecting the correct breakdown values. For example, if you created a default filter with assignment group Service Desk based on the sys_user_group table, this filter is automatically applied when you select assignment group on the scorecard breakdown tab. The filter needs to be based on the same table the breakdown is based on. You can also create an elements filter by navigating to Performance Analytics > Indicators > Elements Filters
3. Right-click the form header and select Save.
4. In the Breakdown Mapping related list, click New.
5. Select the Facts table used to collect relevant values for the breakdown. Usually this is the indicator source table.
6. Select the Scripted check box to use a script for the breakdown values. Clear this check box to use a fixed field for the breakdown values.
7. Select the Script or Field to use to determine how the breakdown groups data.
8. Click Submit.
9. Repeat steps 4-8 as needed to define additional mappings.

Create a breakdown for a manual indicator

Create a breakdown for an indicator where you add scores manually.

1. Double-click Insert a new row to add a new breakdown value.
2. Press Enter or click the green check mark to save the entry.
3. Select the Order for this breakdown. The default is 100.
   - The order is used to sort the breakdown values on widgets or scorecards.
4. Repeat these steps until all values have been added.
5. Click Submit.

Assign an indicator to a breakdown

The last step for creating a breakdown is assigning one or more indicators to it.

Role required: pa_admin, pa_power_user, or admin

1. Open an existing breakdown record.
2. In the Indicator Breakdowns related list, click New.
3. Select the indicator you want to assign to this breakdown.
   - The indicator must use the same facts table as the breakdown.
4. Select the Display check box to display the breakdown on the scorecard and dashboard widgets.
If the **Display** check box is cleared, scores are populated during data collection, but the breakdown is not shown on the scorecard and dashboard widgets.

5. Click **Submit**.

**Breakdown element filters**

Element filters allow you to limit the displayed breakdown elements on a scorecard or widget using filter conditions.

You can select an element filter when viewing breakdowns on a scorecard, or when configuring a breakdown widget.

*Create an element filter*

Select the breakdown source and filter conditions to filter breakdown elements from that breakdown source.

**Role required:** `pa_power_user` or admin

Navigate to Performance Analytics > Element Filters and create a new record (see table for field descriptions).

### Table 19: Element filter fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown source</td>
<td>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.</td>
</tr>
<tr>
<td>Facts table</td>
<td>Read-only. Displays the breakdown source facts table.</td>
</tr>
<tr>
<td>Filter</td>
<td>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 a particular department such as [Department][is][HR].</td>
</tr>
<tr>
<td>Roles</td>
<td>Select any roles that a user must have to select this element filter. A user must have at least one of the specified roles. If no roles are specified, all users can access this element filter.</td>
</tr>
</tbody>
</table>

You can select the element filter on a scorecard **Breakdown** tab when viewing a breakdown based on the same breakdown source as the element filter.

You can specify a **Default element filter** for a breakdown to select that element filter automatically when viewing the breakdown. Users that view the breakdown on a scorecard can change or clear the selected element filter.

You can also specify a **Element filter** from the **Breakdown settings** tab when creating a breakdown widget. Users cannot change or clear the element filter on a widget when viewing the widget.
Performance Analytics script variables

Several variables are available for use in Performance Analytics scripts and formula scripts.

The following variables can be used in Performance Analytics scripts and formula indicator scripts. These variables expose GlideDateTime objects based on the period of time being evaluated.

- **score_start**: start of the collection period
- **score_end**: end of the collection period

Example script for calculating the age of open incidents:

```javascript
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)
```

Create a breakdown relation

Breakdown relations define how two Performance Analytics breakdowns relate to each other and provide an additional way to navigate dashboards and scorecards. Create a breakdown relation to view related metrics on scorecards and widgets.

Role required: pa_admin

For example, on a scorecard broken down by the Database assignment group, breakdown relations enable you to view the scorecard for a child group of the Database group such as Database Atlanta, or for a specific member of the Database group.

1. Navigate to **Performance Analytics > Breakdowns**.
2. Select a breakdown.
3. In the **Breakdown Relations** related list, click **New**.
4. Fill in the fields on the form, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown</td>
<td>Select the breakdown that this relationship belongs to. You can access related breakdowns from this breakdown only.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: Breakdown relations are one-way relationships. Define multiple breakdown relations to create a bi-directional relationship.</td>
</tr>
<tr>
<td>Related breakdown</td>
<td>Select the breakdown you want to associate with the first breakdown.</td>
</tr>
<tr>
<td></td>
<td>For hierarchical relationships, such as associating parent and child groups, you can select the same breakdown as in the <strong>Breakdown</strong> field. For non-hierarchical breakdown relationships, such as users in a group, the <strong>Related breakdown</strong> may be different.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Table</strong></td>
<td>Select the table that defines the relationship between the breakdowns. For hierarchical relationships select the same table as the breakdown source facts table. For example, select Group [sys_user_group] when relating a parent group to child groups. For many-to-many relationships, select the many-to-many table. For example, select Group User [sys_user_grmember] when relating groups to group members.</td>
</tr>
<tr>
<td><strong>Breakdown field</strong></td>
<td>Select the field from the specified Table that identifies the breakdown element you can navigate from. For example, when creating a breakdown relation from groups to group members, select the Group field from the Group User [sys_user_grmember] table.</td>
</tr>
<tr>
<td><strong>Related breakdown field</strong></td>
<td>Select the field from the specified Table that identifies the breakdown element values you can navigate to when viewing this relation. For example, when creating a breakdown relation from groups to group members, select the User field from the Group User [sys_user_grmember] table.</td>
</tr>
<tr>
<td><strong>Common field</strong></td>
<td>When the Breakdown field and Related breakdown field specify the same field, select which field to use to identify related records. When Breakdown field and Related breakdown field have different values, do not set a Common field value. For example, in a breakdown relation associating Group [sys_user_group] records that have the same Parent, both the Breakdown field and Related breakdown field values are Sys ID. In this example, set the Common field value to Parent. When viewing a scorecard broken down by a group, you can view the scorecard broken down by other groups with the same parent group.</td>
</tr>
<tr>
<td><strong>Conditions</strong></td>
<td>Define any further conditions that a record must fulfill to appear as a related breakdown for this relationship. For example, when when relating a parent group to child groups, use the condition [Active] [is] [true] to include only active child groups.</td>
</tr>
</tbody>
</table>
5. Click **Submit**.

### Control access to a breakdown

Users with the pa_admin role can control access to specific breakdowns.

There are no visibility options for breakdowns. Instead, access to breakdowns is regulated by ACLs in the breakdown sources.

1. Navigate to **Performance Analytics > Breakdown Sources**.
2. Open the breakdown sources record for the breakdown you want to set access to.
3. In the Security type choice list, select if you want to blacklist (exclude) or whitelist (include) source elements by role based on element security lists.
4. Define an Elements Security List record and either select the elements to be included or excluded, or use conditions to define which elements should be included.
5. Specify the roles that have access to the elements security list.

### Performance Analytics data collection

The data collector connects to the ServiceNow database to send your data to Performance Analytics daily on a fully automated basis.

Before defining jobs, make sure that indicator sources, breakdown sources, and indicators have been defined. Otherwise, jobs cannot return any results.

- Define an indicator source on page 52
- Define a breakdown source on page 72
- Setting up indicators on page 52

Indicators are statistics that businesses track to measure current conditions and to forecast business trends.

The data collector enables the configuration of data collection from your instance, and automatically sends the data as indicator and indicator breakdown scores to Performance Analytics.

Choose one of the following methods to collect indicator scores based on the frequency and integrity of your data.

- If you need to measure an indicator once a month, quarter, or year, the preferred methods are to use the manual interface or imported score data.
- If you need to measure indicators on a daily basis, or you want to eliminate any human involvement, the preferred method is to use the data collector.

The data collector enables you to define a set of jobs and uses indicator definitions to collect scores.

**Note:** The data collector is activated with Performance Analytics and needs to be configured.

### Create a scheduled data collection job

Create, edit, and delete data collection jobs.

Roles required: pa_admin, pa_data_collector, or admin

The following sample jobs are included in the Performance Analytics demo data.

- [PA Trial Incident] Daily Data Collection
- [PA Trial Incident] Historic Data Collection
1. Navigate to **Performance Analytics > Data Collector > Jobs**.
2. Click **New**.
3. Fill in the fields, as appropriate.

### Table 21: Scheduled Data Collection form

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name to identify this scheduled job.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description to identify this scheduled job.</td>
</tr>
<tr>
<td>Operator</td>
<td>Select <strong>Fixed start</strong> to collect data for an absolute time period. Select <strong>Relative</strong> to collect historical data, for instance from 60 days backwards, to populate indicator scores.</td>
</tr>
<tr>
<td>Fixed start</td>
<td>Enter a fixed start date. Available only when the <strong>Operator</strong> field is set to <strong>Fixed</strong>.</td>
</tr>
<tr>
<td>Fixed end</td>
<td>Enter a fixed end date. Available only when the <strong>Operator</strong> field is set to <strong>Fixed</strong>.</td>
</tr>
<tr>
<td>Relative start</td>
<td>Enter the number of days, weeks, or months (set in the <strong>Relative start interval</strong>) for the relative start. This determines for how far back, scores will be retrieved. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative start interval</td>
<td>Select the unit used when the interval should start in days ago, weeks ago, or months ago. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative end</td>
<td>Enter the number of days, weeks, or months (set in the <strong>Relative start interval</strong>) for the relative end. This determines for how far back, scores will be retrieved. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative end interval</td>
<td>Select the unit used when the interval should end in days ago, weeks ago, or months ago. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
</tbody>
</table>

For example, if you want to collect data from one year back up to the current day, enter **12** in **Relative start** and **months ago** in **Relative start interval**. In the other fields, accept the default values. As this type of data collection can take a long time and is usually done when setting up the system, set the **Run** field to **Once** or **On Demand**.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run as</td>
<td>[Optional] Select the user that runs this scheduled job. For optimal performance choose a user who is authorized to collect scores for the indicators specified in the job. The user who is logged in is used by default.</td>
</tr>
<tr>
<td>Run as tz</td>
<td>Select the time zone the queries that will be executed from the scheduled job will use. By default the System time zone is used, but can be changed when needed.</td>
</tr>
<tr>
<td>Active</td>
<td>If selected, as it is by default, the data collection occurs at the scheduled date and time.</td>
</tr>
</tbody>
</table>
| Run        | Select the type of schedule to collect the data. Choices are:  
- Daily  
- Weekly  
- Monthly  
- Periodically  
- Once  
- On demand |
| Day        | If Run is Weekly, the day of the week. If Run is Monthly, the day of the month. |
| Repeat Interval | If Run is Periodically, the amount of time between scheduled data collections, in days and hour. |
| Starting   | If Run is Periodically or Once, the date and time of the first scheduled data collection. |
| Time       | If Run is Weekly or Monthly, the time of day, on a 24-hour clock. |
| Conditional | If checked, the data collection occurs only if certain conditions are met. |
| Conditions | If Conditional is selected, a script determines under what conditions the entity is generated. |

4. Click Submit.
5. In the Scheduled Data Collection list, reopen the newly created job.
6. In the Job Indicators related list, click New to select an indicator for the job to collect.

**Warning:** At least one indicator must be included for the job. Otherwise, the job cannot return any results.

7. Fill in the fields, as appropriate.
Table 22: Job Indicator form

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
<td>Is automatically copied from the job name.</td>
</tr>
<tr>
<td>Indicator</td>
<td>Select the indicator that must be collected for this job.</td>
</tr>
<tr>
<td>Active</td>
<td>Select the check box to make the job indicator active (the default). Clear the check box to deactivate the job temporarily without deleting it from the job definition.</td>
</tr>
<tr>
<td>Collect</td>
<td>Choose to collect All breakdowns, One breakdown, or No breakdowns.</td>
</tr>
<tr>
<td>Breakdown</td>
<td>Specify the breakdown you want to collect. Only available if Collect is set to One breakdown.</td>
</tr>
<tr>
<td>Collect indicator</td>
<td>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. Depending on the setting in Collect, data is collected for all breakdowns, one breakdown, or none at all.</td>
</tr>
</tbody>
</table>

8. Click Submit.
9. Repeat steps 6 through 8 to select additional indicators that this job should collect.

Clean up Performance Analytics data collections

Performance Analytics scores and snapshots may grow over time. Use a scheduled job to clean up the tables.

Role required: admin

The Clean PA collections scheduled job is active by default. The table cleaner deletes records according to best practices, so there is no impact on performance. By default, the job runs daily so it only has to delete a relatively small amount of data.

You can view and modify this scheduled job.

1. Navigate to System Scheduler > Scheduled Jobs > Scheduled Jobs.
2. Click Clean PA collections to see its contents.
3. Make any necessary changes. For example, change the run time when the job needs to be executed.
4. Click Update to save your changes.

These system properties determine how long data is kept.
Table 23: System properties used to clean up Performance Analytics collections

<table>
<thead>
<tr>
<th>Property</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of days the scores will be kept before being deleted</td>
<td>1826 (5 years)</td>
</tr>
<tr>
<td>(com.snc.pa.dc.keep_scores_for)</td>
<td></td>
</tr>
<tr>
<td>Maximum number of days the lists of records related to a score will be</td>
<td>365</td>
</tr>
<tr>
<td>kept before being deleted (com.snc.pa.dc.keep_snapshots_for)</td>
<td></td>
</tr>
</tbody>
</table>

Job Indicator form

The Job Indicator form for Performance Analytics contains the fields described here.

Table 24: Job Indicator form

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
<td>Is automatically copied from the job name.</td>
</tr>
<tr>
<td>Indicator</td>
<td>Select the indicator that must be collected for this job.</td>
</tr>
<tr>
<td>Active</td>
<td>Select the check box to make the job indicator active (the default). Clear</td>
</tr>
<tr>
<td></td>
<td>the check box to deactivate the job temporarily without deleting it from</td>
</tr>
<tr>
<td></td>
<td>the job definition.</td>
</tr>
<tr>
<td>Collect</td>
<td>Choose to collect <strong>All breakdowns</strong>, <strong>One breakdown</strong>, or <strong>No breakdowns</strong>.</td>
</tr>
<tr>
<td>Breakdown</td>
<td>Specify the breakdown you want to collect. Only available if <strong>Collect</strong> is</td>
</tr>
<tr>
<td></td>
<td>set to <strong>One breakdown</strong>.</td>
</tr>
<tr>
<td>Collect indicator</td>
<td>Select the check box to collect data for the indicator itself (the default).</td>
</tr>
<tr>
<td></td>
<td>Clear this check box if you want to collect data for breakdowns alone.</td>
</tr>
<tr>
<td></td>
<td>Depending on the setting in <strong>Collect</strong>, data is collected for all</td>
</tr>
<tr>
<td></td>
<td>breakdowns, one breakdown, or none at all.</td>
</tr>
</tbody>
</table>

Scheduled Data Collection form

The Scheduled Data Collection form for Performance Analytics contains the fields described here.

Table 25: Scheduled Data Collection form

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name to identify this scheduled job.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description to identify this scheduled job.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Operator</td>
<td>Select <strong>Fixed start</strong> to collect data for an absolute time period.</td>
</tr>
<tr>
<td></td>
<td>Select <strong>Relative</strong> to collect historical data, for instance from 60 days backwards, to populate indicator scores.</td>
</tr>
<tr>
<td>Fixed start</td>
<td>Enter a fixed start date. Available only when the <strong>Operator</strong> field is set to <strong>Fixed</strong>.</td>
</tr>
<tr>
<td>Fixed end</td>
<td>Enter a fixed end date. Available only when the <strong>Operator</strong> field is set to <strong>Fixed</strong>.</td>
</tr>
<tr>
<td>Relative start</td>
<td>Enter the number of days, weeks, or months (set in the <strong>Relative start interval</strong>) for the relative start. This determines for how far back, scores will be retrieved. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative start interval</td>
<td>Select the unit used when the interval should start in days ago, weeks ago, or months ago. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative end</td>
<td>Enter the number of days, weeks, or months (set in the <strong>Relative start interval</strong>) for the relative end. This determines for how far back, scores will be retrieved. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>.</td>
</tr>
<tr>
<td>Relative end interval</td>
<td>Select the unit used when the interval should end in days ago, weeks ago, or months ago. Available only when the <strong>Operator</strong> field is set to <strong>Relative</strong>. For example, if you want to collect data from one year back up to the current day, enter 12 in <strong>Relative start</strong> and <strong>months ago</strong> in <strong>Relative start interval</strong>. In the other fields, accept the default values. As this type of data collection can take a long time and is usually done when setting up the system, set the <strong>Run</strong> field to <strong>Once</strong> or <strong>On Demand</strong>.</td>
</tr>
<tr>
<td>Run as</td>
<td>[Optional] Select the user that runs this scheduled job. For optimal performance choose a user who is authorized to collect scores for the indicators specified in the job. The user who is logged in is used by default.</td>
</tr>
<tr>
<td>Run as tz</td>
<td>Select the time zone the queries that will be executed from the scheduled job will use. By default the System time zone is used, but can be changed when needed.</td>
</tr>
<tr>
<td>Active</td>
<td>If selected, as it is by default, the data collection occurs at the scheduled date and time.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Run</td>
<td>Select the type of schedule to collect the data. Choices are:</td>
</tr>
<tr>
<td></td>
<td>• Daily</td>
</tr>
<tr>
<td></td>
<td>• Weekly</td>
</tr>
<tr>
<td></td>
<td>• Monthly</td>
</tr>
<tr>
<td></td>
<td>• Periodically</td>
</tr>
<tr>
<td></td>
<td>• Once</td>
</tr>
<tr>
<td></td>
<td>• On demand</td>
</tr>
<tr>
<td>Day</td>
<td>• If Run is Weekly, the day of the week.</td>
</tr>
<tr>
<td></td>
<td>• If Run is Monthly, the day of the month.</td>
</tr>
<tr>
<td>Repeat Interval</td>
<td>If Run is Periodically, the amount of time between scheduled data collections, in days and hour.</td>
</tr>
<tr>
<td>Starting</td>
<td>If Run is Periodically or Once, the date and time of the first scheduled data collection.</td>
</tr>
<tr>
<td>Time</td>
<td>If Run is Weekly or Monthly, the time of day, on a 24-hour clock.</td>
</tr>
<tr>
<td>Conditional</td>
<td>If checked, the data collection occurs only if certain conditions are met.</td>
</tr>
<tr>
<td>Conditions</td>
<td>If Conditional is selected, a script determines under what conditions the entity is generated.</td>
</tr>
</tbody>
</table>

**Add indicator scores manually**

The data for indicators, called scores, can be added manually.

Role required: pa_admin, pa_power_user, and pa_contributor

Manually adding scores is usually done for indicators that only require an update once a month or less. Also, if data cannot be collected automatically for some entities, like customers, you can manually enter or import data.

1. Navigate to **Performance > Indicators > Scoresheet**.
2. Select the indicator for which you want to enter manual scores.
   Alternatively, you can navigate to **Indicators > Automated Indicators** or **Indicators > Manual Indicators**, open the record and click the **Scores for indicator** related link. It is not possible to enter scores for formula indicators.
3. 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 instance.
   a) Right-click outside the score table and select **Aggregate scores**.
   b) Choose whether you want to use the **Total** 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. It is possible to calculate a new aggregation based on a different breakdown later on. For automated indicators that have **Collect breakdown matrix** enabled and that 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.

4. To enter data for a different period, click the down arrow above the score table after the date selection and select a new date from the calendar that appears. Alternatively, click the right or left arrow to move one period forward or back. All changes are saved automatically.

Schedule a historical collection for an indicator

This job loads the last 60 days of scores for the indicators and breakdowns for which historic collection is possible.

Role required: pa_data_collector or admin

1. Navigate to Performance Analytics > Data Collector > Jobs.
2. Open the [PA Incident] Historic Data Collection job.
3. Go to the Job Parameters section.
4. Change the Run as, if needed.
5. Change the Run as tz (time zone), if needed.
6. Select the Active check box.
7. Click Update.

Note: You may want to increase the number of days in the Relative start field. Keep in mind that in ServiceNow instances with a bigger history it will take longer to collect the data. Performance Analytics for Incident Management collects a maximum of 180 days worth of historical data.

When the job is Active, it appears under System Scheduler > Scheduled Jobs, where you can change the time to start the job, if needed.

Import indicator score data

You can import indicator score data from Microsoft Excel or CSV files

Role required: pa_admin or admin

To import score data for an indicator from a Microsoft Excel or CSV file that exactly matches the columns of the table, including sys_ids for each row, follow the steps described in Easy Import.

If the file does not include sys_ids for each row, see Import Sets.

Keep the following information in mind as you use import sets for Performance Analytics.

- **Transform Map:** Select the Run Business Rules check box to ensure that all the defined rules are applied when inserting scores.
- **Field Map:**
  - Set Choice action to Reject for the target fields Indicator and Breakdown to ensure that no unknown values are inserted into the table.
  - Set the Referenced value field name to Name for the target fields Indicator and Breakdown if you do not have the sys_ids.
  - For the target field Start, make sure the corresponding date format is specified in Date Format.

Note: If you are using a Microsoft Excel spreadsheet, make sure that the column is formatted as Date.
• If you do not have the sys_id for a breakdown score, specify a script for the Element field to get the sys_id into the target field.

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.
Role required: pa_data_collector or admin
1. Navigate to 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.

View the data collection job log
Job logs display information about the data collection jobs that have run for Performance Analytics.
Role required: pa_admin or admin
You can view job logs, create new events, and view and edit the event registry. The list view displays all log entries, unless filtered.
1. Navigate to Performance Analytics > Data Collector > Job Logs.
   The log provides the following information for all occurrences.

   Table 26: Data Collection Job Log

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created</td>
<td>Date and time the data collection job started.</td>
</tr>
<tr>
<td>State</td>
<td>Can be one of the following: Collecting, Collected, or Collected with errors.</td>
</tr>
<tr>
<td>Name</td>
<td>Name of the job.</td>
</tr>
<tr>
<td>Completed</td>
<td>Date and time the data collection job ended.</td>
</tr>
<tr>
<td>Inserts</td>
<td>The number of new records that have been inserted.</td>
</tr>
<tr>
<td>Updates</td>
<td>The number of existing records that have been updated.</td>
</tr>
<tr>
<td>Warnings</td>
<td>The number of warnings that occurred during the data collection process.</td>
</tr>
<tr>
<td>Errors</td>
<td>The number of errors that occurred during the data collection process.</td>
</tr>
<tr>
<td>Run time</td>
<td>Duration of the job.</td>
</tr>
</tbody>
</table>

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.
Performance Analytics collections cleanup

Performance Analytics scores and snapshots may grow over the course of time, so a scheduled job cleans these tables up daily.

The Clean PA collections scheduled job is active by default. An administrator can view and modify this scheduled job.

The table cleaner carries out deletion according to ServiceNow best practices, so there is no impact on performance. By default, the job runs daily so it only has to delete a relatively small amount of data.

These system properties determine how long data is retained.

<table>
<thead>
<tr>
<th>Property name</th>
<th>Property Label</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.snc.pa.dc.keep_scores_for</td>
<td>Maximum number of days the scores will be kept before being deleted</td>
<td>1826 (5 years)</td>
</tr>
<tr>
<td>com.snc.pa.dc.keep_snapshots</td>
<td>Maximum number of days the lists of records related to a score will be kept before being deleted</td>
<td>365</td>
</tr>
</tbody>
</table>

**Note:** The table attributes nibble_size and nibble_sleep affect the behavior of the collection cleaner job if these attributes are defined for the Scores or Snapshots tables.

Data collector properties

Data collector properties allow you to configure various limits for Performance Analytics data collection.

The data collector properties are configured to safeguard the data collection process. The default values are appropriate for most environments.

Navigate to **Performance Analytics > Properties** to configure properties.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.snc.pa.dc.script_timeout</td>
<td>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 current record is skipped by the data collection job. If your scripts frequently reach the default limit, simplify the scripts as much as possible before modifying this property.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type:</strong> integer&lt;br&gt;• <strong>Default value:</strong> 30</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>com.snc.pa.dc.max_row_count_indicator_source</td>
<td>The maximum number of records that a job can collect from a single indicator source. Increasing this value may cause data collection jobs to take longer to complete. 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 twelve indicators from three indicator sources, the job can collect a maximum of 150,000 records by default, 50,000 from each indicator source.</td>
</tr>
<tr>
<td>com.snc.pa.dc.max_breakdown_elements_limit</td>
<td>Maximum number of breakdown elements for a breakdown to be included in data collection. You may encounter this limit when defining a breakdown based on a reference field, such as the <code>Assigned to</code> or <code>Configuration item</code> fields. Increasing this limit may impact performance when viewing breakdown information on a detailed scorecard. Additionally, it may be difficult for users to access data for a specific breakdown element when there are a very large number of elements.</td>
</tr>
<tr>
<td>com.snc.pa.dc.max_error_count</td>
<td>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. Do not increase this value. If you encounter this limit, review any scripts that run during data collection to ensure they are valid and perform as expected.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| com.snc.pa.dc.max_breakdown_elements_level2 | Maximum number of breakdown elements resulting from the combination of two breakdowns for a data collection. For example, if the first-level breakdown has 10 elements, and the second-level breakdown has 5, 50 breakdown elements are collected. Increasing this limit can cause the Scores [pa_scores] table to store a very large number of records. Having many records on this table may impact performance when performing operations on the Scores table, such as when calculating formula values for formulas with breakdowns. If you have more breakdown elements than this limit, consider defining a breakdown based on a bucket group instead. Bucket groups allow you to maintain a manageable number of breakdown elements, and simplify navigation for users viewing the broken-down data.  
**Note:** This limit is also affected by the com.snc.pa.dc.max_breakdown_elements_limit property. For example, if the first-level breakdown has greater than 10,000 elements, only 10,000 are collected by default. In this scenario, the second-level breakdown can specify at most 100 breakdown elements before reaching the default second-level limit of 1,000,000 total elements. |
| **Type:** integer  
| **Default value:** 1,000,000 |

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.snc.pa.dc.max_records</td>
<td>Maximum number of records that are stored on the Snapshots [pa_snapshots] table during each data collection. This limit applies only when Collect records is selected for an indicator. This limit does not apply to scores. 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 Snapshots table.</td>
</tr>
</tbody>
</table>
| **Type:** integer  
| **Default value:** 5000 |
Bucket groups

Bucket groups are custom groups that can be used when you define a breakdown source that uses Bucket [pa_buckets] as the facts table.

Bucket groups can also be used with a script. When configuring the indicator, you can attach a script that runs through the collected data and places the records into a bucket group. For example, you can arrange open incidents according to age, such as <1 day, 2-5 days, 6-30 days, >30 days old. In this case, the indicator Open Incidents is broken down by Incident Age.

Create a bucket group

To create a bucket group:

1. Navigate to Performance Analytics > Data Collector > 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 on the green check icon.
6. Double-click in the Start and End columns to enter the starting and ending values for the range.
7. Click Submit after all the bucket ranges have been defined.
Bucket group - Incident Age Ranges (Days)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 - 01 Days</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>01 - 05 Days</td>
<td></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>06 - 30 Days</td>
<td></td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>31 - 90 Days</td>
<td></td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>91+ Days</td>
<td></td>
<td>91</td>
<td></td>
</tr>
</tbody>
</table>

Bucket sets

Define the buckets for this bucket group by providing start and end ranges for each of the buckets.

Update
Create a chart color scheme

Create a chart color scheme to predefine and reuse a set of colors in Performance Analytics charts.

Role required: pa_power_user or pa_admin

1. Navigate to Performance Analytics > 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. All other colors are optional.
5. Optional: Select up to 32 total colors to include in the color scheme.
6. Click Submit.

Create an email summary

Performance Analytics can automatically generate an email when an indicator or a group of indicators meets predefined conditions.

You must enable and configure email notifications before you can use email summaries.

1. Navigate to Performance Analytics > Automation > Email Summaries.
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
   • 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 indicators dynamically or manually.
   • Dynamically: Select the By Condition check box. Use the condition builder to define the conditions for which indicators the email summary should include. For example, you might select all key indicators by setting the condition to [Key] [is] [true].
   • Manually: Clear the By Condition check box. Specify the conditions you want to apply on the indicator records.
8. Right-click the form header and select Save.
   The indicator list and the user list become available.
9. Select any number of users and indicators and click Update.
   The email summary job runs based on the schedule you configured.

For more information, see Email notifications.
Add indicators

After you submit an email summary record with the By Condition check box cleared, the Indicators related list becomes available.

1. Click Edit in the Indicators related list.
2. Optional: Add a filter to limit the selection of the indicators.
   For example, [Name] [contains] [incident]. When you click Run filter, only indicators whose name contains incident are displayed.
3. Add the desired indicators to the Indicators List.
4. Click Save.
   If your instance has the full version of Performance Analytics, you can add new indicators from the Scheduled Email Summary form.
   1. In the Indicators related list, click New.
   2. Define the indicator.
   3. Click Submit to save the indicator and add it to the email summary.

Specify users

Before an email summary job can be scheduled for Performance Analytics, you must specify users who will receive the email.

1. In the Users related list, click Edit.
2. Perform one or both of the following actions.
   a) Add a filter to limit the selection of the users.
      For example, [Department] [is] [Customer Support]. When you click Run filter, only users who are in the Customer Support department are displayed.
   b) Add users to the Users List.
3. Click Save.

Performance Analytics configuration generator

The configuration generator allows you to quickly configure Performance Analytics to display data from any task table.

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 content pack, but for any Task table. When using domain separation, all records are created in the domain of the current user.

Note: You can use the configuration generator only with tables that extend Task.

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).

Role required: admin

Before starting this procedure, you must have Performance Analytics premium.

1. Navigate to **System Definition > Plugins**.
2. Right-click the plugin name on the list and select **Activate/Upgrade**.
   
   If the plugin depends on other plugins, these plugins are listed along with their activation status.
3. Optional: If available, select the **Load demo data** check box.
   
   Some plugins include demo data—sample records that are designed to illustrate plugin features for common use cases. Loading demo data is a good policy when you first activate the plugin on a development or test instance. You can load demo data after the plugin is activated by repeating this process and selecting the check box.
4. Click **Activate**.

Performance Analytics schema maps

You can view a schema map of Performance Analytics configuration records.

To view the schema map for a Performance Analytics configuration record, click the **Show Schema Map** related link on the appropriate form.

You can view the schema map for these types of records:

- Automated indicators
- Breakdowns
- Indicator sources
- Breakdown sources
- Scripts
- Element filters

Performance analytics with domain separation

When using Performance Analytics with domain separation you can collect domain-specific scores, and use global or domain-specific configuration records such as indicators, breakdowns, and dashboards.

**Note:** You must have the premium version of Performance Analytics to use Performance Analytics in any domain other than global.

**Collecting domain-specific scores**

Data collector jobs can access records based on the roles, entitlements, and domain of the user selected in the job **Run as** field. To collect scores from a particular domain, ensure the **Run as** user is a member of that domain.

The domain of each data collector job determines the domain of scores generated by that data collector. The domain of the source records do not affect the domain of the scores.
Global configuration

By using configuration records in the global domain, you can present domain-appropriate data automatically.

To populate the data, create a separate data collector job for each domain. Ensure each user selected in the **Run as** field is a member of the correct domain. The collected score is recorded under the domain of the **Run as** user. When a user in a domain views a widget or scorecard, only scores from that user’s domain appear.

By default, configuration records from Performance Analytics content packs use the global domain.

Domain-specific configuration

By using domain-specific configuration records, you can grant the pa_admin role to domain users to create their own domain-specific components. Users, including system administrators, can create and edit configuration records only within their domain. Users in child domains can read but not edit configuration records in a parent domain.

You must create a domain-specific copy of a configuration record to use it in that domain. For example, to add a domain-specific condition to a indicator source, you must create a copy of the indicator and indicator source in that domain.

You can quickly copy indicator and related data from an indicator in a different domain using the **Insert and Stay with Relations** UI action on the Indicator form. 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.

Hybrid configuration

By using a hybrid configuration you can maintain reusable foundation configuration records such as indicator sources within the global domain or a parent domain while allowing administrators in other domains to create domain-specific configuration records such as indicators and widgets.

---

**Note:** The hybrid configuration is an advanced option. Implement either the global or domain-specific configurations successfully before attempting to use a hybrid configuration.

When using a hybrid configuration, foundation records should be managed only within the global domain or a parent domain. All other configuration records, such as widgets and indicators should be managed separately within each child domain. The following record types are considered foundation records.

- Bucket groups
- Buckets
- Scripts
- Breakdown sources
- Indicator sources
- Filters
- Breakdowns
- Managed sources
- Manual breakdowns
- Breakdown mappings
- Breakdown relations
Copying configuration data

You can reuse Performance Analytics configurations in multiple domains. The PADomainUtils API provides functionality that allows system administrators to move or copy Performance Analytics configuration records between domains.

PADomainUtils

The PADomainUtils API allows you to copy Performance Analytics configurations between different domains.

Use this API in server scripts to copy Performance Analytics configuration records, such as indicators, breakdowns, and dashboards, to different domains. This API enables you to create a Performance Analytics configuration in one domain and copy that configuration to any number of additional domains.

To use PADomainUtils, you must satisfy these requirements:

- Performance Analytics premium 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()

Instantiate a new PADomainUtils object to move or copy Performance Analytics configuration 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.

Table 29: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PADomainUtils - PADomainUtils(String domainFrom)

Instantiate a new PADomainUtils object to move or copy Performance Analytics configuration records from the specified domain.

Use the PADomainUtils() constructor instead when moving or copying from the global domain.

Table 30: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>domainFrom</td>
<td>String</td>
<td>The domain to copy records from.</td>
</tr>
</tbody>
</table>
PADomainUtils - setFoundation(Boolean foundation)
Use this method to move or copy only foundation records in a hybrid domain configuration.

You can implement a hybrid configuration by maintaining some types of record in a parent domain and some types in child domains. Records maintained in the parent domain are known as foundation records. The following types of record are considered foundation records.

- Bucket groups
- Buckets
- Scripts
- Breakdown sources
- Indicator sources
- Filters
- Breakdowns
- Managed sources
- Manual breakdowns
- Breakdown mappings
- Breakdown relations

Other Performance Analytics configuration records such as widgets and indicators are not foundation records. Set this method to false to move or copy these additional records as well.

### Table 31: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>foundation</td>
<td>Boolean</td>
<td>Indicates if only foundation records should be copied or moved by this PADomainUtils object.</td>
</tr>
</tbody>
</table>

### Table 32: Returns

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PADomainUtils</td>
<td>The object calling this function.</td>
</tr>
</tbody>
</table>

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 allows 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.
### Table 33: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>overrides</td>
<td>Boolean</td>
<td>Indicates that copied records in a child domain should override the source record in the parent domain. This value is true by default.</td>
</tr>
</tbody>
</table>

### Table 34: Returns

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PADomainUtils</td>
<td>The object calling this function.</td>
</tr>
</tbody>
</table>

**PADomainUtils - copy(String runAs)**
Copy Performance Analytics configuration records to a different domain.

### Table 35: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>runAs</td>
<td>String</td>
<td>The user whose domain you want to copy records to.</td>
</tr>
</tbody>
</table>

### Table 36: Returns

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td></td>
</tr>
</tbody>
</table>

**Output:**

**PADomainUtils - copyJob(String paJob, String runAs)**
Copy a Performance Analytics scheduled data collection job record to another domain.

### Table 37: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paJob</td>
<td>String</td>
<td>The sys_id of a Performance Analytics scheduled data collection job [sysauto_pa] record.</td>
</tr>
<tr>
<td>Name</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>runAs</td>
<td>String</td>
<td>The user whose domain you want to copy the record to.</td>
</tr>
</tbody>
</table>

**Table 38: Returns**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>String</td>
<td>An error message if an error occurs, or an empty string if there is no error.</td>
</tr>
</tbody>
</table>

**PADomainUtils - move(String runAs)**

Move Performance Analytics configuration records to a different domain.

**Table 39: Parameters**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>runAs</td>
<td>String</td>
<td>The user whose domain you want to copy records to.</td>
</tr>
</tbody>
</table>

**Table 40: Returns**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td></td>
</tr>
</tbody>
</table>

**PADomainUtils - isWriteable(String table, String id)**

Evaluate if you can write to a specific record identified by table and sys_id.

**Table 41: Parameters**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>table</td>
<td>String</td>
<td>The name of the table containing the record to query, such as pa_indicators.</td>
</tr>
<tr>
<td>id</td>
<td>String</td>
<td>The sys_id of the record to query.</td>
</tr>
</tbody>
</table>
Table 42: Returns

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boolean</td>
<td>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.</td>
</tr>
</tbody>
</table>

Performance Analytics API

The Performance Analytics API allows you to query data about Performance Analytics scorecards. The Performance Analytics API supports only the GET action. Performance Analytics queries never update records.

Performance Analytics API - GET /now/v1/pa/scorecards

This method retrieves Performance Analytics scorecard details.

URL format

Versioned URL: /api/now/v1/pa/scorecards
Default URL: /api/now/pa/scorecards
Supported parameters

Table 43: Supported parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_uuid</td>
<td>Enter a colon-separated list of sys_id values to specify which indicators, breakdowns, and aggregates to query. The parameter follows this format:</td>
</tr>
<tr>
<td></td>
<td>&lt;indicator sys_id&gt;:&lt;breakdown sys_id&gt;:&lt;element sys_id&gt;:&lt;aggregate sys_id&gt;</td>
</tr>
<tr>
<td></td>
<td>The parameter must begin with the sys_id of an indicator record. Optionally, you can append the sys_id values of a breakdown and breakdown element to group the response based on the breakdown, and the sys_id of an aggregate to apply that aggregate. You can use a breakdown with an aggregate, or use only one.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: If an indicator is configured to use a Default time series, all scorecards for that indicator use the selected aggregate.</td>
</tr>
<tr>
<td></td>
<td>See Performance Analytics API Examples for examples of fully-constructed sysparm_uuid values.</td>
</tr>
<tr>
<td>sysparm_breakdown</td>
<td>Enter the sys_id of a breakdown to return chart information organized as defined by the breakdown. For example, enter the sys_id of a priority breakdown to return separate task chart information for each priority value, such as Number of open incidents / Priority / 2 - High.</td>
</tr>
<tr>
<td>sysparm_include_scores</td>
<td>Set this parameter to <code>true</code> to return all scores for a scorecard. If a value is not specified, this parameter defaults to false and returns only the most recent score value.</td>
</tr>
<tr>
<td>sysparm_include_available_breakdowns</td>
<td>Set this parameter to <code>true</code> to return all available breakdowns for a scorecard. If a value is not specified, this parameter defaults to false and returns no breakdowns.</td>
</tr>
<tr>
<td>sysparm_include_available_aggregates</td>
<td>Set this parameter to <code>true</code> to return all available aggregates for a scorecard. If a value is not specified, this parameter defaults to false and returns no aggregates.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sysparm_display_value</td>
<td>Data retrieval operation for reference and choice fields. Based on this value, retrieves the display value and/or the actual value from the database.</td>
</tr>
<tr>
<td></td>
<td>• true returns display values for all fields.</td>
</tr>
<tr>
<td></td>
<td>• false returns actual values from the database. If a value is not specified, this parameter defaults to false.</td>
</tr>
<tr>
<td></td>
<td>• all returns both actual and display values.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> There is no preferred method for setting this parameter. However, specifying the display value may cause performance issues since it is not reading directly from the database and may include referencing other fields and records. For more information on display values and actual values, see Table API FAQs (KB0534905).</td>
</tr>
<tr>
<td>sysparm_exclude_reference_link</td>
<td>Set this parameter to <code>true</code> to hide additional information provided for reference fields, such as the URI to the reference resource.</td>
</tr>
<tr>
<td>sysparm_favorites</td>
<td>Set this parameter to <code>true</code> to return only scorecards that are favorites of the querying user.</td>
</tr>
<tr>
<td>sysparm_key</td>
<td>Set this parameter to <code>true</code> to return only scorecards for key indicators.</td>
</tr>
<tr>
<td>sysparm_target</td>
<td>Set this parameter to <code>true</code> to return only scorecards that have a target.</td>
</tr>
<tr>
<td>sysparm_display</td>
<td>Set this parameter to <code>true</code> to return only scorecards where the indicator <strong>Display</strong> field is selected. Set this parameter to <code>all</code> to return scorecards with any <strong>Display</strong> field value. This parameter is true by default.</td>
</tr>
<tr>
<td>sysparm_contains</td>
<td>Enter a comma-separated list of names or descriptions to return only scorecards with a matching value.</td>
</tr>
<tr>
<td>sysparm_tags</td>
<td>Enter a comma-separated list of sys_id values to return only scorecards with a matching sys_id.</td>
</tr>
<tr>
<td>sysparm_per_page</td>
<td>Enter the maximum number of scorecards each query can return. By default this value is 10, and the maximum is 100.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sysparm_page</td>
<td>Specify the page number. For example, when querying 20 scorecards with the default sysparm_per_page value (10), specify a sysparm_page value of 2 to retrieve scorecards 11-20.</td>
</tr>
<tr>
<td>sysparm_sortby</td>
<td>Specify the value to use when sorting results. Valid values for this parameter are value, change, changeperc, gap, gapperc, duedate, name, order, default, group, indicator_group, frequency, target, date, trend, bullet, and direction. By default, queries sort records by value.</td>
</tr>
<tr>
<td>sysparm_sortdir</td>
<td>Specify the sort direction, ascending or descending. By default, queries sort records in descending order. Use sysparm_sortdir=asc to sort in ascending order.</td>
</tr>
<tr>
<td>sysparm_elements_filter</td>
<td>Specify the sys_id of an elements filter to apply that filter to the returned data.</td>
</tr>
<tr>
<td>sysparm_breakdown_relation</td>
<td>Specify the sys_id of a breakdown relation to break down the returned data using that relation. You can view available breakdown relations by setting the sysparm_include_available_breakdowns parameter to true.</td>
</tr>
</tbody>
</table>

**Headers**

Table 44: Request headers

<table>
<thead>
<tr>
<th>Header</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**Status codes**

Table 45: Status codes

<table>
<thead>
<tr>
<th>Status code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Indicates the query ran successfully.</td>
</tr>
</tbody>
</table>

**Performance Analytics API security**

You must meet certain requirements to access the Performance Analytics REST API.
Access to tables via the REST API is restricted by BasicAuth. ACLs defined for tables are enforced to restrict access to data.

To make queries using the Performance Analytics API, you must also have the pa_viewer role.

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 main scorecards

You can request a list of all scorecards for indicators that have a Display value set to true.

Command:

```
curl -v -u "admin:admin" -H "Accept:application/json" "https://instance.service-now.com/api/now/v1/pa/scorecards"
```

Response:

```
{
   "result" : [
   {
      "change_formatted" : "",
      "key" : true,
      "value_unit" : "",
      "value_formatted" : "",
      "period_title" : null,
      "gapperc" : null,
      "gap" : null,
      "target" : null,
      "period" : null,
      "target_formatted" : "",
      "favorite" : false,
      "direction_label" : "Maximize",
      "uuid" : "002d65c3d7131100b96d45a3ce6103e2",
      "name" : "% of incidents resolved by first assigned group",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "change" : null,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "formula" : "([(Number of resolved incidents by first assigned group)] / [(Number of resolved incidents)]) * 100",
      "value" : null,
      "unit" : {
         "display_value" : "%",
         "link" : "https://instance.service-now.com/api/now/v1/table/pa_units/f9c365e2d7320100ba986f14ce6103b8",
         "value" : "f9c365e2d7320100ba986f14ce6103b8"
      },
      "changeperc_formatted" : "",
      "direction" : 3,
      "frequency" : 10,
      "precision" : 2,
      "changeperc" : null,
      "indicator" : {
         "display_value" : "% of incidents resolved by first assigned group",
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"link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/002d65c3d7131100b96d45a3ce6103e2",
"value": "002d65c3d7131100b96d45a3ce6103e2"
},
"description": "Percentage of incidents resolved by first assigned group."
},
{
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"key": true,
"value_unit": "",
"valueFormatted": "",
"period_title": null,
"gapperc": null,
"gap": null,
"target": null,
"period": null,
"target_formatted": "",
"favorite": false,
"direction_label": "Minimize",
"uuid": "4660f602d7130100b96d45a3ce610383",
"name": "% of new critical incidents",
"value_color": "#000000",
"frequency_label": "Daily",
"change": null,
"gap_formatted": "",
"gapperc_formatted": "",
"formula": "\( \frac{\{\text{Number of new incidents} / \text{Priority} / 1 - \text{Critical}\}}{\{\text{Number of new incidents}\}} \times 100\)",
"value": null,
"unit": {
"display_value": "%",
"link": "https://instance.service-now.com/api/now/v1/table/pa_units/f9c365e2d7320100ba986f14ce6103b8",
"value": "f9c365e2d7320100ba986f14ce6103b8"
},
"changeperc_formatted": "",
"direction": 2,
"frequency": 10,
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"changeperc": null,
"indicator": {
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"value": "4660f602d7130100b96d45a3ce610383"
},
"description": "Number of new critical incidents as a percentage of number of new incidents."
},
{
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"period_title": null,
"gapperc": null,
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"period": null,
"target_formatted": "",
"favorite": false,
"direction_label": "Minimize",
"uuid": "f0f07202d7130100b96d45a3ce610383",
"name": "Number of new critical incidents as a percentage of number of new incidents."}
"display_value": "% of open incidents not updated in last 5 days",
"link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/fd51f602d7130100b96d45a3ce610385",
"value": "fd51f602d7130100b96d45a3ce610385"
},
"description": "Number of open incidents not updated in last 5 days as a percentage of number of open incidents."
},
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"value_unit": "",
"value_formatted": "",
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"gapperc": null,
"gap": null,
"target": null,
"period": null,
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"favorite": false,
"direction_label": "Minimize",
"uuid": "88a0b602d7130100b96d45a3ce61030c",
"name": "Average age open incidents",
"value_color": "#000000",
"frequency_label": "Daily",
"change": null,
"gap_formatted": "",
"gapperc_formatted": "",
"formula": "[[Summed age of open incidents]] / [[Number of open incidents]] / 24",
"value": null,
"unit": {
  "display_value": "Days",
  "link": "https://instance.service-now.com/api/now/v1/table/pa_units/94d365e2d7320100ba986f14ce6103be",
  "value": "94d365e2d7320100ba986f14ce6103be"
},
"changeperc_formatted": "",
"direction": 2,
"frequency": 10,
"precision": 2,
"changeperc": null,
"indicator": {
  "display_value": "Average age open incidents",
  "link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/88a0b602d7130100b96d45a3ce61030c",
  "value": "88a0b602d7130100b96d45a3ce61030c"
},
"description": "Summed age open incidents / Number of open incidents / 24 hours"
},
{
"change_formatted": "",
"key": true,
"value_unit": "",
"value_formatted": "",
"period_title": null,
"gapperc": null,
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"target_formatted": "",
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<tr>
<th>UUID</th>
<th>Name</th>
<th>Value Color</th>
<th>Frequency Label</th>
<th>Change</th>
<th>Gap Formatted</th>
<th>Gapperc Formatted</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>6fbb7202d7130100b96d45a3ce610360</td>
<td>Average resolution time of resolved incidents</td>
<td>#000000</td>
<td>Daily</td>
<td>null</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{value} = \frac{\text{Summed duration of resolved incidents}}{\text{Number of resolved incidents}} / 24
\]

<table>
<thead>
<tr>
<th>Unit Display Value</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td><a href="https://instance.service-now.com/api/now/v1/table/pa_units/94d365e2d7320100ba986f14ce6103be">https://instance.service-now.com/api/now/v1/table/pa_units/94d365e2d7320100ba986f14ce6103be</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UUID</th>
<th>Name</th>
<th>Value Color</th>
<th>Frequency Label</th>
<th>Change</th>
<th>Gap Formatted</th>
<th>Gapperc Formatted</th>
<th>Formula</th>
</tr>
</thead>
</table>
| d0b0f602d7130100b96d45a3ce6103b0 | Incident backlog growth                     | #000000     | Daily          | null   |               |                    | \[
\text{value} = \text{Number of new incidents} - \text{Number of resolved incidents}
\]                          |

<table>
<thead>
<tr>
<th>Unit Display Value</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td><a href="https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad">https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad</a></td>
</tr>
</tbody>
</table>

© 2017 ServiceNow. All rights reserved.
"display_value" : "Incident backlog growth",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/d0b0f602d7130100b96d45a3ce6103b0",
"value" : "d0b0f602d7130100b96d45a3ce6103b0"
},
"description" : "Number of new incidents - Number of resolved incidents."
},
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"change_formatted" : "",
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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" : "31efe602d7130100b96d45a3ce610300",
"name" : "Number of new 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/17b365e2d7320100ba986f14ce6103ad",
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"frequency" : 10,
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"value" : "31efe602d7130100b96d45a3ce610300"
},
"description" : "Number of incidents based on registration date."
},
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"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",
"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/17b365e2d7320100ba986f14ce6103ad",
    "value" : "17b365e2d7320100ba986f14ce6103ad"
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"frequency" : 10,
"precision" : 0,
"changeperc" : null,
"indicator" : {
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    "link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
    "value" : "fb007202d7130100b96d45a3ce6103b4"
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"description" : "Number of incidents open based on resolved date is empty."
},
"change_formatted" : "",
"key" : false,
"value_unit" : "",
"value_formatted" : "",
"period_title" : null,
"gapperc" : null,
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"favorite" : false,
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"uuid" : "44944f12bf130100b96dac808c0739a7",
"name" : "Number of open incidents not updated in last 30 days",
"value_color" : "#000000",
"frequency_label" : "Daily",
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"gap_formatted" : "",
"gapperc_formatted" : "",
"value" : null,
"unit" : {
    "display_value" : "#",
    "link" : "https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad",
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    "link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/44944f12bf130100b96dac808c0739a7",
    "value" : "44944f12bf130100b96dac808c0739a7"
},
"description" : "Number of incidents open based on resolved date is empty."}
Return the number of open incidents scorecard

You can query scorecards for a particular indicator by providing the sysparm_uuid parameter with an indicator sys_id value.

Command:

curl -v -u "admin:admin" -H "Accept:application/json" 
"https:///instance.service-now.com/api/now/v1/pa/scorecards?
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4"

Response:

{"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",
"uuid": "fb007202d7130100b96d45a3ce6103b4",
"name": "Number of open incidents",
"value_color":="#000000",
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"change": null,
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"gapperc_formatted": ",",
"value": null,
"unit": {"display_value": ",",
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"value": "17b365e2d7320100ba986f14ce6103ad"},
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"frequency": 10,
"precision": 0,
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"link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
"value": "fb007202d7130100b96d45a3ce6103b4"},
"description": "Number of incidents open based on resolved date is empty."}
Return the scorecard with all breakdowns and aggregates

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 "admin:admin" -H "Accept:application/json" "https://instance.service-now.com/api/now/v1/pa/scorecards?sysparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_include_available_breakdowns=true&sysparm_include_available_aggregates=true"

Response:

```json
{
  "result": [
    {
      "key": false,
      "change_formattted": "",
      "aggregates": [
        {
          "display_value": "7d running SUM",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/89ea4c11d7001100ba986f14ce6103dc",
          "value": "89ea4c11d7001100ba986f14ce6103dc"
        },
        {
          "display_value": "28d running SUM",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/4dfa4c11d7001100ba986f14ce6103e2",
          "value": "4dfa4c11d7001100ba986f14ce6103e2"
        },
        {
          "display_value": "30d running SUM",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/3e409011d7001100ba986f14ce610319",
          "value": "3e409011d7001100ba986f14ce610319"
        },
        {
          "display_value": "7d running AVG",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/9ef05051d7001100ba986f14ce610372",
          "value": "9ef05051d7001100ba986f14ce610372"
        },
        {
          "display_value": "28d running AVG",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/ee015051d7001100ba986f14ce610378",
          "value": "ee015051d7001100ba986f14ce610378"
        },
        {
          "display_value": "30d running AVG",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/d5115051d7001100ba986f14ce61038b",
          "value": "d5115051d7001100ba986f14ce61038b"
        },
        {
          "display_value": "By week SUM",
          "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/9ef05051d7001100ba986f14ce610372",
          "value": "9ef05051d7001100ba986f14ce610372"
        }
      ]
    }
  ]
}```
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/75a15011d7001100ba986f14ce6103ee",
"value": "75a15011d7001100ba986f14ce6103ee"
}
,
{
"display_value": "By month SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/80e19051d7001100ba986f14ce610320",
"value": "80e19051d7001100ba986f14ce610320"
}
,
{
"display_value": "By quarter SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/03e19051d7001100ba986f14ce610327",
"value": "03e19051d7001100ba986f14ce610327"
}
,
{
"display_value": "By fiscal quarter SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/4f6d2851d7001100ba986f14ce61034c",
"value": "4f6d2851d7001100ba986f14ce61034c"
}
,
{
"display_value": "By week AVG",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/4ead2851d7001100ba986f14ce61039d",
"value": "4ead2851d7001100ba986f14ce61039d"
}
,
{
"display_value": "By month AVG",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/cdbd2851d7001100ba986f14ce6103a3",
"value": "cdbd2851d7001100ba986f14ce6103a3"
}
,
{
"display_value": "By quarter AVG",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/71cd2851d7001100ba986f14ce6103aa",
"value": "71cd2851d7001100ba986f14ce6103aa"
}
,
{
"display_value": "By fiscal quarter AVG",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/b2ed2851d7001100ba986f14ce6103e8",
"value": "b2ed2851d7001100ba986f14ce6103e8"
}
,
{
"display_value": "Week to date SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/a33e6851d7001100ba986f14ce610331",
"value": "a33e6851d7001100ba986f14ce610331"
}
,
{
"display_value": "Month to date SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/9f5e2011d7001100ba986f14ce61034e",
"value": "9f5e2011d7001100ba986f14ce61034e"
}
,
{
"display_value": "Quarter to date SUM",
"link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/136e2011d7001100ba986f14ce6103eb",
"value": "136e2011d7001100ba986f14ce6103eb"
}
,
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```json
{
    "display_value": "Fiscal quarter to date SUM",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/3f7e6851d7001100ba986f14ce610354",
    "value": "3f7e6851d7001100ba986f14ce610354"
},
{
    "display_value": "Week to date AVG",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/03ae6851d7001100ba986f14ce610380",
    "value": "03ae6851d7001100ba986f14ce610380"
},
{
    "display_value": "Month to date AVG",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/4abe6851d7001100ba986f14ce610392",
    "value": "4abe6851d7001100ba986f14ce610392"
},
{
    "display_value": "Quarter to date AVG",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/cace6851d7001100ba986f14ce610398",
    "value": "cace6851d7001100ba986f14ce610398"
},
{
    "display_value": "Fiscal quarter to date AVG",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_aggregates/d9de6851d7001100ba986f14ce6103b7",
    "value": "d9de6851d7001100ba986f14ce6103b7"
}
],
"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/17b365e2d7320100ba986f14ce6103ad",
    "value": "17b365e2d7320100ba986f14ce6103ad"
},
"breakdowns": [
    {
        "display_value": "Priority",
        "link": "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
        "value": "0df47e02d7130100b96d45a3ce610399"
    }
]}
Return the scorecard with breakdown relations

You can obtain the sys_id values for all breakdown relations associated with the scorecard using the sysparm_include_available_breakdowns parameter.

Command:
```
curl -v -u "admin:admin" -H "Accept:application/json"
   "https://<instance>.service-now.com/api/now/v1/pa/scorecards?
   sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96d45a3ce6103b4:287ee6fea9fe198100ada7950d0b1b73&sysparm_include_available_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_indicators/fb007202d7130100b96d45a3ce6103b4",
            "value": "fb007202d7130100b96d45a3ce6103b4"
         },
         "description": "Number of incidents open based on resolved date is empty."
      }
   ]
}
```
Number of incidents open based on resolved date is empty.

**Value**: 37.0
**Change**: 9.0
**Change Perc**: 32.1%
**Direction**: Minimize
**Period**: Jul 22

**Description**: Number of incidents open based on resolved date is empty.

**Element**:
- **Display Value**: Database
- **Link**: https://<instance>.service-now.com/api/now/v1/table/sys_user_group/287ee6fea9fe198100ada7950d0b1b73
  - **Value**: 287ee6fea9fe198100ada7950d0b1b73

**Breakdowns**:

1. **Display Value**: Priority
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399
     - **Value**: 0df47e02d7130100b96d45a3ce610399

2. **Display Value**: Category
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/1f918835d7231100b96d45a3ce6103fe
     - **Value**: 1f918835d7231100b96d45a3ce6103fe

3. **Display Value**: State
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/f0647e02d7130100b96d45a3ce61030b
     - **Value**: f0647e02d7130100b96d45a3ce61030b

4. **Display Value**: Age
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/65947e02d7130100b96d45a3ce61033a
     - **Value**: 65947e02d7130100b96d45a3ce61033a

5. **Display Value**: Business Service
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/9a6f62f3678002005d1ff5557415a85
     - **Value**: 9a6f62f3678002005d1ff5557415a85

**Breakdown Relations**:

1. **Display Value**: Child Groups
   - **Link**: https://<instance>.service-now.com/api/now/v1/table/pa_breakdown_relations/301fd511eb23310065deac6aa206fe31
     - **Value**: 301fd511eb23310065deac6aa206fe31
Return the scorecard broken down using a breakdown relation

You can break down the returned data by passing a breakdown relation sys_id in the sysparm_breakdown_relation parameter.

Command:

curl -v -u "admin:admin" -H "Accept:application/json" \\
"https://<instance>.service-now.com/api/now/v1/pa/scorecards?\\
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c0739ed:287ee6fe9fe198100ada7950d0b1b73\\
&sysparm_breakdown_relation=790b6e11eb23310065deac6aa206fe1c"

Response:

```json
{
  "result": [
    {
      "value_formattted": "37",
      "indicator": {
        "display_value": "Number of open incidents",
        "link": "https://<instance>.service-now.com/api/now/v1/table/\\
pa_indicators/fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c0739ed:287ee6fe9fe198100ada7950d0b1b73",
        "value": "fb007202d7130100b96d45a3ce6103b4"
      }
    }
  ]
}
```
Return the scorecard broken down by location

The Performance Analytics API returns geolocation data when available.

Command:

curl -v -u "admin:admin" -H "Accept:application/json" "https://<instance>.service-now.com/api/now/v1/pa/scorecards?sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c0739ed:287ee6fe9fe198100ada7950d0b1b73&sysparm_breakdown=656d5662eb23310065deac6aa206fee7"
Response:

```json
{
  "result": [
    {
      "element": {
        "display_value": "San Diego",
        "link": "https://<instance>.service-now.com/api/now/v1/table/cmn_location/108752c8c611227501d4ab0e392ba97f",
        "value": "108752c8c611227501d4ab0e392ba97f",
        "longitude": -117.15726,
        "latitude": 32.71533
      },
      ...
    },
    {
      "element": {
        "display_value": "Florida",
        "link": "https://<instance>.service-now.com/api/now/v1/table/cmn_location/8e3e85f037d0200044e0bfc8bcbe5d14",
        "value": "8e3e85f037d0200044e0bfc8bcbe5d14",
        "longitude": -95.71289,
        "latitude": 37.09024
      },
      ...
    }
  ]
}
```

Return the scorecard with a filter

You can apply a filter to the scorecard data using the `sysparm_elements_filter` parameter with the `sys_id` of a Performance Analytics element filter record.

Command:

```
curl -v -u "admin:admin" -H "Accept:application/json"
  "https://<instance>.service-now.com/api/now/v1/pa/scorecards?
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=baec0752bf130100b96dac80
sysparm_elements_filter=7b9eb563eb11020065deac6aa206fe11"
```

Response:

```json
{
  "result": [
    {
      "value_formatted": "37",
      "indicator": {
        "display_value": "Number of open incidents",
        "link": "https://<instance>.service-now.com/api/now/v1/table/pa_indicators/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": "\n", "element": { "display_value": "Database", "link": "https://<instance>.service-now.com/api/now/v1/table/sys_user_group/287ee6fe9fe198100ada7950d0b1b73", "value": "287ee6fe9fe198100ada7950d0b1b73" }, "precision": 0, "breakdown": { "display_value": "Assignment Group", "link": "https://<instance>.service-now.com/api/now/v1/table/ pa_breakdowns/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/17b365e2d7320100ba986f14ce6103ad", "value": "17b365e2d7320100ba986f14ce6103ad" }, "frequency_label": "Daily", "target": null, "changeperc": 0.32142857142857145, "uuid": "fb007202d7130100b96d45a3ce6103b4:baec0752bf130100b96dac808c0739ed:287ee6fe9fe198100ada7950d0b1b73", "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_indicators/fb007202d7130100b96d45a3ce6103b4", "value": "fb007202d7130100b96d45a3ce6103b4" }, "gapperc": null, "change": 4.0, "value_color": "#455464", "direction": 2, "target_formatted": "\n", "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, "key": false, "gap_formatted": "\n", "element": {
"display_value": "Database Atlanta",
"link": "https://<instance>.service-now.com/api/now/v1/table/sys_user_group/db53580b0a0a0a6501aa37c294a2ba6b",
"value": "db53580b0a0a0a6501aa37c294a2ba6b"
},
"precision": 0,
"breakdown": {
  "display_value": "Assignment Group",
  "link": "https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/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/17b365e2d7320100ba986f14ce6103ad",
  "value": "17b365e2d7320100ba986f14ce6103ad"
},
"frequency_label": "Daily",
"target": null,
"changeperc": 0.25,
"uuid": 
  "display_value": 
  "link": "https://<instance>.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
  "value": "fb007202d7130100b96d45a3ce6103b4"
},
"gapperc": null,
"change": 5.0,
"value_color": 
  "direction": 2,
  "target_formatted": ",",
  "frequency": 10,
  "changeperc_formatted": "35.7%",
  "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 / NY DB",
  "value": 19.0,
  "key": false,
  "gap_formatted": ",",
  "element": {
    "display_value": "NY DB",
    "link": "https://<instance>.service-now.com/api/now/v1/table/sys_user_group/5f74727dc0a8010e01efe33a251993f9",
    "value": "5f74727dc0a8010e01efe33a251993f9"
  }
},
"precision": 0,
"breakdown": {
  "display_value": "Assignment Group",
  "link": "https://<instance>.service-now.com/api/now/v1/table/pa_breakdowns/baec0752bf130100b96dac808c0739ed",
  "value": "baec0752bf130100b96dac808c0739ed"
}
"value": "baec0752bf130100b96dac808c0739ed"
},
"period": "Jul 22",
"favorite": false,
"change_formatted": "5",
"unit": {
  "display_value": "#",
  "link": "https://<instance>.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad",
  "value": "17b365e2d7320100ba986f14ce6103ad"
},
"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": "http://localhost:8080/api/now/v1/table/sys_user_group/db53a9290a0a650091abebccf833c6",
  "value": "db53a9290a0a650091abebccf833c6"
},
"precision": 0,
"breakdown": {
  "display_value": "Assignment Group",
  "link": "http://localhost:8080/api/now/v1/table/pa_breakdowns/baec0752bf130100b96dac808c0739ed",
  "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/17b365e2d7320100ba986f14ce6103ad",
  "value": "17b365e2d7320100ba986f14ce6103ad"
}

Return the scorecard with an aggregate

You can apply the 7d running SUM aggregate to the scorecard using the sysparm_uuid value with the sys_id of the aggregate.

Command:

```
curl -v -u "admin:admin" -H "Accept:application/json" 
"https://instance.service-now.com/api/now/v1/pa/scorecards? 
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:89ea4c11d7001100ba986f14ce6103dc"
```

Response:

```
{
  "result" : [ 
    {
      "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_aggregates/89ea4c11d7001100ba986f14ce6103dc",
        "value" : "89ea4c11d7001100ba986f14ce6103dc"
      },
      "gapperc" : null,
      "target" : null,
      "period" : null,
      "target_formatted" : ",",
      "favorite" : false,
      "gap" : null,
      "direction_label" : "Minimize",
      "uuid" : "fb007202d7130100b96d45a3ce6103b4:89ea4c11d7001100ba986f14ce6103dc",
      "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/17b365e2d7320100ba986f14ce6103ad",
```

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Return the scorecard with priority breakdown

You can request broken down scorecard data by passing the sysparm_breakdown parameter. This example shows the Number of open incidents scorecard broken down by priority.

In this example, the [PA Incident] Daily Data Collection job must run at least once to populate the data.

Command:

curl -v -u "admin:admin" -H "Accept:application/json" 
"https://instance.service-now.com/api/now/v1/pa/scorecards?sysparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=0df47e02d7130100b96d45a3ce610399"

Response:

```json
{
 "result" : [
 {  
 "key" : false,  
 "change_formatted" : "0",  
 "changeperc" : 0,  
 "value_unit" : "15",  
 "value_formatted" : "15",  
 "period_title" : "Mar 23",  
 "gapperc" : null,  
 "gap" : null,  
 "target" : null,  
 "period" : "Mar 23",  
 "target_formatted" : ",",  
 "favorite" : false,  
 "direction_label" : "Minimize",  
 "uuid" : "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:dce1db9cc803310026c1c49f3d065511",  
 "name" : "Number of open incidents / Priority / 1 - Critical",  
 "value_color" : "#000000",  
 "frequency_label" : "Daily",  
 "element" : {  
 "display_value" : "1 - Critical",  
 "link" : "https://instance.service-now.com/api/now/v1/table/sys_choice/dce1db9cc803310026c1c49f3d065511",  
 "value" : "dce1db9cc803310026c1c49f3d065511"  
 } }
 ]
}
```
<table>
<thead>
<tr>
<th>change formatted</th>
<th>&quot;0&quot;,</th>
</tr>
</thead>
<tbody>
<tr>
<td>gapperc formatted</td>
<td>&quot;&quot;,</td>
</tr>
<tr>
<td>value</td>
<td>15,</td>
</tr>
</tbody>
</table>
| unit             | {
| display_value    | "#", |
| link             | "https://instance.service-now.com/api/now/v1/table/pa_units/17b36e2d7320100ba986f14ce6103ad", |
| value            | "17b36e2d7320100ba986f14ce6103ad" |
| breakdown        | {
| display_value    | "Priority", |
| link             | "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399", |
| value            | "0df47e02d7130100b96d45a3ce610399" |
| changeperc formatted| "0.0%", |
| frequency        | 10, |
| precision        | 0, |
| direction        | 2, |
| indicator        | {
| display_value    | "Number of open incidents", |
| link             | "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4", |
| value            | "fb007202d7130100b96d45a3ce6103b4" |
| description      | "Number of incidents open based on resolved date is empty." |
| key              | false, |
| change formatted | "0", |
| changeperc       | 0, |
| value_unit       | "5", |
| value formatted  | "5", |
| period_title     | "Mar 23", |
| gapperc          | null, |
| gap              | null, |
| target           | null, |
| period           | "Mar 23", |
| target_formatted | "", |
| favorite         | false, |
| direction_label  | "Minimize", |
| uuid             | "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:50e1db9cc803310026c1c49f3d065512", |
| name             | "Number of open incidents / Priority / 3 - Moderate", |
| value_color      | "#000000", |
| frequency_label  | "Daily", |
| element          | {
| display_value    | "3 - Moderate", |
| link             | "https://instance.service-now.com/api/now/v1/table/sys_choice/50e1db9cc803310026c1c49f3d065512", |
| value            | "50e1db9cc803310026c1c49f3d065512" |
| change           | 0, |
| gap_formatted    | "", |
| gapperc_formatted| "", |
| value            | 5, |
| unit             | {
| display_value    | "#", |
| link             | "https://instance.service-now.com/api/now/v1/table/pa_units/17b36e2d7320100ba986f14ce6103ad", |
| value            | "17b36e2d7320100ba986f14ce6103ad" |
"breakdown": {
  "display_value": "Priority",
  "link": "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
  "value": "0df47e02d7130100b96d45a3ce610399"
},
"changeperc_formatted": "0.0%",
"frequency": 10,
"precision": 0,
"direction": 2,
"indicator": {
  "display_value": "Number of open incidents",
  "link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
  "value": "fb007202d7130100b96d45a3ce6103b4"
},
"description": "Number of incidents open based on resolved date is empty."
},
{
  "key": false,
  "change_formatted": "0",
  "changeperc": 0,
  "value_unit": "4",
  "value_formatted": "4",
  "period_title": "Mar 23",
  "gapperc": null,
  "gap": null,
  "target": null,
  "period": "Mar 23",
  "target_formatted": "",
  "favorite": false,
  "direction_label": "Minimize",
  "uuid": "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:10e1db9cc803310026c1c49f3d065512",
  "name": "Number of open incidents / Priority / 2 - High",
  "value_color": "#000000",
  "frequency_label": "Daily",
  "element": {
    "display_value": "2 - High",
    "link": "https://instance.service-now.com/api/now/v1/table/sys_choice/10e1db9cc803310026c1c49f3d065512",
    "value": "10e1db9cc803310026c1c49f3d065512"
  },
  "change": 0,
  "gap_formatted": "",
  "gapperc_formatted": "",
  "value": 4,
  "unit": {
    "display_value": ".",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad",
    "value": "17b365e2d7320100ba986f14ce6103ad"
  },
  "breakdown": {
    "display_value": "Priority",
    "link": "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
    "value": "0df47e02d7130100b96d45a3ce610399"
  },
  "changeperc_formatted": "0.0%",
  "frequency": 10,
  "precision": 0,
  "direction": 2,
"indicator": {
  "display_value": "Number of open incidents",
  "link": "https://instance.service-now.com/api/now/v1/table/
pa_indicators/fb007202d7130100b96d45a3ce6103b4",
  "value": "fb007202d7130100b96d45a3ce6103b4"
},
  "description": "Number of incidents open based on resolved date is empty."
],
"key": false,
"change_formatted": "0",
"changeperc": 0,
"value_unit": "3",
"value_formatted": "3",
"period_title": "Mar 23",
"gapperc": null,
"gap": null,
"target": null,
"period": "Mar 23",
"target_formatted": "",
"favorite": false,
"direction_label": "Minimize",
"uuid": "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:d0e1db9cc803310026c1c49f3d065512",
"name": "Number of open incidents / Priority / 5 - Planning",
"value_color": "#000000",
"frequency_label": "Daily",
"element": {
  "display_value": "5 - Planning",
  "link": "https://instance.service-now.com/api/now/v1/table/
sys_choice/d0e1db9cc803310026c1c49f3d065512",
  "value": "d0e1db9cc803310026c1c49f3d065512"
},
"change": 0,
"gap_formatted": "",
"gapperc_formatted": "",
"value": 3,
"unit": {
  "display_value": "#",
  "link": "https://instance.service-now.com/api/now/v1/table/
pa_units/17b365e2d7320100ba986f14ce6103ad",
  "value": "17b365e2d7320100ba986f14ce6103ad"
},
"breakdown": {
  "display_value": "Priority",
  "link": "https://instance.service-now.com/api/now/v1/table/
pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
  "value": "0df47e02d7130100b96d45a3ce610399"
},
"changeperc_formatted": "0.0%",
"frequency": 10,
"precision": 0,
"direction": 2,
"indicator": {
  "display_value": "Number of open incidents",
  "link": "https://instance.service-now.com/api/now/v1/table/
pa_indicators/fb007202d7130100b96d45a3ce6103b4",
  "value": "fb007202d7130100b96d45a3ce6103b4"
},
"description": "Number of incidents open based on resolved date is empty."}
Return the scorecard with priority breakdown and available breakdowns

You can request broken down scorecard data by passing the sysparm_breakdown parameter, and a list of available breakdowns by passing the sysparm_include_available_breakdowns parameter. Passing both parameters in the same request allows you to query both sets of data using a single request.
In this example, the [PA Incident] Daily Data Collection job must run at least once to populate the data.

Command:

```
curl -v -u "admin:admin" -H "Accept:application/json"
"https://instance.service-now.com/api/now/v1/pa/scorecards?
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4&sysparm_breakdown=0df47e02d7130100b96d45a3ce610399&sysparm_include_available_breakdowns=true"
```

Response:

```
{
  "result" : [ 
    { 
      "key" : false,
      "direction" : 2,
      "change_formatted" : "0",
      "changeperc" : 0,
      "value_formatted" : "15",
      "period_title" : "Mar 23",
      "gapperc" : null,
      "value_unit" : "15",
      "target" : null,
      "period" : "Mar 23",
      "target_formatted" : "",
      "favorite" : false,
      "gap" : null,
      "direction_label" : "Minimize",
      "uuid" : 
        "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:dce1db9cc803310026c1c49f3d065511",
      "name" : "Number of open incidents / Priority / 1 - Critical",
      "value_color" : "#000000",
      "frequency_label" : "Daily",
      "element" : { 
        "display_value" : "1 - Critical",
        "link" : "https://instance.service-now.com/api/now/v1/table/
                      pa_choice/dce1db9cc803310026c1c49f3d065511",
        "value" : "dce1db9cc803310026c1c49f3d065511"
      },
      "change" : 0,
      "gap_formatted" : "",
      "gapperc_formatted" : "",
      "value" : 15,
      "unit" : { 
        "display_value" : "#",
        "link" : "https://instance.service-now.com/api/now/v1/table/
                      pa_units/1b365e2d7320100ba986f14ce6103ad",
        "value" : "1b365e2d7320100ba986f14ce6103ad"
      },
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        "link" : "https://instance.service-now.com/api/now/v1/table/
                      pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
        "value" : "0df47e02d7130100b96d45a3ce610399"
      },
      "breakdowns" : [ 
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          "value" : "1f918835d7231100b96d45a3ce6103fe"
        }, 
        { 
          "display_value" : "Assignment Group",
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"link": "https://instance.service-now.com/api/now/v1/table/ pa_breakdowns/baec0752bf130100b96dac808c0739ed",
"value": "baec0752bf130100b96dac808c0739ed"
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"value": "f0647e02d7130100b96d45a3ce61030b"
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"changeperc_formatted": "0.0%",
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"description": "Number of incidents open based on resolved date is empty."}
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"value_color": "#000000",
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"element": {
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"link": "https://instance.service-now.com/api/now/v1/table/ sys_choice/50e1db9cc803310026c1c49f3d065512",
"value": "50e1db9cc803310026c1c49f3d065512"
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"value": "17b365e2d7320100ba986f14ce6103ad"
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        "value" : "65947e02d7130100b96d45a3ce61033a"
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    "link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
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  "link" : "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
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    "value" : "1f918835d7231100b96d45a3ce6103fe"
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    "display_value" : "Assignment Group",
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  "value_unit": "1",
  "target": null,
  "period": "Mar 23",
  "target_formatted": "",
  "favorite": false,
  "gap": null,
  "direction_label": "Minimize",
  "uuid": "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:90e1db9cc803310026c1c49f3d065512",
  "name": "Number of open incidents / Priority / 4 - Low",
  "value_color": "#000000",
  "frequency_label": "Daily",
  "element": {
    "display_value": "4 - Low",
    "link": "https://instance.service-now.com/api/now/v1/table/sys_choice/90e1db9cc803310026c1c49f3d065512",
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   "value": "1f918835d7231100b96d45a3ce6103fe"
  },
  {"display_value": "Assignment Group"}]}
Return the scorecard for priority 1 incidents

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.

Command:

curl -v -u "admin:admin" -H "Accept:application/json"  
"https://instance.service-now.com/api/now/v1/pa/scorecards?sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:e5900140200331007665978299a805f3"

Response:

{  
  "result": [  
    {  
      "value_formatted": "",  
      "indicator": {  
        "display_value": "Number of open incidents",  
        "link": "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",  
        "value": "fb007202d7130100b96d45a3ce6103b4"
      },  
      "gapperc": null,  
      "change": null,  
      "value_color": "#000000",  
      "direction": 2,  
      "target_formatted": ",",  
      "frequency": 10,
    }
  ]
}
Return the scorecard for priority 1 database incidents

You can apply multiple breakdowns by appending multiple 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 "admin:admin" -H "Accept:application/json"  
  "https://instance.service-now.com/api/now/v1/pa/scorecards?sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:e5900140200331007665978299a805f3:1f918835d7231100b96d45a3ce6103fe:9e418d40200331007665978299a805c1"

Response:

```json

```
Return the scorecard for priority 1 database incidents with all scores

You can request a list of individual scores by setting the sysparm_include_scores parameter to true.

Command:

curl -v -u "admin:admin" -H "Accept:application/json" 
"https://instance.service-now.com/api/now/v1/pa/scorecards?
sysparm_uuid=fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:e5900140200331007665978299a805f3:1f918835d7231100b96d45a3ce6103fe:9e418d40200331007665978299a805c1&sysparm_include_scores=true"

Response:
{
    "result" : [
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            "key" : false,
            "change_formatted" : "0",
            "changeperc" : 0,
            "value_unit" : "15",
            "value_formatted" : "15",
            "period_title" : "Mar 23",
            "gapperc" : null,
            "gap" : null,
            "target" : null,
            "period" : "Mar 23",
            "target_formatted" : 
            "favorite" : false,
            "scores" : [
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                    "period" : "Mar 23",
                    "start_at" : "2015-03-23",
                    "value_formatted" : "15",
                    "value" : 15
                },
                {
                    "end_at" : "2015-03-22",
                    "period" : "Mar 22",
                    "start_at" : "2015-03-22",
                    "value_formatted" : "15",
                    "value" : 15
                },
                {
                    "end_at" : "2015-03-21",
                    "period" : "Mar 21",
                    "start_at" : "2015-03-21",
                    "value_formatted" : "22",
                    "value" : 22
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                {
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                    "period" : "Mar 20",
                    "start_at" : "2015-03-20",
                    "value_formatted" : "22",
                    "value" : 22
                }
            ]
        }
    ]
}
"end_at" : "2015-03-19",
"period" : "Mar 19",
"start_at" : "2015-03-19",
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{
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"start_at" : "2015-03-17",
"value_formatted" : "22",
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},
{
"end_at" : "2015-03-16",
"period" : "Mar 16",
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],
"direction_label" : "Minimize",
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"fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:dce1db9cc803310026c1c49f3d065511",
"name" : "Number of open incidents / Priority / 1 - Critical",
"value_color" : "#000000",
"frequency_label" : "Daily",
"element" : {
"display_value" : "1 - Critical",
"link" : "https://instance.service-now.com/api/now/v1/table/sys_choice/dce1db9cc803310026c1c49f3d065511",
"value" : "dce1db9cc803310026c1c49f3d065511"
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"gap_formatted" : "",
"gapperc_formatted" : "",
"value" : 15,
"unit" : {
"display_value" : "#",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad",
"value" : "17b365e2d7320100ba986f14ce6103ad"
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"breakdown" : {
"display_value" : "Priority",
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"value" : "0df47e02d7130100b96d45a3ce610399"
},
"changeperc_formatted" : "0.0%",
"frequency" : 10,
"precision" : 0,
"direction" : 2,
"indicator" : {
"display_value" : "Number of open incidents",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
Number of incidents open based on resolved date is empty.
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"end_at": "2015-03-16",
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"value_formatted": "4",
"value": 4
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"name": "Number of open incidents / Priority / 2 - High",
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    "value": 6
  },
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  "period": "Mar 23",
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<td>Mar 17</td>
<td>2015-03-17</td>
<td>2015-03-17</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mar 16</td>
<td>2015-03-16</td>
<td>2015-03-16</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Direction Label:** Minimize

**UUID:** fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:90e1db9cc803310026c1c49f3d065512

**Name:** Number of open incidents / Priority / 4 - Low

**Value Color:** #000000

**Frequency Label:** Daily

**Element:**

- **Display Value:** 4 - Low
- **Link:** [https://instance.service-now.com/api/now/v1/table/sys_choice/90e1db9cc803310026c1c49f3d065512](https://instance.service-now.com/api/now/v1/table/sys_choice/90e1db9cc803310026c1c49f3d065512)

**Change:** 0

**Gap Formatted:** 

**Gapperc Formatted:** 

**Value:** 4

**Unit:**

- **Display Value:** 
- **Link:** [https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad](https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad)
"value" : "17b365e2d7320100ba986f14ce6103ad",
"breakdown" : {
    "display_value" : "Priority",
    "link" : "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
    "value" : "0df47e02d7130100b96d45a3ce610399"
},
"changeperc_formatted" : "0.0%",
"frequency" : 10,
"precision" : 0,
"direction" : 2,
"indicator" : {
    "display_value" : "Number of open incidents",
    "link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
    "value" : "fb007202d7130100b96d45a3ce6103b4"
},
"description" : "Number of incidents open based on resolved date is empty."
},
{
    "key" : false,
    "change_formatted" : "0",
    "changeperc" : 0,
    "value_unit" : "3",
    "value_formatted" : "3",
    "period_title" : "Mar 23",
    "gapperc" : null,
    "gap" : null,
    "target" : null,
    "period" : "Mar 23",
    "target_formatted" : "",
    "favorite" : false,
    "scores" : [
        {"end_at" : "2015-03-23",
        "period" : "Mar 23",
        "start_at" : "2015-03-23",
        "value_formatted" : "3",
        "value" : 3
        },
        {"end_at" : "2015-03-22",
        "period" : "Mar 22",
        "start_at" : "2015-03-22",
        "value_formatted" : "3",
        "value" : 3
        },
        {"end_at" : "2015-03-21",
        "period" : "Mar 21",
        "start_at" : "2015-03-21",
        "value_formatted" : "12",
        "value" : 12
        },
        {"end_at" : "2015-03-20",
        "period" : "Mar 20",
        "start_at" : "2015-03-20",
        "value_formatted" : "12",
        "value" : 12
        }
    ]
"end_at" : "2015-03-19",
"period" : "Mar 19",
"start_at" : "2015-03-19",
"value_formatted" : "12",
"value" : 12
},
{
"end_at" : "2015-03-18",
"period" : "Mar 18",
"start_at" : "2015-03-18",
"value_formatted" : "12",
"value" : 12
},
{
"end_at" : "2015-03-17",
"period" : "Mar 17",
"start_at" : "2015-03-17",
"value_formatted" : "12",
"value" : 12
},
{
"end_at" : "2015-03-16",
"period" : "Mar 16",
"start_at" : "2015-03-16",
"value_formatted" : "12",
"value" : 12
}
],
"direction_label" : "Minimize",
"uuid" : "fb007202d7130100b96d45a3ce6103b4:0df47e02d7130100b96d45a3ce610399:d0e1db9cc803310026c1c49f3d065512",
"name" : "Number of open incidents / Priority / 5 - Planning",
"value_color" : "#000000",
"frequency_label" : "Daily",
"element" : {
"display_value" : "5 - Planning",
"link" : "https://instance.service-now.com/api/now/v1/table/sys_choice/d0e1db9cc803310026c1c49f3d065512",
"value" : "d0e1db9cc803310026c1c49f3d065512"
},
"change" : 0,
"gap_formatted" : "",
"gapperc_formatted" : "",
"value" : 3,
"unit" : {
"display_value" : "#",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_units/17b365e2d7320100ba986f14ce6103ad",
"value" : "17b365e2d7320100ba986f14ce6103ad"
},
"breakdown" : {
"display_value" : "Priority",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_breakdowns/0df47e02d7130100b96d45a3ce610399",
"value" : "0df47e02d7130100b96d45a3ce610399"
},
"changeperc_formatted" : "0.0%",
"frequency" : 10,
"precision" : 0,
"direction" : 2,
"indicator" : {
"display_value" : "Number of open incidents",
"link" : "https://instance.service-now.com/api/now/v1/table/pa_indicators/fb007202d7130100b96d45a3ce6103b4",
Integrate Performance Analytics with external data sources

Use example integrations to record and visualize scores from external data sources.

Example integration - LinkedIn

Performance Analytics includes an optional example integration demonstrating how to fetch data from the LinkedIn service and display it on a Performance Analytics dashboard.

To use the LinkedIn integration, you must activate the Performance Analytics - Example - LinkedIn plugin. The integration allows you to track, break down, and report on the number of followers and updates for a particular company.

LinkedIn enforces several limits and requirements:

• The LinkedIn Updates API supports only 600 calls per day. The integration tracks at most the latest 600 updates.
• The application authentication must be refreshed every 90 days. See the access_token_expire field to determine when authentication expires.

Configure LinkedIn integration

Configure the LinkedIn integration to display LinkedIn data in Performance Analytics.

Role required: linkedin_admin

Before starting this procedure, ensure you have complete the following prerequisites with the LinkedIn service:

• A LinkedIn Client Application is associated with your company’s LinkedIn profile.
• Configure the Client Application with the redirect URL for your instance. You can view this URL by creating a new LinkedInApps record (LinkedIn > Apps.)
• You have recorded the LinkedIn Client Application API Key and API Secret values.

1. Navigate to LinkedIn > Apps.
2. Click New.
3. Enter a descriptive App name.
4. Enter the Api key and Api secret for your LinkedIn Client Application.
5. Right-click the form header and select Save.
6. Click the Authenticate related link.
   You are redirected to LinkedIn. Complete any steps required by LinkedIn.
7. On the LinkedInApp form, right-click the form header and select Reload form to confirm the application was authenticated.
   Note the access token expiry date.
8. Navigate to LinkedIn > Companies.
9. Click New.
10. Enter the company **Name** and the company ID **Code**.
11. Click **Submit**.
12. Navigate to **LinkedIn > Access Rights**.
13. Click **New**.
14. Select the **App** and **Company** records you created.
15. Click **Submit**.
16. Navigate to **LinkedIn > LinkedIn Collector Job**.
17. Schedule this job to run at least once.
   The job state will change to **Running**, then to **Ready**. Wait for this process to complete before moving on. This may take several minutes.
18. Navigate to **LinkedIn > Aggregate Update Table** and **LinkedIn > Individual Update Table** to verify these tables were populated.
19. Navigate to **LinkedIn > PA Data Collector Job**.
20. Change the **Relative end** value to 0.
21. Schedule this job to run at least once.
   An entry is added to the **Job Logs** related list. Wait for this record to reach the **Collected** state before moving on. This may take several minutes.

After configuring the integration and collecting the data, you can view the LinkedIn dashboard by navigating to **LinkedIn > Dashboard**.

You can view all LinkedIn scorecards by navigating to **Performance Analytics > Scorecards** and filtering the list to include only scorecards that contain the text LinkedIn.

**Example integration - Twitter**

Performance Analytics includes an optional example integration demonstrating how to fetch data from the Twitter service and display it on a Performance Analytics dashboard.

To use the Twitter integration you must activate the Performance Analytics - Example - Twitter plugin.

The integration allows you to track, break down, and report on the number of tweets and retweets containing certain tags and mentions.

You can define which tags and users to track by creating Twitter context records.

The Twitter service enforces several limits:

- The Twitter Search API limits results to tweets at most 3 weeks old. Historic collection of hashtags and mentions is not available.
- The integration is intended for use with a single user account and timeline. Support for multiple Twitter accounts is not available.

**Configure Twitter integration**

Configure the Twitter service integration to display Twitter data in Performance Analytics.

Role required: pa_admin, u_pa_twitter_context_user, and web_service_admin

Before starting this procedure, ensure you have complete the following prerequisites with the Twitter service:

- A Twitter application is associated with your Twitter account.
- You have recorded the Twitter application Consumer Key and Consumer Secret values.

1. Navigate to **System Web Services > REST Message**.
2. Select the Get Twitter OAuth Token REST message record.
3. In the HTTP Methods related list, select the POST method.
4. In the Basic authentication user ID field, enter your Twitter application Consumer Key.
5. In the Basic authentication password field, enter your Twitter application Consumer Secret.
6. Click Update.
7. Navigate to Twitter > Twitter Collector Job.
8. Schedule this job to run at least once.
   The job state will change to Running, then to Ready. Wait for this process to complete before moving on. This may take several minutes.
9. Navigate to Twitter > PA Data Collector Job.
10. Schedule this job to run at least once.
    When the job runs, an entry is added to the Job Logs related list. Wait for this record to reach the Collected state before moving on. This may take several minutes.

After configuring the integration and collecting the data, you can view the Twitter dashboard by navigating to Twitter > Dashboard.

You can view all Twitter scorecards by navigating to Performance Analytics > Scorecards and filtering the list to include only scorecards where the Indicator group is Twitter.

Example integration - Yahoo stocks

Performance Analytics includes an optional example integration demonstrating how to fetch data from the Yahoo stocks service.

The integration allows you to regularly query stock information for various stock symbols from the Yahoo service, and display that stock information over time using Performance Analytics.

The integration uses outbound REST to query the Yahoo API. You can customize this query in the StockQuotesCollector script include. All stock information is stored on the u_pa_stock_symbols table.

To use the Yahoo stocks integration you must activate the Performance Analytics - Example - Stocks Quotes plugin. Activating this plugin also adds the 50d running AVG, 100d running AVG, and 200d running AVG time series.

Configure Yahoo stocks integration

Configure the Yahoo stocks integration to display stock quote information in Performance Analytics.

Role required:
   pa_stock_quotes_user, pa_stock_symbols_user, and pa_admin

1. Navigate to Stock Quotes > Symbols.
2. Define which stocks you want to track by adding a new record for each stock symbol, such as NOW.
3. Navigate to Stock Quotes > Stock Quotes Collector.
4. Schedule this job to run at least once.
   The initial data collection job runs. Wait for this job to complete before moving on.
5. Navigate to Stock Quotes > PA Data Collector Job.
6. Schedule this job to run at least once.

After collecting the stock information, navigate to Stock Quotes > Dashboard to view the collected information.
Visualizing Yahoo stock data

You can display Yahoo stock information in a widget.

The UI macro `pa_stock_quote_widget` allows you to visualize stock quote information for a specific stock symbol. This widget displays real-time data based on the `u_pa_stock_quotes` table.

This example shows a dynamic content block displaying stock data for the `NOW` symbol.

```xml
<?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:macro_invoke macro="pa_stock_quote_widget" symbol="NOW"/>
</j:jelly>
```

Performance Analytics mobile app

The Performance Analytics mobile app enables you to connect to a ServiceNow instance and retrieve scores for the defined and collected indicators (KPIs).

**Note:** The Performance Analytics mobile app can only be used when your mobile device is in portrait mode.

Performance Analytics mobile app supported platforms

Access to Performance Analytics is available on certain mobile devices.

Access to Performance Analytics is available on the following mobile devices with native apps:

- iPhone iOS 7 and higher
- Android 4.2 and higher

The mobile apps for iOS and Android provide access to scorecards. The mobile apps do not give access to dashboards as dashboards are not optimized for mobile screen sizes.

You can access Performance Analytics on a tablet using the standard web interface.

Set up the Performance Analytics mobile app

Download and access the Performance Analytics mobile app.

Give the following roles to each user that needs access to the contents of Performance Analytics:

- **pa_viewer role:** provides read-only access to Performance Analytics dashboards and scorecards.

1. Download the app for iPhone or Android and follow the installation instructions.
   - Download for iPhone
   - Download for Android

2. Open the app and fill in the following details for your instance.
   - URL
   - Username
   - Password
Performance Analytics mobile app settings

Use the mobile app settings to change the interface language or font size.

- **Change language.** The following languages are available:
  - English
  - Nederlands (Dutch)
  - Francois (French)
  - Deutsch (German)

- **Font size.** The selected font is indicated with an asterisk (*). The following font sizes are available:
  - Normal
  - +
  - ++
  - +++

---

**Note:** You must restart the mobile app for font size changes to take effect.

---

## Reporting

Reporting enables you to create and distribute reports that show the current state of instance data, such as how many open incidents of each priority there are. Reporting functionality is available by default for all tables.

**Explore**
- Reporting release notes
- Upgrade to Geneva

**Use**
- Getting started with reports on page 155
- Report types on page 185
- Add a report to a homepage or dashboard on page 169

**Administer**
- Reporting roles on page 168
- Administering reports on page 346
- Distribute reports on page 169

**Develop**
- Developer training
- Developer documentation

**Troubleshoot and get help**
- Ask or answer questions in the Performance Analytics and Reporting community
- Search the HI knowledge base for known error articles
- Contact ServiceNow Support

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### Getting started with reports

ServiceNow reports are visualizations of your data that you can share with users on dashboards and service portals, export to PDF, and send via email. Learn how to create, run, edit, view, and share reports.

---

**Note:** 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 homepages and dashboards to share information across your organization.

The following podcast offers additional information on reporting.

Run a report

Run a report to view current data with an existing report configuration.

To administer reports, reporting roles, and report sources, navigate to **Reports > Administration** and select the area to administer.

1. Navigate to **Reports > View/Run**.
2. Click the report you want to run.

Run a report from a list

You can create a report directly from a list. If you have a reporting role you can also save, distribute, and export these reports.

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 report is generated.

Create or edit a report

Create a report to visualize and analyze current instance data.

1. Do one of the following steps:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Create a new report</strong></td>
<td>Navigate to <strong>Reports &gt; Create New</strong></td>
</tr>
<tr>
<td><strong>Edit an existing report</strong></td>
<td>Navigate to <strong>Reports &gt; View / Run</strong> and click the edit icon (✏️) beside the report name.</td>
</tr>
</tbody>
</table>

2. 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** on page 185 for information about that report type.

Report options

Use the report options menu above any report to manage the report. For example, you can save, share, publish, or export the report. All reporting options are described in following table.
**Note:** Some options appear in this menu before you save a report. All of the options available to you will appear after you save the report.

![Report options menu](image)

**Figure 9: Report options Save menu**

Report options vary depending on the role of the user working with the report. For more information, see *Reporting roles* on page 168.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run</td>
<td>Creates the report according to the information in the form.</td>
</tr>
<tr>
<td>Save</td>
<td>Saves any changes to the form and leaves the form open.</td>
</tr>
<tr>
<td>Update</td>
<td>Saves any changes to the form and returns to the report list.</td>
</tr>
</tbody>
</table>

**Table 46: Report Options**
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Duplicates a report record and inserts it into the report list. Use this option to create a new report quickly by changing a few values in an existing report. Be sure to give the new report a unique name.</td>
</tr>
<tr>
<td>Insert and Stay</td>
<td>Duplicates the report record, inserts it into the Reports list, and opens the new report. Use this option to create a new report quickly by changing a few values in an existing report. Be sure to give the new report a unique name.</td>
</tr>
<tr>
<td>Publish</td>
<td>Creates a URL for the report and displays the address above the report form. You can create an email notification with this URL and email the link to people who want to see the report.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes the current report.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Creates a schedule for running the current report. You cannot schedule Calendar reports. See Schedule a report on page 170.</td>
</tr>
<tr>
<td>Make Gauge</td>
<td>Creates a gauge using the current report that can be added to homepages. This option is not available if a gauge has already been created for the report.</td>
</tr>
<tr>
<td>Add to Dashboard</td>
<td>Adds the current report to a selected homepage or dashboard as a gauge. Adding gauges to dashboards is only enabled if Performance Analytics premium is activated. See Add a report to a homepage or dashboard on page 169.</td>
</tr>
<tr>
<td>Sharing</td>
<td>Enables you to change the sharing settings of the report. See Share a report with a group on page 172.</td>
</tr>
<tr>
<td>Export Settings</td>
<td>Enables you to change the export settings.</td>
</tr>
<tr>
<td>Export to PDF</td>
<td>Generate a PDF of the report that you can download or email. This option is not available for calendar reports</td>
</tr>
</tbody>
</table>

**Note:** Users can add reports to any homepage they can view. Users who do not have edit rights to a homepage create new homepages with the added information when they modify a homepage that they don’t own.

**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.
### 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 Report Options menu after opening a report from a different application scope in the report builder. 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.

See *Application scope*.

### Delete a report

Delete reports that are no longer used. You must be the creator or an administrator of the report to delete it.

1. Navigate to **Reports > View / Run**.
2. Select the report to delete.
3. When the report opens, click the Delete icon (delete icon) and confirm that you want to delete the report.

The selected report is removed, and is no longer available to share, publish, or view.
Reports list

View a list of predefined reports and create custom reports from the Reports list.

Standard platform ACLs regulate access to reports in the reports list. This regulation impacts user access to certain reports. For further information on ACLs and reporting, see the article Reports list access regulated by ACLs [KB0546694] in the HI Knowledge Base.

**Note:** You can open the Reports list by adding `/report_home.do` to your instance URL. To only show reports that are marked as favorites, add the `?sysparm_favorites=true` parameter.

You can filter the Reports list with the following tabs:

**Table 47: Reports list**

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>My reports</td>
<td>Displays reports that you created.</td>
</tr>
<tr>
<td>Group</td>
<td>Displays reports that you created, reports that have been shared with you, and reports that have been shared with the groups you are a member of. You can view additional information about an individual group report by pointing to the report icon.</td>
</tr>
<tr>
<td>Global</td>
<td>Displays reports to users who have the itil role.</td>
</tr>
<tr>
<td>All</td>
<td>Displays global reports, group reports, and my reports.</td>
</tr>
</tbody>
</table>
Figure 11: Reports list tabs

The following tabs are available on the Reports list for users with the report_admin role:

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy</td>
<td>Displays the reports that take the most time to generate. Change the glide.report.new_home.heavy property to adjust the number of heavy reports that are displayed.</td>
</tr>
<tr>
<td>Tab</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Unused</td>
<td>Displays reports that have not been used for some time. Change the glide.report.new_home.unused property to adjust the number of days that reports must remain unused before they are displayed under this tab. This tab also includes reports that have never been run.</td>
</tr>
<tr>
<td>Most used</td>
<td>Displays the most used reports. Change the glide.report.new_home.most_used property to adjust the number of most used reports that are displayed.</td>
</tr>
</tbody>
</table>

Users with report_admin or admin roles only can also view the following columns on their Reports list.

### Table 49: More columns

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled</td>
<td>Indicates if the report is scheduled to run in the future. Reports can be run periodically and then emailed.</td>
</tr>
<tr>
<td>Last Run Date</td>
<td>Displays the date and time the report was last run.</td>
</tr>
<tr>
<td>Runs</td>
<td>Displays the number of times the report was run.</td>
</tr>
<tr>
<td>Runs on Page</td>
<td>Displays the number of times the report was run from a homepage gauge. Refreshing the homepage does not always increase the number of page runs. The number is only updated when reports are not cached on the server.</td>
</tr>
<tr>
<td>Recent Run Time</td>
<td>Displays the average time in milliseconds that it took to run the report, based on the last 25 times.</td>
</tr>
<tr>
<td>Run Time</td>
<td>Displays the average time in milliseconds that it took to run the report, based on all runs.</td>
</tr>
<tr>
<td>Published</td>
<td>Displays a check mark icon (✓) to indicate that the report is published.</td>
</tr>
</tbody>
</table>

### Searching reports

You can search for reports from the Reports list. Only reports you can access appear in search results.

Search suggestions appear depending on the search string. Use search suggestions to search for reports by title keywords, for a specific report by name, or for reports on a specific table.
You can sort and filter the search results using the standard report list controls, such as by clicking tabs, column headings, or the favorites icon (⭐).

View favorite reports

You can manually mark a report as a favorite by clicking the star icon beside the report title. To toggle between showing only favorite reports and showing all reports, click the star icon in the list header.
A report is automatically marked as a favorite when you open it. The View/Run reports list layout uses the general **Automatically Add Favorites** per-user setting to define the preferred behavior. You can modify this behavior by clicking the menu icon in the application navigator. Toggle the option to enable or disable automatically adding favorites. The setting applies to the selection of both application menu modules and reports.

### Reports list URL parameters

You can add parameters to the Reports list URL to filter the list before it loads.

### Reports list URL structure


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:
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Possible values</th>
</tr>
</thead>
</table>
| 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:  
|                          | • type  
|                          | • title  
|                          | • table  
|                          | • modificationDate  
|                          | • scheduled  
|                          | • published  
|                          | • createdBy  
|                          | For example https://yourbusiness.service-now.com/report_home.do?jvar_list_order_by=type 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_created_by=itil  
|                          | returns the reports created by the user with user name itil. |
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Possible values</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_query</td>
<td>Enables you to filter on any condition in platform condition builder format. For example, <a href="https://yourbusiness.service-now.com/report_home.do?sysparm_query=titleSTARTSWITHPRB&amp;table">https://yourbusiness.service-now.com/report_home.do?sysparm_query=titleSTARTSWITHPRB&amp;table</a>! =incident. For more information, see Condition builder.</td>
</tr>
</tbody>
</table>

View a report shared with specific users or groups

If administrators have added and enabled the glide.report_home.group_report.show_usr_grp system property, you can configure the Reports list to show the names of the users and groups that reports are shared with.

You set the Visible to setting to Groups and Users to allow other users to view your reports. Shared reports are those where the setting is Groups and Users.

1. Navigate to Self-Service > My Profile.
2. Click Reporting Preferences.
3. Select the Show first group or user name for group reports, on the reports home page check box.
4. Click Save.

After you enable this option, the Group reports table displays a Shared with column with the names of the users and groups that the reports are shared with.

Note: Users who configure the Reports list to show only shared reports may experience increased page load times.

Customize the Reports list

On the Reports list, you can show or hide columns, sort reports, and view general information about reports.

To show or hide columns in the list header, click the gear icon ( ) at the right side of the header bar and then switch columns on ( ) or off ( ) in the Configure View settings. The number of columns you can switch on and off depends on your user role.
To sort reports in ascending and descending order by column, click the column in the list header.
To view general information and statistics for a report, point to the report title.

Reporting roles
Learn about the different report roles and the default abilities of each.

**Note:**
- Users must have the itil role to see the Reports module on the application navigator.
- 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, and Export to PDF.
- In the table below, the term manage indicates access to the following report options: Update, Delete, Sharing, and Export settings.

### Table 50: Report roles

<table>
<thead>
<tr>
<th>Role title [name]</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No role</td>
<td>Can view reports that are shared with them.</td>
</tr>
<tr>
<td>itil [itil]</td>
<td>Can access Reports on the application navigator. Can manage reports listed in My reports.</td>
</tr>
<tr>
<td>report publisher [report_publisher]</td>
<td>Can Publish reports that they can manage. Publishing a report creates public a link to that report. Users with this role must also have another role that grants permission to create and edit reports.</td>
</tr>
<tr>
<td>report scheduler [report_scheduler]</td>
<td>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 and edit reports.</td>
</tr>
<tr>
<td>group report user [report_group]</td>
<td>Can manage reports that are shared with groups the user belongs to (visible in Group).</td>
</tr>
<tr>
<td>global report user [report_global]</td>
<td>Can manage reports that are shared with everyone (visible in Global).</td>
</tr>
<tr>
<td>gauge maker [gauge_maker]</td>
<td>Can make gauges from reports so they can be added to dashboards and homepages with the Make gauge option. Can add reports to homepages with the Add to Dashboard option.</td>
</tr>
<tr>
<td>report administrator [report_admin]</td>
<td>Can manage, publish, and schedule all reports. Can access Reports &gt; Administration and manage all report-related objects. The report_admin role inherits all other report roles.</td>
</tr>
</tbody>
</table>
Distribute reports

You can distribute reports to provide business information to other users and stakeholders. You can add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or the URLs of published reports, and share reports with individuals or groups.

Watch the following video for an overview of distributing reports.

Report access control

You can control who sees reports by applying a security state. You can make reports:

- 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

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. 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. For more information, see *Database views* on page 313.

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. These reports are not filtered based on security, but some on-query business rules defined for the target table filter the report results. ACLs are required to view the list of records when you select a portion of a report visualization. If you have access to a report but not to some of its records, you do not see those records in drilldown or as a list. They are included in visualizations of data, however.

If a user saves global report as a group or personal report, the ServiceNow 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, ServiceNow changes the security state rather than copying the report.

Add a report to a homepage or dashboard

When viewing a report, you can add that report to a homepage or a dashboard. When a report is on your homepage or dashboard, you have the latest information at any time without having to run the report. You can also share dashboards with other users.

Ensure that there is a report you want to display on a homepage or dashboard.

Role required: gauge_maker, report_admin, or pa_power_user. The pa_power_user role is required only when adding a report to a Performance Analytics dashboard.

1. Navigate to **Reports > View/Run**.
2. Select a report.
3. Click the arrow next to the **Save** button to open the Report options menu and select **Make Gauge** to make the report into a gauge.
If the report has already been made into a gauge, this option is not available and you can skip this step. Only gauges, not reports, can be added to dashboards and homepages.

4. Click the arrow next to the Save button to open the Report options menu and select Add to Dashboard.

For upgrades from earlier releases, this option sometimes appears as Add to Homepage.

**Note:** If this option does not exist, ensure that the report has been made into a gauge. See step 3.

5. Select if you want to add the report to a **Homepage** or **Dashboard**.

6. Based on your selection, perform one of the following actions.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homepage</td>
<td>Select the Homepage to add the report to.</td>
</tr>
<tr>
<td>PA dashboard</td>
<td>Select the Performance Analytics Dashboard and Tab to add the report to.</td>
</tr>
</tbody>
</table>

7. Specify the display Name for the report.

8. Click Add here to add the report in that position, or click Add to add the report in the first available position on the homepage or dashboard.

### Schedule a report

Scheduling is a convenient way to automate the distribution of reports.

Role required: itil and either report_admin or report_scheduler, or admin

Scheduled reports are sent regularly in emails to specific users, groups, or email addresses.

Scheduled reports are rendered in 2D by default. The 2D format provides a clear representation in reports that contain large amounts of data. If needed, an administrator can switch to the 3D view by disabling the glide.report.use_charting_v2 property.

1. Navigate to Reports > View/Run.
2. Click a report to schedule for distribution.
3. Click the arrow next to the Save button to open the Report options menu and select Schedule.
4. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the scheduled report. The default name is based on the name of the underlying report.</td>
</tr>
<tr>
<td>Report</td>
<td>Name of the base report to be used. This field is filled in by default. To send a report as a URL instead of as an image, clear this field and include the report URL in the Introductory Message field. For example, you can send the report URL if the report image is too large for an email attachment,</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Users</td>
<td>Users who should receive the report. To receive reports, users must have an Email address defined and have <strong>Notifications</strong> set to <strong>Enable</strong> in their user records.</td>
</tr>
<tr>
<td>Groups</td>
<td>Groups that should receive the report.</td>
</tr>
<tr>
<td>Email addresses</td>
<td>Email addresses of users who should receive the report, but who are not in the system.</td>
</tr>
<tr>
<td>Active</td>
<td>Check box that enables (selected) or disables (cleared) scheduling for the report.</td>
</tr>
<tr>
<td>Run</td>
<td>Frequency for generating the report.</td>
</tr>
<tr>
<td>Time</td>
<td>Time of day to generate the report.</td>
</tr>
<tr>
<td>Conditional</td>
<td>Check box that shows (selected) or hides (cleared) the <strong>Condition</strong> field, which enables you to specify conditions under which the report is generated.</td>
</tr>
<tr>
<td>Omit if no records</td>
<td>Check box that prevents (selected) or allows (cleared) the distribution of empty reports.</td>
</tr>
<tr>
<td>Condition</td>
<td>User-created script that checks for certain conditions to be true before generating reports.</td>
</tr>
<tr>
<td></td>
<td>This field is visible only when <strong>Conditional</strong> is selected.</td>
</tr>
<tr>
<td>Subject</td>
<td>Text that appears in the subject line of the distribution email.</td>
</tr>
<tr>
<td>Introductory message</td>
<td>Additional message that is delivered with the report.</td>
</tr>
<tr>
<td>Type</td>
<td>Report output type. Graphical reports are sent as PNG or PDF files, and list reports are sent as PDF files. When scheduling a graphical report to be emailed, select output type <strong>PDF</strong> or <strong>PDF-landscape</strong> to include the chart grid data. When scheduling a data report, select output type <strong>Excel</strong> or <strong>CSV</strong>. All reports are generated with the Highcharts charting engine, giving them a consistent look.</td>
</tr>
<tr>
<td>Zip output</td>
<td>Check box for indicating that the report is to be sent as a zip file.</td>
</tr>
<tr>
<td>Include with</td>
<td>Additional scheduled report to send.</td>
</tr>
</tbody>
</table>

5. Save the record.
6. Optional: In the **Included in Email** related list, you can create additional scheduled reports. Each report you add to the **Included in Email** related list must have its own schedule. Then you can send different reports to one or more of the recipients of the previously identified reports, each with its own schedule.

To unschedule a report:

1. Navigate to **Reports > Scheduled reports**.
2. Select the entry.
3. Choose **Delete** from **Actions on selected rows**.

This action only deletes the schedule of the report, not the report itself.

**Share a report with a group**

You can make a report available to specific groups.

1. Navigate to **Reports > View / Run**.
2. Select a report.
3. Click the arrow next to the **Save** button to open the Report options menu and select **Sharing**.
4. In the **Visible to** field, select **Groups and Users**.
5. From **Groups**, enter the group name or click the reference lookup icon and select the group.
6. Click **Close**.
7. Click **Save**.

**Group report limitations**

It is not possible to save changes to a global or group report that you did not create. Click the arrow next to the **Save** button and select **Insert and Stay** to save a personal copy.

If a user opens a global report and tries to save it as a group or personal report, the ServiceNow platform copies the report rather than changing its security state. Copying the report allows 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, ServiceNow moves the report rather than copying it. The user must have the appropriate rights to create a group or global report.

**Publish a report**

Publish a report to create a URL that anyone can use to access the report, including people who are not ServiceNow users. When a person visits the URL, the report is generated using current data.

Role required: both the report_publisher and itil role, report_admin, or admin

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.
- Published list reports are governed by ACLs and users cannot see records for which they do not have access. Recipients of the published list report URL are prompted to log in to the instance. Recipients outside of your instance are not able to see list report data.
- Published reports cannot be modified from their published report URL. Users must open a report in the instance to modify it.
Users with the admin or report_admin role can see if a report has been published. Navigate to Reports > View / Run, click the arrow next to the Save button to open the Report options menu. If the menu has the Publish option, the report is not yet published. If the menu has the Unpublish option, the report has been published.

**Note:** To make a report available only to logged in users, set its Sharing setting to Everyone, but do not publish it.

1. Navigate to Reports > View / Run.
2. Click the report you want to publish.
3. Click the arrow next to the Save button to open the Report options menu and select Publish. A message with the link to the published report appears at the top of the page. This message is available until the report is unpublished. See Unpublish a report on page 173.

**Note:** Business rules may affect how records are collected for public reports. For more information, see Business rules.

### Unpublish a report

Published reports stay at the published URL until they are unpublished.

1. Navigate to Reports > View / Run.
2. Select the report you want to remove.
3. Click Unpublish.

### Header and footer templates for report PDFs

Administrators and report owners can create header and footer templates for reports exported as PDFs. Reporting users apply the available templates to specific reports.

A default PDF page header footer template appears on all PDF exports that do not specify a custom header footer template. PDF page header footer templates are saved independently from reports. All header and footer text uses 8-point Helvetica bold font. A PDF page header footer template is made of multiple cells containing report attributes or user-specified content.

The default PDF page header footer template appears on all reports, as well as exports from lists, unless you define a specific template for that report. You can modify the default template but you cannot delete it. In the default template, the header displays the report Title and the page number in the format Page X. The footer displays the report Run by field and the report run time and date.

### Create a header and footer template for report PDFs

A PDF page header footer template defines the page header and footer layout for PDF files that you export from the ServiceNow instance.

Role required: admin or report_admin

1. Navigate to Reports > Header Footer Templates.
2. Click New.
3. Enter a Name for the template.
4. Select one of the following options for each header and footer cell, and enter or upload content as appropriate for the content option.
Table 51: Template form view

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page X</td>
<td>Page number of the report where X is the current page.</td>
</tr>
<tr>
<td>Page X of Y</td>
<td>Page number of the report where X is the current page and Y is the total number of pages in the report.</td>
</tr>
<tr>
<td>Report Title</td>
<td>Title of the report.</td>
</tr>
<tr>
<td>Run by</td>
<td>Name of the user who ran the report.</td>
</tr>
<tr>
<td>Run Date and Time</td>
<td>Date and time the report ran.</td>
</tr>
<tr>
<td>User Specified Text</td>
<td>User-defined message. Messages are truncated at 150 characters.</td>
</tr>
<tr>
<td>Image</td>
<td>User-specified image. The user creating the template must upload a new image when selecting Image content. Images are scaled to fit the space available in the template cell.</td>
</tr>
<tr>
<td>Empty</td>
<td>Choose this option to leave the selected cell of the header or footer empty.</td>
</tr>
</tbody>
</table>

5. Click **Submit**.

You can apply the new template to exported reports. See **Apply a PDF page header footer template to a report** on page 174.

**Apply a PDF page header footer template to a report**

You can apply available templates to specific reports, so the custom header footer template replaces the default PDF page header footer template.

Any user who can edit reports can apply a PDF page header footer template to a report.

1. Navigate to **Reports > View/Run**.
2. Open a report.
3. Click the arrow next to the **Save** button to open the Report options menu and select **Export settings**.
4. In the **Header Footer Template** field, select the template to apply.
5. Click **Close**.
   - This procedure saves the report with the selected template.
6. Optional: Export the report as a PDF to view the newly applied page header and footer.

**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.
After adding this code, you can embed an existing report, or generate a report within the Jelly code.

**Generate and embed a report**

You can embed a report within the UI by calling the `embedReportByParams(targetSpan, parms)` function. When embedding a report this way you can generate a new report using parameters, or specify a report `sys_id` to display that report.

For example:

```xml
<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:requires name="scripts/GlideV2ChartingIncludes.js" includes="true"/>
    <div id="report_stuff" />
  </j:jelly>

  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);
</xml>
```

**Table 52: Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>targetSpan</td>
<td>The jQuery element to embed the chart in.</td>
</tr>
<tr>
<td>parms</td>
<td>A JSON object defining the report. Available parameters depend on the report type.</td>
</tr>
</tbody>
</table>

**Embedded report parameters**

When embedding a report in a Jelly element, you can define a report by passing parameters.

**Common parameters**

Certain parameters are used by multiple report types.

**Table 53: Common parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>jvar_report_id</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_title</td>
<td>The title of the report.</td>
<td>No default</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
<td>Default value</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>sysparm_table</td>
<td>The table to report on. Specify this value or sysparm_report_source_id, but not both.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_report_source_id</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_type</td>
<td>The type of report to create. Possible values are: list, line, line_bar, area, spline, bar, horizontal_bar, pareto, hist, pie, donut, semi_donut, angular_gauge, solid_gauge, pivot, pivot_v2, funnel, calendar, pyramid, box, trend, control, trendbox, and heat map.</td>
<td>line</td>
</tr>
<tr>
<td>sysparm_field</td>
<td>The field from the specified table to group data by. This value is required for time series, column, bar, pie, donut, funnel, pyramid, box, trend, and trendbox reports. This value is optional for list reports.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_query</td>
<td>The filter to apply to the data before generating the report.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_aggregate</td>
<td>The aggregation type. Possible values are: AVG, COUNT, SUM, and COUNT_DISTINCT</td>
<td>COUNT</td>
</tr>
<tr>
<td>sysparm_sumfield</td>
<td>The field to aggregate data on. This parameter does not apply when using a COUNT aggregation type.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_display_grid</td>
<td>A boolean value that controls whether the report displays a data grid.</td>
<td>false</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
<td>Default value</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>sysparm_show_other</td>
<td>A boolean 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.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_others</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_show_empty</td>
<td>A boolean value that controls if records with empty grouping or trend values appear on the report.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_stack_field</td>
<td>The field used to control stacking on bar and column reports.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_bar_unstack</td>
<td>A boolean value that controls if stacked data is presented as a single bar or column, or as multiple bars.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_box_field</td>
<td>The numeric field used to measure the data. This parameter is required for box and histogram reports.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_trend_field</td>
<td>The date-time field used to organize trend data. This parameter is required for time series, trend, and box reports.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_trend_interval</td>
<td>The interval to measure trend values by. Possible values are: year, quarter, month, week, dayofweek, hour, and date.</td>
<td>year</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
<td>Default value</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>sysparm_compute_percent</td>
<td>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 are: aggregate and count</td>
<td>count</td>
</tr>
<tr>
<td>sysparm_use_color_palette</td>
<td>A boolean value that controls if a full color palette is used to render the report. The value of the property glide.ui.report.use_full_color_palette or false if this property is undefined.</td>
<td></td>
</tr>
<tr>
<td>sysparm_funnel_neck_percent</td>
<td>A number 1–100 that defines the percentage of a funnel report that is the neck of the funnel.</td>
<td>30</td>
</tr>
<tr>
<td>sysparm_show_report_data_label</td>
<td>A boolean value that controls if data labels appear on the report.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_show_zero</td>
<td>A boolean value that controls if zeroes appear on multilevel pivot and heat map reports.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_ct_row</td>
<td>The fields used to define the rows in heat map, multilevel pivot, and bubble reports. For multilevel pivot reports, specify up to three comma-separated field names. For other report types, specify a single field name.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_ct_column</td>
<td>The fields used to define the columns in heat map, multilevel pivot, and bubble reports. For multilevel pivot reports, specify up to three comma-separated field names. For other report types, specify a single field name.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_list_ui_view</td>
<td>The sys_id of a list view to use when a user drills into the report.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_show_marker</td>
<td>A boolean value that controls if markers appear at every plotted point on a report.</td>
<td>true</td>
</tr>
</tbody>
</table>
Geneva    ServiceNow    Performance Analytics and Reporting

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.

Table 54: Service catalog report parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_sc_groupby_item_id</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_sc_groupby_variable_id</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_sc_stackby_item_id</td>
<td>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.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_sc_stackby_variable_id</td>
<td>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_stackby_item_id parameter.</td>
<td>No default</td>
</tr>
</tbody>
</table>

Chart-specific parameters

Certain parameters are available only for specific report types.
### Table 55: Donut report parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_show_report_total</td>
<td>A boolean value that controls if the total score of the grouped donut appears in the center of the report.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_donut_width_percent</td>
<td>A number 1–100 that controls the thickness of the donut report.</td>
<td>50</td>
</tr>
</tbody>
</table>

### Table 56: Heatmap parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_use_color_heatmap</td>
<td>A boolean value that controls if the heatmap uses a gradient to color the report. When true, the sysparm_axis_max_color and sysparm_axis_min_color values are used.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_axis_max_color</td>
<td>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.</td>
<td>UI14 blue</td>
</tr>
<tr>
<td>sysparm_axis_min_color</td>
<td>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.</td>
<td>white</td>
</tr>
</tbody>
</table>

### Table 57: Dial parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_gauge_autoscale</td>
<td>A boolean 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.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_from</td>
<td>A number that defines the minimum value for the axis scale.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_to</td>
<td>A number that defines the maximum value for the axis scale.</td>
<td>No default</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
<td>Default value</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>sysparm_upper_limit</td>
<td>A number that defines the upper threshold for the dial.</td>
<td>No default</td>
</tr>
<tr>
<td></td>
<td>If you do not specify a value, the dial has no upper threshold.</td>
<td></td>
</tr>
<tr>
<td>sysparm_lower_limit</td>
<td>A number that defines the lower threshold for the dial.</td>
<td>No default</td>
</tr>
<tr>
<td></td>
<td>If you do not specify a value, the dial has no lower threshold.</td>
<td></td>
</tr>
<tr>
<td>sysparm_direction</td>
<td>A value that controls which values are considered positive on the report,</td>
<td>minimize</td>
</tr>
<tr>
<td></td>
<td>lower values, or higher values.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible values are: minimize and maximize.</td>
<td></td>
</tr>
</tbody>
</table>

**Chart size parameters**

Certain parameters control the width and height of the report.

**Table 58: Size parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_report_size</td>
<td>The size of the report. Valid values are small, medium, and large.</td>
<td>large</td>
</tr>
<tr>
<td>sysparm_custom_report_size</td>
<td>Set this parameter to true to specify custom report height and width values</td>
<td>false</td>
</tr>
<tr>
<td></td>
<td>instead of using one of the size options from the sysparm_report_size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>parameter.</td>
<td></td>
</tr>
<tr>
<td>sysparm_custom_report_height</td>
<td>The height of the report, in pixels.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_custom_report_width</td>
<td>The width of the report, in pixels.</td>
<td>No default</td>
</tr>
</tbody>
</table>

**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.
### Table 59: Title parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>sysparm_report_title_size</code></td>
<td>A number that defines the font size of the title.</td>
<td>16</td>
</tr>
<tr>
<td><code>sysparm_report_title_color</code></td>
<td>The title text color. This value must be the sys_id of a Color Definition [sys_report_color] record.</td>
<td>black</td>
</tr>
<tr>
<td><code>sysparm_title_horizontal_alignment</code></td>
<td>Where the title is placed horizontally relative to the report. This value is used only if <code>sysparm_custom_report_title_position</code> is false. Possible values are: left, center, and right.</td>
<td>center</td>
</tr>
<tr>
<td><code>sysparm_title_vertical_alignment</code></td>
<td>Where the title is placed vertically relative to the report. This value is used only if <code>sysparm_custom_report_title_position</code> is false. Possible values are: top, middle, and bottom.</td>
<td>top</td>
</tr>
<tr>
<td><code>sysparm_custom_report_title_position</code></td>
<td>A boolean value that controls whether the report title position is defined by x and y coordinates instead of relative alignment.</td>
<td>false</td>
</tr>
<tr>
<td><code>sysparm_report_title_x_position</code></td>
<td>A number that defines the x position of the title on the report. This value is used only if <code>sysparm_custom_report_title_position</code> is true.</td>
<td>0</td>
</tr>
<tr>
<td><code>sysparm_report_title_y_position</code></td>
<td>A number that defines the y position of the title on the report. This value is used only if <code>sysparm_custom_report_title_position</code> is true.</td>
<td>0</td>
</tr>
</tbody>
</table>

### 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, trendbox, histogram, pyramid, heat map, funnel, and control reports.
Table 60: Border parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_show_report_border</td>
<td>A boolean value that controls whether the report displays a border.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_report_border_width</td>
<td>A number that defines the width of the border, in pixels.</td>
<td>1</td>
</tr>
<tr>
<td>sysparm_report_border_radius</td>
<td>A number that defines the radius size of the border corners, in pixels.</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

Table 61: Legend parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_show_legend</td>
<td>A boolean value that controls whether the report displays a legend.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_legend_horizontal_alignment</td>
<td>Where the legend is placed horizontally relative to the report. Possible values are: left, center, and right.</td>
<td>center</td>
</tr>
<tr>
<td>sysparm_legend_vertical_alignment</td>
<td>Where the legend is placed vertically relative to the report. Possible values are: top, middle, and bottom.</td>
<td>bottom</td>
</tr>
<tr>
<td>sysparm_show_legend_border</td>
<td>A boolean value that controls whether the legend displays a border.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_legend_border_width</td>
<td>A number that defines the width of the legend border, in pixels.</td>
<td>1</td>
</tr>
<tr>
<td>sysparm_legend_border_radius</td>
<td>A number that defines the radius size of the legend border corners, in pixels.</td>
<td>0</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_x_axis_title</td>
<td>The name to display on the x axis.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_x_axis_title_size</td>
<td>A number that defines the font size of the x-axis title.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_x_axis_title_bold</td>
<td>A boolean value that controls whether the x-axis title text is bold.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_x_axis_opposite</td>
<td>A boolean value that controls whether the x axis appears at the top of the report.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_x_axis_display_grid</td>
<td>A boolean value that controls whether vertical grid lines appear from the x axis.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_x_axis_grid_dotted</td>
<td>A boolean value that controls whether the vertical grid lines are dotted.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_x_axis_label_size</td>
<td>A number that defines the font size for increment labels on the x axis.</td>
<td>11</td>
</tr>
<tr>
<td>sysparm_x_axis_label_bold</td>
<td>A boolean value that controls whether the x-axis increment labels are bold.</td>
<td>false</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_y_axis_title</td>
<td>The name to display on the y axis.</td>
<td>An automatically generated description of the report aggregation</td>
</tr>
<tr>
<td>sysparm_y_axis_title_size</td>
<td>A number that defines the font size of the y-axis title.</td>
<td>No default</td>
</tr>
</tbody>
</table>
## Report types

Learn about different types of reports you can create, and when and how to create them.

You can generate the following types of reports, organized by category:

### Table 64: Report types

<table>
<thead>
<tr>
<th>Report</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>List</strong></td>
<td>Displays data in the form of an expandable list, similar to a standard ServiceNow list.</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Shows how one or more values change over time by connecting a series of data points with straight lines.</td>
</tr>
<tr>
<td><strong>Column</strong></td>
<td>Shows how one or more values change over time by displaying them as proportional vertical columns.</td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td>Resembles line charts, but the area between the axis and line is commonly emphasized with colors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysparm_y_axis_title_bold</td>
<td>A boolean value that controls whether the y-axis title text is bold.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_y_axis_opposite</td>
<td>A boolean value that controls if the y axis appears on the left of the report.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_y_axis_display_grid</td>
<td>A boolean value that controls if horizontal grid lines appear from the y axis.</td>
<td>true</td>
</tr>
<tr>
<td>sysparm_y_axis_grid_dotted</td>
<td>A boolean value that controls whether the horizontal grid lines are dotted.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_y_axis_label_size</td>
<td>A number that defines the font size for increment labels on the y axis.</td>
<td>12</td>
</tr>
<tr>
<td>sysparm_y_axis_label_bold</td>
<td>A boolean value that controls whether the y-axis increment labels are bold.</td>
<td>false</td>
</tr>
<tr>
<td>sysparm_y_axis_from</td>
<td>A number defining the lowest value displayed on the y axis.</td>
<td>No default</td>
</tr>
<tr>
<td>sysparm_y_axis_to</td>
<td>A number defining the highest value displayed on the y axis.</td>
<td>No default</td>
</tr>
<tr>
<td>Report</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Spline</strong></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong>Column and bar charts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bar</strong></td>
<td>Shows rectangular bars with lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally.</td>
<td></td>
</tr>
<tr>
<td><strong>Pareto</strong></td>
<td>Combines bar and line charts to identify the most important factors in a large set of factors.</td>
<td></td>
</tr>
<tr>
<td><strong>Histogram</strong></td>
<td>Provides visual interpretation of numerical data by indicating the number of data points that lie within a range of values.</td>
<td></td>
</tr>
<tr>
<td><strong>Pies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pie</strong></td>
<td>Shows how individual pieces of data relate to the whole.</td>
<td></td>
</tr>
<tr>
<td><strong>Donuts and semi-donuts</strong></td>
<td>Compares the size of parts to the whole. The difference between a donut and a semi-donut chart is that a semi-donut is a donut sliced in half.</td>
<td></td>
</tr>
<tr>
<td><strong>Dials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Speedometer</strong></td>
<td>Shows an overview of the count of an indicator you want to measure at this moment. Speedometers and dials are similar but vary slightly in presentation. A speedometer shows numbers in the form of a round meter. A dial shows a half circle, where the part in which scores are shown is filled out with a color.</td>
<td></td>
</tr>
<tr>
<td><strong>Dial</strong></td>
<td>Shows a quick and simple overview of the count of an indicator you want to measure at this moment.</td>
<td></td>
</tr>
<tr>
<td><strong>Pivot</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multilevel pivot charts</strong> on page 268</td>
<td>Display aggregate data broken down by multiple metrics in a single chart.</td>
<td></td>
</tr>
<tr>
<td><strong>Heatmap</strong></td>
<td>Display aggregate data visually using different colors to represent different values.</td>
<td></td>
</tr>
<tr>
<td><strong>Bubble</strong></td>
<td>Display multiple separate metrics on a single chart.</td>
<td></td>
</tr>
<tr>
<td><strong>Pivot table</strong></td>
<td>Aggregates data from a table to display the source of summarized data.</td>
<td></td>
</tr>
<tr>
<td><strong>More</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Report

<table>
<thead>
<tr>
<th>Report</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funnel</strong></td>
<td>Displays values as progressively decreasing proportions. The size of the area is determined by the series value as a percentage of the total of all values.</td>
</tr>
<tr>
<td><strong>Calendar</strong></td>
<td>Displays data-driven events in a calendar format.</td>
</tr>
<tr>
<td><strong>Pyramid</strong></td>
<td>Displays a variation on a bar chart that uses pyramid shapes instead of horizontal rectangles.</td>
</tr>
<tr>
<td><strong>Box</strong></td>
<td>Shows the distribution of values in a data set.</td>
</tr>
<tr>
<td><strong>Trend</strong></td>
<td>Shows how the value of one or more items changes over time. Values along the horizontal axis of the trend chart represent the time measurement. Values on the vertical axis represent the changes to the items being monitored. The trend line or curve reveals a general pattern of change.</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>Displays data as a series of connected points to determine whether a business process is in a state of statistical control.</td>
</tr>
<tr>
<td><strong>Trendbox</strong></td>
<td>Shows the difference between groups over time.</td>
</tr>
<tr>
<td><strong>Single score</strong></td>
<td>Display a single aggregate value that is important to your business.</td>
</tr>
</tbody>
</table>

### Area and spline charts

Use area charts to show trends over time for related attributes. Area charts are similar to line charts, but the area between the lines is filled with color. Spline charts show how one or more values change over time by connecting a series of known data points with a curved line.

You can create an area or spline chart, for example, 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 incidents reported should decrease as users become more accustomed to the changes in the product.
Figure 14: Area chart
Create an area or spline chart report

Create an area or spline chart to show trends over time for related attributes.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Area or Spline. Alternatively, click the question mark icon ( ) to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the Type field to configure chart style options.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. 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.</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to true. The glide.ui.section508 property overrides the Display data table field.</td>
</tr>
<tr>
<td>Trend by</td>
<td>Select the table field whose values you want to display in a time sequence.</td>
</tr>
</tbody>
</table>

Note: It is not possible to group or stack reports by the Tags field.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. Select <strong>Count Distinct</strong> to display only unique records. 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 <strong>Count Distinct</strong>. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, a list of fields from the selected <strong>Table</strong> appears. Select a field to aggregate by from this list. For example, if you select a duration field, such as <strong>Business duration</strong> on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as <strong>Priority</strong>, the data is expressed as a decimal value number.</td>
</tr>
</tbody>
</table>

**Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.
### Field

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a method used for calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field is available when Aggregation is set to Average, Sum, or Count Distinct.</td>
</tr>
</tbody>
</table>

- **Use Aggregation**: Calculate percentage using the aggregation that you selected in the Aggregation field. Only data that is displayed in the report is used to calculate percentage. This method is most often used.
  
  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**: Calculate percentage using the total number of records in the data set.
  
  For example, create a report that displays incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the Low priority section is 40%.

### Add Filter Condition

Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select \[Priority\] \[less than\] \[3 - Moderate\].

### Add "OR" Clause

Select a second condition that must be met if the first condition is invalid. For example, select \[Assignment Group\] \[is\] \[Database\], to include records that are assigned to the Database group if the first condition is false.

### Add Sort Field

Select fields to sort data by. For example, to sort results from lowest to highest priority, select \[Priority\] \[z to a\].

3. Click **Save**.

   The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.
Area and spline chart style options

Change the look of your area or spline chart.

When you create or edit a report, click the gear icon ( ) after the **Type** field to open the **Style your chart** dialog box with options to configure the look of your chart. The options are organized under the **General**, **Title**, **Legend**, and **Axis** tabs. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

### Table 66: Area and spline chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Chart color         | If no group by or stack by is used, **Use one color** is automatically selected. Select a single predefined system color.  
If a group by or stack by is used, 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**. |
<p>| Display data labels | Select this check box to display the value for each data point.                                                                               |
| Marker              | Select this check box to display a symbol at each data point.                                                                               |
| Custom chart size   | Select this check box to specify the chart width and height in pixels.                                                                     |
| Chart size          | Select a chart size. This field is available when <strong>Custom chart size</strong> is cleared.                                                        |
| Drilldown View      | Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used. |
| <strong>Title</strong>           |                                                                                                                                              |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Show chart title              | Select when the chart title is displayed.  
  - **Never**: never displays the chart title.  
  - **Report only**: displays the chart title on reports.  
  - **Always**: displays the chart title on reports and homepage gauges.                                                                                                    |
| Chart title                   | Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list.|
| Chart title size              | Enter the size of the chart title in pixels. This field is available when **Report only** or **Always** is selected from the **Show chart title** list.                                                        |
| Chart title color             | Select the color for the chart title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list.                                                                    |
| Custom chart title position   | Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list.       |
| Title horizontal alignment    | Select how the chart title is aligned horizontally. This field is available when **Custom chart title position** is cleared.                                                                                 |
| Title vertical alignment      | Select how the chart title is aligned vertically. This field is available when **Custom chart title position** is cleared.                                                                                  |
| Legend                        |                                                                                                                                                                                                          |
| Show legend                   | Select this check box to display a chart legend. This check box is available when a **Group by** field is selected on the report form.                                                                     |
| Legend horizontal alignment   | Select how the legend is aligned horizontally. This field is available when **Show legend** is selected.                                                                                                     |
| Legend vertical alignment     | Select how the legend is aligned vertically. This field is available when **Show legend** is selected.                                                                                                      |
| Show legend border            | Select this check box to display a border around the legend. This check box is available when **Show legend** is selected.                                                                                   |
| Axis                          | Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a **From** and **To** range.                                                                          |

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Bar charts

Use bar charts to compare two or more values.

Bar charts display data in either a horizontal or vertical bar format with each bar representing a specific category of data. Depending on the glide.ui.chart.use_full_color_palette property setting, a bar chart can use a single color to represent all categories of data or a different color for each category. Bar charts can be placed on homepages where users can quickly interpret the information displayed.

The following figure shows example of a bar chart that displays discrete categories of data. It includes data from the Incident [incident] table for all incidents recorded up until the time that the report is generated.

To see the difference between the total of different priority levels assigned to the incidents in each category, select **Priority** from the **Stacked by** list.
Figure 16: Bar chart

You can manipulate the bar chart display by stacking data or by changing the measurement units of the bars. Stacked bar charts show the parts that contribute to the total.
Create a bar chart report

Create a bar chart that compares two or more values.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon (ℹ️) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select the <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Bar</strong>. Alternatively, click the question mark icon (?) to use the <strong>report type selector</strong>.</td>
</tr>
</tbody>
</table>

**Note:** The chart type Horizontal bar has been merged into the chart type Bar. Existing horizontal bar charts are automatically converted into a regular bar chart when they are opened.

<table>
<thead>
<tr>
<th>Style your chart</th>
<th>Click the gear icon (⚙️) after the <strong>Type</strong> field to configure <strong>chart style options</strong> for the look of your chart.</th>
</tr>
</thead>
</table>

| Group by         | Select a field to organize data into groups from the selected table. 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. |

**Note:** It is not possible to group or stack reports by the **Tags** field.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stack by</td>
<td>Select the field used to show the relationship of individual items from the selected field to the whole.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td></td>
<td>On a bar chart of incidents by Category and stack 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. Date types are not allowed starting with the introduction of the Report Charting v2 plugin. You can choose to display the stacked field either in a single bar or as a group of bars. If you select a <strong>Group by</strong> 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 per the Group by field (for example, the state of the incident), instead of stacked. If you choose fields with <strong>Additional group by</strong>, these fields are also available in a <strong>Stacked by</strong> control at the bottom of the report.</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to <strong>true</strong>. The glide.ui.section508 property overrides the <strong>Display data table</strong> field.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Aggregation | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected. **Count Distinct** to display only unique records. 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 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. 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 **Priority**, the data is expressed as a decimal value number.  

**Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized. |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages</td>
<td>Select a method used for calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field is available when <strong>Aggregation</strong> is set to Average, Sum, or Count Distinct.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use Aggregation</strong>: Calculate percentage using the aggregation that you selected in the <strong>Aggregation</strong> field. Only data that is displayed in the report is used to calculate percentage. This method is most often used.</td>
</tr>
<tr>
<td></td>
<td>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%.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use Record Count</strong>: Calculate percentage using the total number of records in the data set.</td>
</tr>
<tr>
<td></td>
<td>For example, create a report that displays incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the Low priority section is 40%.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of groups such as bars, sections, or columns, that can be displayed in the chart. If the number of values from the selected data exceeds this limit, only groups for the largest values appear. By default, up to 12 of the largest values from the selected data are represented. Remaining values can be grouped on the <strong>Other</strong> bar.</td>
</tr>
<tr>
<td></td>
<td>If you select <strong>Show all</strong>, all groups up to a limit of 50 are displayed. The rest of the results are grouped as <strong>Other</strong>. If you select <strong>Remove Other</strong>, the <strong>Other</strong> group is hidden.</td>
</tr>
<tr>
<td>Show Other</td>
<td>Select this check box to display the <strong>Other</strong> group for values that exceed the <strong>No. groups</strong> limit. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> is selected from the <strong>Max number of groups</strong> list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: Applying a string filter with other filters to pie and bar charts is not supported.</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false. This field is only available after at least one filter condition has been created.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

**Bar chart style options**

Change the look of your bar chart.
When you create or edit a report, click the gear icon ( ) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. The options are organized under the General, Title, Legend, and Axis tabs. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

**Table 68: Chart style options**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Chart color</td>
<td>If no group by or stack by is used, <strong>Use one color</strong> is automatically selected. Select a single predefined system color. If a group by or stack by is used, select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use color palette</strong>: Select a color palette from the predefined system color palettes.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use several colors</strong>: Define a custom set of Colors using hex codes. You can add any number of colors.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use chart colors</strong>: Use the colors defined in Reports &gt; Chart Colors.</td>
</tr>
<tr>
<td>Display data labels</td>
<td>Select this check box to display the current value for each bar. This field is available when you select None from the Stacked by list.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart’s width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for all charts that have drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display the legend. This field is available when a Stacked by option is selected on the report form.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis button</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range. If you select an aggregation field that is not of the type number, such as an average or a sum with a business duration, the From and To fields are not available.</td>
</tr>
</tbody>
</table>

**Box charts**

Box charts shows the distribution of values in a data set.

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 the majority of ages are grouped. With this information, you can attempt to increase attendance levels at future events by targeting advertisements at the age groups that had lower attendance levels.

Figure 18: Box Chart

A box chart displays the following for each group of data:
Figure 19: Box Chart Scale

- Sample maximum: the uppermost bold red line.
- Upper quartile: the red line that forms the top of the box and cuts off the highest 25% of the data.
- Median: the bold red line cutting through the center of the box.
- Mean: the blue dot on the chart.
- Lower quartile: the red line that forms the bottom of the box and cuts off the lowest 25% of the data.
- Sample minimum: the lowermost bold red line.

Create a box chart report

Create a box chart to show the distribution of values in a data set.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

Table 69: Box chart

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Box</strong>. Alternatively, click the question mark icon to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon after the <strong>Type</strong> field and configure the chart style options to edit the layout and look of your chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Measured by</td>
<td>Select a field to use as a measurement for the data. Date and time fields are not supported for box charts.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2· High and 1 · Critical, select [Priority] [less than] [3 · Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. Click **Save** or **Insert**.
Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Box chart style options

Change the look of your box chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

Table 70: Chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Axis button</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range.</td>
</tr>
</tbody>
</table>

**Bubble charts**

Bubble charts allow you to display multiple separate metrics on a chart. Bubble charts 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 chart report on the Demand table to compare risk and reward for various demands. By grouping on the **Name** field, 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 chart.

**Figure 20: Demand risk vs reward bubble chart**
Create a bubble chart report

Create a bubble chart to display multiple separate metrics on a chart.

Role required: itil, 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.

1. Navigate to Reports > Create New
2. Fill in the fields, as appropriate (see table).

Table 71: Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Bubble.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the Type field to configure chart style options for the look and layout of the chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. 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.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> It is not possible to group or stack reports by the Tags field.</td>
</tr>
<tr>
<td>Row</td>
<td>Select a numeric field to use as the chart Y axis.</td>
</tr>
<tr>
<td>Columns</td>
<td>Select a numeric field to use as the chart X axis.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The size of each bubble depends on the aggregate value. The default is Count, which displays the number of records selected. If you select Count Distinct, only unique records are counted. For example, if 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, these users would be counted twice unless you use count distinct. If you select Average, Sum, or Count Distinct, these options display an additional list of fields from the selected Table. From this list, select a field to aggregate by. For example, if you select a duration field, such as the Business duration field 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. If a value in a column being aggregated has a comma, the value is separated by the comma, and the aggregation is not performed accurately. <strong>Note:</strong> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group, if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Define the order of values on either axis, such as to display higher values on top or on the right side of the chart. You can sort both axes by setting the sort order for both axis fields.</td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.
Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

**Bubble chart style options**

Change the look of your box chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field. Use the options in the **Style your chart** dialog box to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the width and height of the chart in pixels.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Chart size is ignored when you export to PDF. In PDFs, the full page</td>
</tr>
<tr>
<td></td>
<td>width is used to display the chart.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when <strong>Custom chart size</strong> is cleared. Options are <strong>Small</strong>, <strong>Medium</strong>, and <strong>Large</strong>.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Chart size is ignored when you export to PDF. In PDFs, the full page width is used to display the chart.</td>
</tr>
<tr>
<td>Chart width</td>
<td>Specify the width of the chart in pixels. The default value is 600.</td>
</tr>
<tr>
<td>Chart height</td>
<td>Specify the height of the chart in pixels. The default value is 450.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Drilldown view</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
</tbody>
</table>

**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 who do not have rights to any part of the list data see the message "Number of rows removed from this list by Security constraints:" followed by the number. See [Access control rules](#).

<table>
<thead>
<tr>
<th>Title</th>
<th>Select when the chart title is displayed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show chart title</td>
<td>• <strong>Never</strong>: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Report only</strong>: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Always</strong>: displays the chart title on reports, and dashboards and homepages.</td>
</tr>
</tbody>
</table>

| Chart title               | Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list. |

| Chart title size          | Enter the size of the chart title in pixels. This field is available when **Report only** or **Always** is selected from the **Show chart title** list. |

| Chart title color         | Select the color for the chart title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list. |

| Custom chart title position | Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when **Report only** or **Always** is selected from the **Show chart title** list. |

<p>| Title horizontal alignment | Select how the chart title is aligned horizontally. This field is available when <strong>Custom chart title position</strong> is cleared. |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Chart title X position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title down.</td>
</tr>
<tr>
<td></td>
<td>This field appears only if Custom chart title position is selected.</td>
</tr>
<tr>
<td>Chart title Y position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title to the right.</td>
</tr>
<tr>
<td></td>
<td>This field appears only if Custom chart title position is selected.</td>
</tr>
</tbody>
</table>

Calendar report

The calendar report displays date-driven events in a calendar format and enables you to filter these events by any field value in the table specified.

Controls in the calendar report header let you view the calendar by day, week, month, or year. You can also highlight events based on criteria relevant to the type of information in the report. By default, the calendar report shows the number and short description for each event.
Create a calendar report

Create a calendar report to display date-driven events on a calendar.

Role required: itil, 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.

1. Navigate to Reports > Create New.

2. Fill in the fields, as appropriate.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon (_ZONE) to enter more details on what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Calendar. Alternatively, click the question mark icon (?) to use the report type selector.</td>
</tr>
<tr>
<td>Calendar by</td>
<td>Select the date-driven event to display on the calendar. For example, you can show the Planned end date for all the changes scheduled for the month.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. Click Save. The report is generated.

Additional report options are available.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Column charts

Column charts show how the value of one or more items changes over time by 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 administrator 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 a product upgrade is deployed. Over time, the number of incidents reported should decrease as users become more accustomed to the changes in the product.

Figure 22: Column chart
Create a column chart report

Create a column chart to show how the value of one or more data element changes over time using vertical columns.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.
### Table 73: Column chart

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Column</strong>. Alternatively, click the question mark icon ( ) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the <strong>Type</strong> field and configure the chart style options to edit the layout and look of your chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Stacked / Grouped columns</td>
<td>Choose to display the <strong>Group by</strong> field as stacked columns or grouped columns. For example, if a report groups incidents by state and the <strong>Group by</strong> field is <strong>Category</strong>, selecting <strong>Stacked</strong> shows the incidents in one column by state with different colors for each category. Selecting <strong>Grouped columns</strong> shows the incidents in separate columns for each state with different colors for each category-column.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Stacked</strong> and <strong>Grouped columns</strong> options are not available when <strong>None</strong> is selected from the <strong>Group by</strong> list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to true. The glide.ui.section508 property overrides the Display data table field.</td>
</tr>
<tr>
<td>Trend by</td>
<td>Select the table field whose values you want to display in a time sequence.</td>
</tr>
<tr>
<td>per</td>
<td>Select a time period to display in the chart. Time periods range from a year down to an hour. You can also select a specific date.</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is Count, which displays the number of records selected. Select Count Distinct to display only unique records. 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 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. 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 Priority, the data is expressed as a decimal value number. Note: For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
</tbody>
</table>
### Field  

**Percentages**

Select a method used for calculating percentages. The percentage appears when you point to a report segment, such as a bar on a bar report. This field is available when **Aggregation** is set to Average, Sum, or Count Distinct.

- **Use Aggregation**: Calculate percentage using the aggregation that you selected in the **Aggregation** field. Only data that is displayed in the report is used to calculate percentage. This method is most often used.

  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**: Calculate percentage using the total number of records in the data set.

  For example, create a report that displays incidents by priority. Out of 500 incident records, 200 have low priority. The percentage for the Low priority section is 40%.

### Additional report options

3. Click **Save**. The report is generated.

   Additional **report options** are available.
Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Column chart style options

Change the look of your column chart.

When you create or edit a report, click the gear icon ( ) after the Type field to open the Style your chart window with options to configure the look of your chart. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

Table 74: Column chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>If no group by is used, Use one color is automatically selected. Select a single predefined system color. If a group by or stack by is used, select one of the following options:</td>
</tr>
<tr>
<td>Chart color</td>
<td>• Use color palette: Select a color palette from the predefined system color palettes.</td>
</tr>
<tr>
<td></td>
<td>• Use several colors: Define a custom set of Colors using hex codes. You can add any number of colors.</td>
</tr>
<tr>
<td></td>
<td>• Use chart colors: Use the colors defined in Reports &gt; Chart Colors.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Display data labels</td>
<td>Select this check box to display the current score for the start and end points of the column.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that bears no relation to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display a chart legend. This check box is available when a Group by field is selected in the visualization fields.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This check box is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis tab</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range.</td>
</tr>
</tbody>
</table>

Control charts

Use control charts to determine whether a business process is in a state of statistical control.

Control charts display data as a series of connected points. The blue line at the center of the chart 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.
Create a control chart report

Create a control chart to determine whether a business process is in a state of statistical control.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.
### Table 75: Control chart

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Control</strong>. Alternatively, click the question mark icon ( ) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the <strong>Type</strong> field to configure <strong>chart style options</strong> for the look and layout of the chart.</td>
</tr>
<tr>
<td>Trend by</td>
<td>Select the table field whose values you want to display in a time sequence.</td>
</tr>
<tr>
<td>per</td>
<td>Select a time period to display in the chart. Time periods range from a year down to an hour. You can also select a specific date.</td>
</tr>
</tbody>
</table>
### Field

| Aggregation | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected. Select **Count Distinct** to display only unique records. 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 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. 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 **Priority**, the data is expressed as a decimal value number.  

*Note:* For duration values, the unit of measurement displayed in the aggregation axis cannot be customized. |

| Add Filter Condition | Create **conditions** for filtering data to include in the report. For example, to include only records with priorities of 2 - **High** and 1 - **Critical**, select **Priority** [less than] 3 - **Moderate**. |

| Add "OR" Clause | Select a second condition that must be met if the first condition is invalid. For example, select **Assignment Group** [is] **[Database]**, to include records that are assigned to the Database group if the first condition is false. |

| Add Sort Field | Select fields to sort data by. For example, to sort results from lowest to highest priority, select **Priority** [z to a]. |

3. Click **Save**. The report is generated.
Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

**Pie and control chart style options**

Change the look of your pie chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

### Table 76: Chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Chart color    | If no group by is used, **Use one color** is automatically selected. Select a single predefined system color.  
If a group by is used, 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. |
<p>| Display data labels | Select this check box to display the value for each slice. By default, data labels can be displayed for pie charts with up to 8 slices. To change this limit, edit the glide.ui.chart.pie.labels.max_items system property. |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for all charts that have drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title.</td>
</tr>
<tr>
<td></td>
<td>This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display the chart legend. This check box is available when the Group by field is selected in the visualization fields.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis tab</td>
<td>Configure the titles, appearance, and labels of the X and Y axes. For the Y axis, you can also specify a From and To range. If you select an aggregation field that is not of the type Number, the From and To fields are not available.</td>
</tr>
</tbody>
</table>

**Dial and speedometer charts**

Dials and speedometers provide a real-time count for an indicator. These charts cannot contain comparison or historical data. They also have different appearances:

- A speedometer shows numbers in the form of a round meter.
- A dial shows a half circle, round meter where the part in which scores are shown is filled out with a color.
Figure 25: Angular gauge
Create a dial or speedometer chart report

Create a dial or speedometer to provide a real-time count for an indicator.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

Table 77: Dial or speedometer chart

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for the report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select the Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Speedometer</strong> or <strong>Dial</strong>. Alternatively, click the question mark icon (?) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the <strong>Type</strong> field to configure the <strong>chart style options</strong> for the look and layout of the chart.</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected.</td>
</tr>
<tr>
<td></td>
<td>Select <strong>Count Distinct</strong> to display only unique records. 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 role would be counted twice unless you use count distinct.</td>
</tr>
<tr>
<td></td>
<td>If you select <strong>Average, Sum, or Count Distinct</strong>, a list of fields from the selected <strong>Table</strong> appears. Select a field to aggregate by from this list. For example, if you select a duration field, such as <strong>Business duration</strong> on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as <strong>Priority</strong>, the data is expressed as a decimal value number.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create <strong>conditions</strong> for filtering data to include in the report. For example, to include only records with priorities of <strong>2-High</strong> and <strong>1-Critical</strong>, select [Priority] [less than] [3-Moderate].</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: Applying a string filter with other filters to donut and bar charts is not supported.</td>
</tr>
</tbody>
</table>
Add "OR" Clause

Select a second condition that must be met if the first condition is invalid. For example, select `[Assignment Group] [is] [Database]`, to include records that are assigned to the Database group if the first condition is false.

3. Click Save. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Dial and speedometer chart style options

Change the look of your dial or speedometer chart.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Chart color (dial chart only)</td>
<td>Select a single predefined system color.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Direction</td>
<td>Select Minimize if lower numbers in the dial are better. Select Maximize if larger numbers in the dial are better. This setting works with Lower Limit and Upper Limit, as the colors for the areas in the dial are determined by it. In general, green means that the figures are acceptable, orange means that the figures have changed, they may have become better or worse but are still within the acceptable range, red means that the figures are not acceptable.</td>
</tr>
<tr>
<td>Lower Limit</td>
<td>Enter the number that is still an acceptable score for the dial.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Upper Limit</td>
<td>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. 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.</td>
</tr>
<tr>
<td>Dial Autoscale</td>
<td>Select this check box to automatically set the start and end values for the dial scale.</td>
</tr>
<tr>
<td>From</td>
<td>Enter the start value for the dial scale. This field is available when Dial Autoscale is cleared.</td>
</tr>
<tr>
<td>To</td>
<td>Enter the end value for the dial scale. This field is available when Dial Autoscale is cleared.</td>
</tr>
<tr>
<td>Drildown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
</tbody>
</table>
**Field** | **Description**
--- | ---
Chart title color | Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.
Custom chart title position | Select this check box to specify the X and Y coordinates for the position of the chart title.
Title horizontal alignment | Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.
Title vertical alignment | Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.

**Donut charts**

Donut and semi-donut charts are useful when comparing the size of parts to the whole. They are very similar to pie charts, but the donut chart has empty space in the middle. The difference between a donut and a semi-donut chart is that a semi-donut is a donut sliced in half. The information presented is the same. Donut and semi-donut charts can be placed on homepages where users can quickly interpret the information displayed.

For example, use a donut or semi-donut chart to show open incidents by priority. At any time, there are open incidents of different priority levels. The organization may have a policy stating that P1 incidents can never exceed 40% of all open incidents. With a donut or semi-donut chart, you can quickly see if incident counts are within acceptable ranges.
Figure 27: Donut incidents priority
Create a donut chart report

How to create a donut chart report.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for the report.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select the <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Donut</strong> or <strong>Semi donut</strong>. Alternatively, click the question mark icon ( ) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the <strong>Type</strong> field to configure the <strong>chart style options</strong> for the look and layout of the chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups.</td>
</tr>
<tr>
<td>Note: It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
<td></td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart.</td>
</tr>
<tr>
<td>All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to <strong>true</strong>. The glide.ui.section508 property overrides the <strong>Display data table</strong> field.</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. Select <strong>Count Distinct</strong> to display only unique records. 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 role would be counted twice unless you use count distinct. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, a list of fields from the selected <strong>Table</strong> appears. Select a field to aggregate by from this list. For example, if you select a duration field, such as <strong>Business duration</strong> on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as <strong>Priority</strong>, the data is expressed as a decimal value number. <strong>Note:</strong> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of groups such as bars, sections, or columns, that can be displayed in the chart. If the number of values from the selected data exceeds this limit, only groups for the largest values appear. By default, up to 12 of the largest values from the selected data are represented. Remaining values can be grouped on the <strong>Other</strong> bar. If you select <strong>Show all</strong>, all groups up to a limit of 50 are displayed. The rest of the results are grouped as <strong>Other</strong>. If you select <strong>Remove Other</strong>, the <strong>Other</strong> group is hidden.</td>
</tr>
<tr>
<td>Show Other</td>
<td>Select this check box to display the <strong>Other</strong> group for values that exceed the <strong>No. groups</strong> limit. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> is selected from the <strong>Max number of groups</strong> list.</td>
</tr>
</tbody>
</table>

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### Field Description

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select <code>[Priority] [less than] [3 - Moderate].</code>&lt;br&gt;Note: Applying a string filter with other filters to donut and bar charts is not supported.</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select `[Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select <code>[Priority] [z to a].</code></td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

### Donut chart style options

Change the look of your donut chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field to open the Style your chart window with options to configure the look of your chart. Chart options are automatically saved when you click **Close**.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td><strong>Chart color</strong>&lt;br&gt;If no group by is used, <strong>Use one color</strong> is automatically selected. Select a single predefined system color.&lt;br&gt;If a group by is used, select one of the following options:&lt;br&gt;  - <strong>Use color palette</strong>: Select a color palette from the predefined system color palettes.&lt;br&gt;  - <strong>Use several colors</strong>: Define a custom set of Colors using hex codes. You can add any number of colors.&lt;br&gt;  - <strong>Use chart colors</strong>: Use the colors defined in Reports &gt; Chart Colors.</td>
</tr>
<tr>
<td><strong>Donut Width Percent</strong></td>
<td>Enter a percentage for the width of the donut or semi-donut band, ranging between 1 and 100 percent. One hundred percent equals a pie chart. The default value is 50.</td>
</tr>
<tr>
<td><strong>Show total</strong></td>
<td>Select this check box to display the total aggregation value in the center of the donut. Selecting this option automatically hides the chart legend.</td>
</tr>
<tr>
<td><strong>Display data labels</strong></td>
<td>Select this check box to display the current value for each bar. This field is available when you select None from the Stacked by list.</td>
</tr>
<tr>
<td><strong>Custom chart size</strong></td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td><strong>Chart size</strong></td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td><strong>Drilldown View</strong></td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for all charts that have drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td><strong>Show chart title</strong>&lt;br&gt;Select when the chart title is displayed.&lt;br&gt;  - Never: never displays the chart title.&lt;br&gt;  - Report only: displays the chart title on reports.&lt;br&gt;  - Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display the legend. This field is available when a Stacked by option is selected on the report form.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This field is available when Show legend is selected.</td>
</tr>
</tbody>
</table>

**Funnel and pyramid charts**

In funnel and pyramid charts, the size of the slices represents the percentage of a value that makes up the total of all values.

Funnel charts are often used to represent stages in a sales process (from lead to closed deal), or to identify potential problem areas in an organization's process (for example, sales, or incident management). If you apply a neck in a funnel chart, all values below a certain percentage of the total value are represented as a bar, meaning that their difference is of equal importance.

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. Funnel and pyramid charts can be placed on homepages where users can quickly interpret the information displayed.
For example, use a funnel or pyramid chart to show open incidents by priority. At any time, there are open incidents of different priority levels. The organization may have a policy stating that P1 incidents can never exceed 40% of all open incidents. With a funnel or pyramid chart, you can quickly see if incident counts are within acceptable ranges.

Figure 29: Funnel incidents priority
Figure 30: Pyramid incidents priority

Create a funnel or pyramid chart report

How to create a funnel chart report, where the size of each slice represents its percentage of the total.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for the report.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon (ⓘ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Funnel</strong> or <strong>Pyramid</strong>. Alternatively, click the question mark icon (❓) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon (⚙️) to configure the chart style options for the look of your chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: It is not possible to group or stack reports by the Tags field.</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to <strong>true</strong>. The glide.ui.section508 property overrides the <strong>Display data table</strong> field.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. Select <strong>Count Distinct</strong> to display only unique records. 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 role would be counted twice unless you use count distinct. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, a list of fields from the selected <strong>Table</strong> appears. Select a field to aggregate by from this list. For example, if you select a duration field, such as <strong>Business duration</strong> on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as <strong>Priority</strong>, the data is expressed as a decimal value number. <strong>Note:</strong> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of groups such as bars, sections, or columns, that can be displayed in the chart. If the number of values from the selected data exceeds this limit, only groups for the largest values appear. By default, up to 12 of the largest values from the selected data are represented. Remaining values can be grouped on the <strong>Other</strong> bar. If you select <strong>Show all</strong>, all groups up to a limit of 50 are displayed. The rest of the results are grouped as <strong>Other</strong>. If you select <strong>Remove Other</strong>, the <strong>Other</strong> group is hidden.</td>
</tr>
<tr>
<td>Show Other</td>
<td>Select this check box to display the <strong>Other</strong> group for values that exceed the <strong>No. groups</strong> limit. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> is selected from the <strong>Max number of groups</strong> list.</td>
</tr>
</tbody>
</table>
### Field Descriptions

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. 

4. Click **Save**. The report is generated.

   More **report options** are available.

---

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

**Funnel and pyramid chart style options**

Change the look of your funnel or pyramid chart.

When you create or edit a report, click the gear icon (🔧) after the **Type** field to open the **Style your chart** dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.
### Table 81: Chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Funnel Neck Percent</td>
<td>[Funnel charts only] Enter a percentage for the width of the funnel, ranging between 1 and 100 percent. This is the lowest percentage that can be represented above the funnel neck, and all percentages lower than this are stacked in a bar with a set width below the neck. One hundred percent equals a bar chart. The default value is 30.</td>
</tr>
</tbody>
</table>
| Chart color       | If no group by is used, **Use one color** is automatically selected. Select a single predefined system color. If a group by is used, 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. |
| Custom chart size | Select this check box to specify the chart width and height in pixels.                                                                      |
| Chart size        | Select a chart size. This field is available when Custom chart size is cleared.                                                              |
| Drilldown View    | Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used. |
| **Title**         |                                                                                                                                              |
| Show chart title  | Select when the chart title is displayed.  
  - **Never**: never displays the chart title.  
  - **Report only**: displays the chart title on reports.  
  - **Always**: displays the chart title on reports and homepage gauges. |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display a chart legend.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This check box is available when Show legend is selected.</td>
</tr>
</tbody>
</table>

**Heatmap charts**

Heatmap charts display aggregate data visually using colors to represent different values.

**Note:** Heatmap reports can have no more than 1000 cells.
Create a heatmap report

Create a heatmap report to display aggregate data visually using colors to represent different values.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Investigation</th>
<th>FixDeployment</th>
<th>New</th>
<th>Confirmed</th>
<th>WorkInProgress</th>
<th>Closed</th>
<th>Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - High</td>
<td>6</td>
<td>2</td>
<td>29</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2 - Moderate</td>
<td>90</td>
<td>2</td>
<td>194</td>
<td>303</td>
<td>92</td>
<td>1</td>
<td>36</td>
</tr>
<tr>
<td>3 - Low</td>
<td>343</td>
<td>4</td>
<td>858</td>
<td>2,193</td>
<td>275</td>
<td>1</td>
<td>115</td>
</tr>
<tr>
<td>5 - Planning</td>
<td>41</td>
<td>43</td>
<td>328</td>
<td>17</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
Role required: itil, 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.

1. Navigate to Reports > Create New
2. Fill in the fields, as appropriate (see table).

Table 82: Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
</tbody>
</table>
| Type           | Heatmap  
<p>|                | Alternatively, click the question mark icon ( ? ) to use the report type selector. |
| Style your chart | Click the gear icon ( Gear ) after the Type field to configure chart style options for the look and layout of the chart. |
| Row            | Select the field used as the source of the data for the rows in the heatmap. |
| Column         | Select the field used as the source of the data for the columns in the heatmap. |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. If you select <strong>Count Distinct</strong>, only unique records are counted. For example, if 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, these users would be counted twice unless you use count distinct. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, this displays an additional list of fields from the selected <strong>Table</strong>. From this list, select a field to aggregate by. For example, if you select a duration field, such as the <strong>Business duration</strong> field on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as the <strong>Priority</strong> field, the data is expressed as a number. If a value in a column being aggregated has a comma, the value is separated by the comma, and the aggregation is not performed accurately. <strong>Note:</strong> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of individual values that can be represented as columns. By default, Pivot charts display up to 12 of the largest values from the selected data. Remaining values are grouped into an <strong>Other</strong> category. If you select <strong>Show all</strong>, all values up to a limit of 50 bars are displayed. The rest of the results are stacked on the <strong>Other</strong> column. If you select <strong>Remove Other</strong>, the <strong>Other</strong> column is hidden.</td>
</tr>
<tr>
<td>Show Other</td>
<td>Select this check box to display the <strong>Other</strong> column. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> are selected from the <strong>No. groups</strong> list.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create <strong>conditions</strong> for filtering data to include in the report. For example, to include only records with priorities of <strong>2 - High</strong> and <strong>1 - Critical</strong>, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group, if the first condition is false.</td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

Heatmap style options

Change the look of your heatmap chart.

When you create or edit a report, click the gear icon (⚙️) after the **Type** field to open the **Style your chart** dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

**Table 83: Heatmap chart style options**

<table>
<thead>
<tr>
<th><strong>General</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Use color Heatmap</td>
<td>Select if the heatmap uses different colors to indicate different values.</td>
</tr>
<tr>
<td>Heatmap Max color</td>
<td>Select the color used to indicate a high value on the chart.</td>
</tr>
<tr>
<td>Heatmap Min color</td>
<td>Select the color used to indicate a low value on the chart.</td>
</tr>
<tr>
<td>Display Zero labels</td>
<td>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.</td>
</tr>
<tr>
<td>Drildown view</td>
<td>Select a view to filter the data based on that view.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Show chart title</td>
<td>Select when to display the chart title. You can hide the title, display the title only on the report form, or always display the title.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for the chart.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the font size for the chart title.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select a text color for the chart title.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select whether the chart title appears at a fixed position.</td>
</tr>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title X position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title down. This field appears only if Custom chart title position is selected.</td>
</tr>
<tr>
<td>Chart title Y position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title to the right. This field appears only if Custom chart title position is selected.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select the horizontal position that the title appears in, relative to the chart. This field appears only if Custom chart title position is not selected.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select the vertical position that the title appears in, relative to the chart. This field appears only if Custom chart title position is not selected.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select whether the chart displays a legend.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select the horizontal position that the legend appears in, relative to the chart.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select the vertical position that the legend appears in, relative to the chart.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select whether a border appears around the legend.</td>
</tr>
</tbody>
</table>

**Histogram charts**

A histogram groups the 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.

**Create a histogram report**

Histograms group numbers in a continuous data set into ranges.
Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

### Table 84: Histogram

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon ( ) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select the Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Histogram. Alternatively, click the question mark icon (?) to use the report type selector.</td>
</tr>
<tr>
<td>Measured by</td>
<td>Select a field to report against. Make sure that you give the report a name that reflects this field. The values from this field appear on the X axis of the histogram and determine the width of the bars.</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. Click Save.
   The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

### Line charts

Line charts 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 administrator role can define the ranges that are used in a line chart report.

For example, you can create a line 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 a product upgrade is deployed. Over time, the number of incidents reported should decrease as users become more accustomed to changes in the product.

![All Incidents by Caller](image)

**Figure 32: Line Chart**

Create a line chart

Create a line chart to show how the value of one or more items changes over time.

Role required: itil, 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.

1. Navigate to **Reports > Create New**.
2. Fill in the fields, as appropriate (see table).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Line. Alternatively, click the question mark icon to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon after the <strong>Type</strong> field and configure the chart style options to edit the layout and look of your chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select the field that you want to group the report data by. For example, in an incident report that is grouped by <strong>Assignment group</strong>, all incidents belonging to Software, Service Desk, Network, and so on, are grouped together. Make sure you give the report a name that reflects the field you select.</td>
</tr>
<tr>
<td><strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
<td></td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used as gauges on homepages, display the table of report data details if the glide.ui.section508 system property is set to <strong>true</strong>, even if <strong>Display Grid</strong> is cleared.</td>
</tr>
<tr>
<td>Trend by</td>
<td>Select the table field whose values you want to display in a time sequence.</td>
</tr>
<tr>
<td>per</td>
<td>Select the time period to display in the chart. Time periods range from a year down to an hour. You can also select a specific date.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| Aggregation   | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected.  
If you select **Count Distinct**, only unique records are counted. For example, if 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, these users 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. From this list, select a field to aggregate by. For example, if you select a duration field, such as the Business duration field 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.  
**Note:** For duration values, you cannot customize the unit of measurement displayed in the aggregation axis. |
| Percentages   | Select a computational method used for calculating percentages for each element (selected record) in a data set.  
- **Use Aggregation:** default method that computes percentages for each element using the sum of all elements in the data set.  
- **Use Record Count:** computes percentages for each element using the total number (count) of elements in the data set.  
This field is only available when Aggregation is set to **Average**, **Sum**, or **Count Distinct**. |
| Add Filter Condition | Create conditions for filtering and ordering data. For example, you can create a condition that states **Priority + less than + 3 - Moderate** to have the report include only records with priorities of **2 - High** and **1 - Critical**. |
3. Click **Save** or **Insert**.

The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See **Distribute reports** on page 169.

### Line chart style options

Configure the look of your line chart.

When you create or edit a report, click the gear icon after the **Type** field to open the **Style your chart** dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

**Table 86: Table title**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart color</td>
<td>If no group by is used, <strong>Use one color</strong> is automatically selected. Select a single predefined system color. If a group by is used, select one of the following options: • <strong>Use color palette</strong>: Select a color palette from the predefined system color palettes. • <strong>Use several colors</strong>: Define a custom set of Colors using hex codes. You can add any number of colors. • <strong>Use chart colors</strong>: Use the colors defined in Reports &gt; Chart Colors.</td>
</tr>
<tr>
<td>Display data labels</td>
<td>Select this check box to display the current value for each data point.</td>
</tr>
<tr>
<td>Marker</td>
<td>Select this check box to display a symbol at each data point.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that bears no relation to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed. • <strong>Never</strong>: never displays the chart title. • <strong>Report only</strong>: displays the chart title on reports. • <strong>Always</strong>: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display a chart legend. This field is available when a Group by field is selected on the report form.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This check box is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis tab</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range.</td>
</tr>
</tbody>
</table>

**List reports**

Create a list report to display data in the form of an expandable list.

Lists are often used for enumerations like the number of new incidents, problems, or changes. They contain columns that show more detailed information, such as a short description, category, state, assigned to, or created.
1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon (ℹ️) to enter more details on what the report does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or pre-defined from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select List. Alternatively, click the question mark icon ( ) to use the report type selector.</td>
</tr>
<tr>
<td>Group by</td>
<td>Field to report, from the selected table. Make sure that the name of the report reflects the selected field.</td>
</tr>
<tr>
<td>Columns</td>
<td>Add or remove columns from the information that appears when you expand an item in the list. Select one or more fields and use the left and right arrows to move them in or out of the table. Depending on system configuration, you may be able to add fields from tables that extend the selected table. For more information, see How to access fields on extended tables on page 345.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 – High and 1 – Critical, select [Priority] [less than] [3 – Moderate].</td>
</tr>
<tr>
<td>Add “OR” Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select [Priority] [z to a].</td>
</tr>
</tbody>
</table>

3. Click Save or Insert.

Grouped list reports

Grouped list reports can display only the records in each group that are configured to appear in a normal list.

For example, if you have configured lists to display 100 records at a time, then each group in the report 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, either increase the display size of the list or 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.

```
<table>
<thead>
<tr>
<th>Manufacturer: (empty) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer: Apple (474)</td>
</tr>
<tr>
<td>Manufacturer: Asus (36)</td>
</tr>
<tr>
<td>Manufacturer: Cyberpower (13)</td>
</tr>
<tr>
<td>Manufacturer: Dell Inc. (197)</td>
</tr>
<tr>
<td>Manufacturer: Gateway (9)</td>
</tr>
<tr>
<td>CAROL3-GATEWAY</td>
</tr>
<tr>
<td>8400-06310S</td>
</tr>
<tr>
<td>DANEK</td>
</tr>
<tr>
<td>DX Series</td>
</tr>
<tr>
<td>JENREALTY</td>
</tr>
<tr>
<td>KIRK</td>
</tr>
<tr>
<td>MEGANIS</td>
</tr>
<tr>
<td>DQGAS</td>
</tr>
<tr>
<td>Product KIOSK</td>
</tr>
<tr>
<td>Manufacturer: IBM (35)</td>
</tr>
<tr>
<td>Manufacturer: IBUYPOWER (4)</td>
</tr>
<tr>
<td>Manufacturer: Iris (4)</td>
</tr>
</tbody>
</table>
```

Figure 33: Grouped list report
Create a list report with variable columns and rows

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.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Give the report a name that reflects the information being grouped.
3. Select a report source that has variables associated with it. By default this is the Requested Item table (sc_req_item) or any table that dot walks to it. There are two kinds of report sources:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data source</td>
<td>A table with filters applied to provide a single source of information for all users.</td>
</tr>
<tr>
<td>Table</td>
<td>The raw data from a table with no filters applied.</td>
</tr>
</tbody>
</table>

For list reports with variables, the report source is usually the service catalog table.

4. From the Type drop-down list, select List.
5. In the Group by field, specify the value by which to group the report. For example, in a request report grouped by State, requests are Open, Fulfilled, and Cancelled are placed in separate groups.

   Note: It is not possible to group or stack reports by the Tags field.

6. From the list of available columns select the columns you want to display in the report.

   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 How to access fields on extended tables on page 345.

7. Select Variables [+] and click the expand icon ( + ) to choose an item.

   a) Select a Catalog item from the pop-up window.

   The variables associated with the item appear in the Available columns list.

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b) Move the selected variables to the **Selected** column.

8. **Optional:** To limit the information displayed in the report, click **Add Filter Condition**, **Add "OR" Clause**, or **Add Sort Field** and select conditions to filter the report data.

   For more details on how conditions are constructed, see **Condition builder**.

9. **Click** **Save**.

   The report is generated.

- To enter a description of the report, click the Report info icon (.

- To share the report, click the down arrow next to **Save**. On this menu, you can set visibility and schedules, add the report to a dashboard, export the report to PDF, and publish the report to the web. See **Share a report** on page 349 for more information.

### Export a list report to Excel

You can export a list report to Excel in several ways.

- You can export a list report as an Excel spreadsheet by right-clicking any column heading and selecting **Export > Excel**.

- You can **schedule** a saved list report to be exported as an Excel spreadsheet by clicking **Schedule** and specifying **Type** as Excel Spreadsheet. Excel displays report duration values in milliseconds, rather than the x days y hours format.

### Multilevel pivot charts

Multilevel pivot tables allow you to display aggregate data broken down by multiple metrics in a single chart.

Multilevel pivot tables display separate cells for each row and column value combination, as well as a column subtotal for each first-level row. You can expand and collapse these rows to show the chart details, or only the subtotals. Aggregate information is presented in the top-left of the chart.

**Note:** Some row configurations may prevent the chart from displaying subtotal information, such as when a string column has the same text value but with different character cases.
<table>
<thead>
<tr>
<th>State</th>
<th>Assigned to (empty)</th>
<th>Beth</th>
<th>Anglin</th>
<th>115</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>3</th>
<th>121</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Active</td>
<td></td>
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<td>Total</td>
<td>115</td>
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<td>1</td>
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<td>3</td>
<td>121</td>
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<tr>
<td></td>
<td>Awaiting Evidence</td>
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<td>Total</td>
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<td>Awaiting User Info</td>
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<td>Total</td>
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<td>5</td>
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<tr>
<td></td>
<td>Inquiry / Help</td>
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<td>4</td>
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<td>Network</td>
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<tr>
<td></td>
<td>Total</td>
<td>1,196</td>
<td>3</td>
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<td>Request</td>
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</tr>
<tr>
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<td>Total</td>
<td>4,092</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
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</tr>
<tr>
<td></td>
<td>Software</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>198</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>4</td>
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<tr>
<td></td>
<td>New</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>128</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>7</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Count                 |                      | 8,967| 1      | 4    | 18 | 22 | 30 | 14 | 14 | 18 | 19  | 15  | 15 | 333 | 9,494|     |
Create a multilevel pivot table report

Create a multilevel pivot table to display aggregate data broken down by multiple metrics in a single chart.

Role required: itil, 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.

1. Navigate to Reports > Create New
2. Fill in the fields, as appropriate.

Table 87: Multilevel pivot table fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Multilevel Pivot</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon ( ) after the Type field to see the following style options:</td>
</tr>
<tr>
<td></td>
<td>• 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. Applicable when Aggregation is Count or Count Distinct.</td>
</tr>
<tr>
<td></td>
<td>• Drilldown view: Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that bears no relation to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Columns</td>
<td>Select 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 3 columns maximum.</td>
</tr>
</tbody>
</table>

Note: It is not possible to group or stack reports by the Tags field.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Rows            | Select 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 5 rows maximum.  
**Note:** It is not possible to group or stack reports by the **Tags** field. |
| Aggregation     | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected.  
If you select **Count Distinct**, only unique records are counted. For example, if 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, these users would be counted twice unless you use count distinct.  
If you select **Average**, **Sum**, or **Count Distinct**, this displays an additional list of fields from the selected **Table**. From this list, select a field to aggregate by. For example, if you select a duration field, such as the **Business duration** field 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. If a value in a column being aggregated has a comma, the value is separated by the comma, and the aggregation is not performed accurately.  
**Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized. |
<p>| No. groups      | Select the maximum number of individual values that can be represented as columns. By default, Pivot charts display up to 12 of the largest values from the selected data. Remaining values are grouped into an <strong>Other</strong> category. If you select <strong>Show all</strong>, all values up to a limit of 50 bars are displayed. The rest of the results are stacked on the <strong>Other</strong> column. If you select <strong>Remove Other</strong>, the <strong>Other</strong> column is hidden. |
| Show Other      | Select this check box to display the <strong>Other</strong> column. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> are selected from the <strong>No. groups</strong> list. |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Filter Condition</td>
<td>Create <em>conditions</em> for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group, if the first condition is false.</td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See *Distribute reports* on page 169.

**Multi-level pivot chart style options**

Change the look of your box chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field. Use the options in the **Style your chart** dialog box to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

**Table 88: Chart style options**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Display Zero</td>
<td>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. Applicable when <strong>Aggregation</strong> is <strong>Count</strong> or <strong>Count Distinct</strong>.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Drilldown view</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
</tbody>
</table>

**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 who do not have rights to any part of the list data see the message "Number of rows removed from this list by Security constraints:" followed by the number. See [Access control rules](#).  

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Never:</strong> never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Report only:</strong> displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Always:</strong> displays the chart title on reports, and dashboards and homepages.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when <strong>Custom chart title position</strong> is cleared.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Chart title X position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title down. This field appears only if Custom chart title position is selected.</td>
</tr>
<tr>
<td>Chart title Y position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title to the right. This field appears only if Custom chart title position is selected.</td>
</tr>
</tbody>
</table>

## Create a coloring rule for a multilevel pivot table

Create coloring rules to change the color of a table cell of a multilevel pivot table based on its value.

Role required: admin

Before starting this procedure, create a multilevel pivot table report.

1. Navigate to Reports > View / Run.
2. Select a report with a Type value of Multilevel Pivot.
3. Click the Style your chart icon ( ).
4. Click Edit coloring rules.
5. Click New rule.
6. Fill in the fields on the form.

### Table 89: Multilevel pivot rule fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value 2</td>
<td>The maximum value a cell can contain to match this rule. This field only appears when the Operator value is between.</td>
</tr>
<tr>
<td>Font color</td>
<td>The font color to apply to cells that match this rule.</td>
</tr>
<tr>
<td>Background color</td>
<td>The background color to apply to cells that match this rule.</td>
</tr>
<tr>
<td>Rule order</td>
<td>A numerical value that determines the order that rules apply in. Rules with a higher rule order apply later and override lower-order rules.</td>
</tr>
<tr>
<td></td>
<td>For example, if one rule matches cells with a value greater than 140, and another rule matches cells with a value less than 150, the rule with the higher order applies to cells with values between 141 and 149.</td>
</tr>
</tbody>
</table>

7. Click **Submit**.
8. Click **Close**.
9. Click **Run** to generate the report using the rules.

**Pareto charts**

Use a pareto chart to identify the most important factors in a large set of factors. 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 to 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.
Create a pareto report

Create a pareto report to identify the most important factors in a large set of factors.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate.

Table 90: Pareto chart report

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Pareto</strong>. Alternatively, click the question mark icon (?) to use the <em>report type selector</em>.</td>
</tr>
<tr>
<td>Table</td>
<td>ServiceNow table against which this report is run.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups. <strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Export details</td>
<td>Check box for indicating whether to display (selected) or hide (cleared) the report attributes at the top of the page when exporting to PDF.</td>
</tr>
<tr>
<td>Header Footer Template</td>
<td>Page header and footer template to use when exporting the report to PDF.</td>
</tr>
</tbody>
</table>
| Visible to          | Users to whom the report is available:  
  - **Me** allows only the report creator to view the report.  
  - **Everyone** allows all users to view the report.  
  - **Groups and Users** allows the report creator to specify groups and users who are authorized to see the report.  
  **Groups and Users** is visible to users with the report_group role. |
| Groups              | Groups whose members are authorized to see the report.  
  This field is visible only when **Groups and Users** is selected. |
| Users               | Users who are authorized to see the report.  
  This field is visible only when **Groups and Users** is selected. |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter and Order</td>
<td>Conditions for filtering and ordering data. For example, you might create a condition that states Priority + less than + 3 - Moderate to have the report include only records with priorities of 2 - High and 1 - Critical. To order the results from lowest to highest, specify sorting based on Priority and set the sort order to z to a.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Size of chart: large or small.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of groups such as bars, sections, or columns, that can be displayed in the chart. If the number of values from the selected data exceeds this limit, only groups for the largest values appear. By default, up to 12 of the largest values from the selected data are represented. Remaining values can be grouped on the Other bar. If you select Show all, all groups up to a limit of 50 are displayed. The rest of the results are grouped as Other. If you select Remove Other, the Other group is hidden.</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used on dashboards, display the table of report data when the glide.ui.section508 system property is set to true. The glide.ui.section508 property overrides the Display data table field.</td>
</tr>
<tr>
<td>Use color palette</td>
<td>Check box for indicating whether to assign (selected) or not assign (cleared) a single color to all bars in pareto charts for the specific report. By default, this setting is derived from the value of the system property glide.ui.chart.use_full_color_palette. If chart colors are defined for specific table fields or if colors are specified for report ranges, they are used if the check box is selected. If the check box is selected and no chart colors or report range colors are specified, the default color palette is used. If the check box is cleared, the default color is used unless the property glide.ui.chart.color is set.</td>
</tr>
</tbody>
</table>
### Pareto chart style options

Change the look of your pareto chart.

When you create or edit a report, click the gear icon (🔧) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

#### Table 91: Pareto chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Chart color       | If no group by is used, **Use one color** is automatically selected. Select a single predefined system color.  
If a group by is used, 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. |
<p>| Display data labels | Select this check box to display the current value for each bar. This field is available when you select None from the Stacked by list. |
| Custom chart size | Select this check box to specify the chart width and height in pixels.                                                                     |
| Chart size        | Select a chart size. This field is available when Custom chart size is cleared.                                                             |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for all charts that have drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title.</td>
</tr>
<tr>
<td>position</td>
<td></td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis button</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range. If you select an aggregation field that is not of the type number, such as an average or a sum with a business duration, the From and To fields are not available.</td>
</tr>
</tbody>
</table>
For example, you can use a pie chart to show open incidents by priority. At any time, there are open incidents of different priority levels. The organization may have a policy stating that P1 incidents can never exceed 40% of all open incidents. With a pie chart, you can quickly see if incident counts are within acceptable ranges.

![Pie chart: Open Incidents by Priority](image)

Legend:
- **5 - Planning = 58 (65.17%)**
- **1 - Critical = 13 (14.61%)**
- **4 - Low = 9 (10.11%)**
- **2 - High = 5 (5.62%)**
- **3 - Moderate = 3 (3.37%)**
- **(empty) = 1 (1.12%)**

Figure 36: Pie chart
Create a pie chart

Create a pie chart to compare the size of individual categories to the whole.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate (see table).

Table 92: Creating Reports

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select Table or Report source. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select Pie. Alternatively, click the question mark icon to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon after the Type field to configure chart style options for the look and layout of the chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field used to collect similar data in groups, from the selected table. For example, in an incident report that is grouped by Assignment group, all incidents belonging to, for example, Software, Service Desk, Network, and so on, are grouped together. Make sure you give the report a name that reflects the selected field.</td>
</tr>
<tr>
<td>Note: It is not possible to group or stack reports by the Tags field.</td>
<td></td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart.</td>
</tr>
<tr>
<td></td>
<td>All reports that use charts, including reports that are used as gauges on homepages, display a table of report data if the glide.ui.section508system property is set to true, even if Display Grid is cleared.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| Aggregation  | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected.  
If you select **Count Distinct**, only unique records are counted. For example, if 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, these users 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. From this list, select a field to aggregate by. For example, if you select a duration field, such as the **Business duration** field 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.  
**Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized. |
| No. groups   | Select the maximum number of individual values that can be represented as slices. If the number of values from the selected data exceeds this limit, only the largest values are represented by the slices. By default, pie charts can display up to 12 slices. Remaining values are grouped into an **Other** slice. If you select **Show all**, all slices up to a limit of 50 slices can be displayed. The rest of the results are stacked in the **Other** slice. If you select **Remove Other**, the **Other** slice is hidden. |
| Show Other   | Select this check box to display the **Other** slice. This check box is not available when **Show all** or **Remove Other** is selected from the **No. groups** list. |
### Field Description

**Add Filter Condition**
Create conditions for filtering data to include in the report. For example, to include only records with priorities of **2 - High** and **1 - Critical**, select `[Priority] [less than] [3 - Moderate].

**Note:** Applying a string filter with other filters to pie and bar charts is not supported.

**Add "OR" Clause**
Select a second condition that must be met if the first condition is invalid. For example, select `[Assignment Group] [is] [Database]`, to include records that are assigned to the Database group if the first condition is false.

**Add Sort Field**
Select fields to sort data by. For example, to sort results from lowest to highest priority, select `[Priority] [z to a].`

### 3. Click **Save** or **Insert**.

Additional report options are available.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See **Distribute reports** on page 169.

**Pie and control chart style options**

Change the look of your pie chart.

When you create or edit a report, click the gear icon (🔧) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.
Table 93: Chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart color</td>
<td>If no group by is used, <strong>Use one color</strong> is automatically selected. Select a single predefined system color.</td>
</tr>
<tr>
<td></td>
<td>If a group by is used, select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use color palette</strong>: Select a color palette from the predefined system color palettes.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use several colors</strong>: Define a custom set of Colors using hex codes. You can add any number of colors.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use chart colors</strong>: Use the colors defined in Reports &gt; Chart Colors.</td>
</tr>
<tr>
<td>Display data labels</td>
<td>Select this check box to display the value for each slice. By default, data labels can be displayed for pie charts with up to 8 slices.</td>
</tr>
<tr>
<td></td>
<td>To change this limit, edit the glide.ui.chart.pie.labels.max_items system property.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when <strong>Custom chart size</strong> is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for all</td>
</tr>
<tr>
<td></td>
<td>charts that have drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the</td>
</tr>
<tr>
<td></td>
<td>default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td>Show chart title</td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title.</td>
</tr>
<tr>
<td></td>
<td>This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display the chart legend. This check box is available when the Group by field is selected in the visualization fields.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis tab</td>
<td>Configure the titles, appearance, and labels of the X and Y axes. For the Y axis, you can also specify a From and To range. If you select an aggregation field that is not of the type Number, the From and To fields are not available.</td>
</tr>
</tbody>
</table>

**Pivot tables**

Pivot tables aggregate data from a table into columns and rows, which you define.

You can configure a filter to further refine the data and select the aggregation values. Pivot tables enable you to quickly investigate the source of the summarized data. Non-empty cells display tooltips to indicate how many records the cell represents. Clicking a non-empty cell displays a breakdown of those records.
Incident Breakdown

<table>
<thead>
<tr>
<th>Assigned to</th>
<th>Request</th>
<th>Inquiry / Help</th>
<th>Software</th>
<th>Hardware</th>
<th>Network</th>
<th>Database</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(empty)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Beth Anglin</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Bow Rugeri</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bud Richman</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Charlie Whitherspoon</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>David Loc</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Don Goodliffe</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Fred Luddy</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Howard Johnson</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITIL User</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Luke Wilson</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>20</td>
<td>16</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>50</td>
</tr>
</tbody>
</table>

Figure 37: Pivot table

Create a pivot table

Create a pivot table to aggregate data from a table into columns and rows.

Role required: itil, 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.

1. Navigate to Reports > Create New
2. Fill in the fields, as appropriate.

Table 94: Pareto table

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Unique and descriptive name for your report</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon (ι) to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Pivot table</strong>. Alternatively, click the question mark icon (?) to use the <strong>report type selector</strong>.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon (⚙️) to view available style options:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Drilldown View</strong>: Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that bears no relation to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Row</td>
<td>Select the field used as the source of the data for the rows in the pivot table.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Column</td>
<td>Select the field used as the source of the data for the columns in the pivot table.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. Select <strong>Count Distinct</strong> to display only unique records. 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 role would be counted twice unless you use count distinct. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, a list of fields from the selected table appears. Select a field to aggregate by from this list. For example, if you select a duration field, such as <strong>Business duration</strong> on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as <strong>Priority</strong>, the data is expressed as a decimal value number. <strong>Note:</strong> For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>No. groups</td>
<td>Select the maximum number of groups such as bars, sections, or columns, that can be displayed in the chart. If the number of values from the selected data exceeds this limit, only groups for the largest values appear. By default, up to 12 of the largest values from the selected data are represented. Remaining values can be grouped on the <strong>Other</strong> bar. If you select <strong>Show all</strong>, all groups up to a limit of 50 are displayed. The rest of the results are grouped as <strong>Other</strong>. If you select <strong>Remove Other</strong>, the <strong>Other</strong> group is hidden.</td>
</tr>
<tr>
<td>Show Other</td>
<td>Select this check box to display the <strong>Other</strong> group for values that exceed the <strong>No. groups</strong> limit. This check box is not available when <strong>Show all</strong> or <strong>Remove Other</strong> is selected from the <strong>Max number of groups</strong> list.</td>
</tr>
</tbody>
</table>
Geneva  ServiceNow  Performance Analytics and Reporting

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select [Priority] [less than] [3 - Moderate].</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select [Assignment Group] [is] [Database], to include records that are assigned to the Database group, if the first condition is false.</td>
</tr>
</tbody>
</table>

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See **Distribute reports** on page 169.

**Pivot table style options**

Change the look of your box chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field. Use the options in the **Style your chart** dialog box to configure the look of your chart. Chart options are automatically saved when you click **Close**. To see how the chart looks with the saved settings, click **Save**.

**Table 95: Chart style options**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Drilldown view</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
</tbody>
</table>

**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 who do not have rights to any part of the list data see the message "Number of rows removed from this list by Security constraints:" followed by the number. See **Access control rules**.
Single score charts

Single score charts display a single value. Use them to share metrics or scores that are key to your business.

Figure 38: Single score chart

**Incident count**

8

Create a single score chart

Create a single score chart to display a metric or score that is key to your business.

Role required: itil, 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.

1. Navigate to **Reports > Create New**
2. Fill in the fields, as appropriate (see table).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or <strong>predefined data set</strong> from the second choice list.</td>
</tr>
</tbody>
</table>
| Type            | **Single Score**
|                 | Alternatively, click the question mark icon (('?') to use the **report type selector**. |
| Style your chart| Click the gear icon (('') after the **Type** field to configure **chart style options** for the look and layout of the chart. |
### Field

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation</td>
</tr>
</tbody>
</table>

Select a 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, if 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, these users would be counted twice unless you use count distinct.

If you select **Average**, **Sum**, or **Count Distinct**, this displays an additional list of fields from the selected **Table**. From this list, select a field to aggregate by. For example, if you select a duration field, such as the **Business duration** field 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. If a value in a column being aggregated has a comma, the value is separated by the comma, and the aggregation is not performed accurately.

**Note:** For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Filter Condition</td>
</tr>
</tbody>
</table>

Create **conditions** for filtering data to include in the report. For example, to include only records with priorities of **2** - **High** and **1** - **Critical**, select **[Priority] [less than] [3 - Moderate]**.

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;OR&quot; Clause</td>
</tr>
</tbody>
</table>

Select a second condition that must be met if the first condition is invalid. For example, select **[Assignment Group] [is] [Database]**, to include records that are assigned to the Database group, if the first condition is false.

3. Click **Save**. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of URLs of published reports, and share reports with others. See **Distribute reports** on page 169.
Single score chart style options

Change the look of your box chart.

When you create or edit a report, click the gear icon (⚙️) after the Type field. Use the options in the Style your chart dialog box to configure the look of your chart. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

**Table 97: Chart style options**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Display Zero</td>
<td>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. Applicable when Aggregation is Count or Count Distinct.</td>
</tr>
<tr>
<td>Score color</td>
<td>Select the color for the score</td>
</tr>
<tr>
<td>Drilldown view</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that has no fields in common to link to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• Never: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• Report only: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• Always: displays the chart title on reports, and dashboards and homepages.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Chart title X position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title down. This field appears only if Custom chart title position is selected.</td>
</tr>
<tr>
<td>Chart title Y position</td>
<td>The number of pixels to adjust the chart title position. By default the title appears at the center top of the chart. Set a value greater than 0 to move the chart title to the right. This field appears only if Custom chart title position is selected.</td>
</tr>
</tbody>
</table>

**Trend charts**

Trend charts show how the value of one or more items changes over time.

Values along the horizontal axis of the trend chart 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.

A good 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 should drop as users become more accustomed to the changes in the product.
Create a trend chart

Create a trend chart to show how the value of one or more data element changes over time.

Role required: itil, 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.

1. Navigate to **Reports > Create New**.
2. Fill in the fields, as appropriate (see tables).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for the report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Line</strong>. Alternatively, click the question mark icon to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon after the <strong>Type</strong> field and configure the chart style options to edit the layout and look of your chart.</td>
</tr>
<tr>
<td>Group by</td>
<td>Select a field to organize data into groups from the selected table. For example, in an incident report grouped by <strong>Assignment group</strong>, all incidents that belong to Software, Service Desk, and Network are placed in separate groups.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> It is not possible to group or stack reports by the <strong>Tags</strong> field.</td>
</tr>
<tr>
<td>Display Grid</td>
<td>Select this check box to display details of the report data in a table below the chart. All reports that use charts, including reports that are used as gauges on homepages, display the table of report data details if the glide.ui.section508 system property is set to <strong>true</strong>, even if <strong>Display Grid</strong> is cleared.</td>
</tr>
<tr>
<td>Trend by</td>
<td>Select the table field whose values you want to display in a time sequence.</td>
</tr>
<tr>
<td>per</td>
<td>Select the time period to display in the chart. Time periods range from a year down to an hour. You can also select a specific date.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Aggregation         | Select a computational method for aggregating report data. The default is **Count**, which displays the number of records selected.  
If you select **Count Distinct**, only unique records are counted. For example, if 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, these users 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. From this list, select a field to aggregate by. For example, if you select a duration field, such as the **Business duration** field 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.  

**Note:** For duration values, you cannot customize the unit of measurement displayed in the aggregation axis. |
| Percentages         | Select a computational method used for calculating percentages for each element (selected record) in a data set.  
- **Use Aggregation:** default method that computes percentages for each element using the sum of all elements in the data set.  
- **Use Record Count:** computes percentages for each element using the total number (count) of elements in the data set.  
This field is only available when Aggregation is set to Average, Sum, or Count Distinct.                                                                                   |
| Add Filter Condition| Create conditions for filtering data to include in the report. For example, to include only records with priorities of **2 - High** and **1 - Critical**, select [Priority] [less than] [3 - Moderate].                                                                                   |
Add "OR" Clause

Select a second condition that must be met if the first condition is invalid. For example, select `[Assignment Group] [is] [Database]`, to include records that are assigned to the Database group if the first condition is false.

Add Sort Field

Select fields to sort data by. For example, to sort results from lowest to highest priority, select `[Priority] [z to a]`.

3. Click Save. The report is generated.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Trend chart style options

Change the look of your trend chart.

When you create or edit a report, click the gear icon (🔧) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

Table 98: Trend chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart color</td>
<td>If no group by is used, <strong>Use one color</strong> is automatically selected. Select a single predefined system color.</td>
</tr>
<tr>
<td></td>
<td>If a group by is used, select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use color palette</strong>: Select a color palette from the predefined system color palettes.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use several colors</strong>: Define a custom set of <strong>Colors</strong> using hex codes. You can add any number of colors.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Use chart colors</strong>: Use the colors defined in <strong>Reports &gt; Chart Colors</strong>.</td>
</tr>
<tr>
<td>Display data labels</td>
<td>Select this check box to display the current value for each data point.</td>
</tr>
<tr>
<td>Marker</td>
<td>Select this check box to display a symbol at each data point.</td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when <strong>Custom chart size</strong> is cleared.</td>
</tr>
<tr>
<td>Drilldown View</td>
<td>Select a view that determines how detailed records are shown when a specific part of the chart is clicked. This option is available for charts with drill-down capabilities. If you select a view that bears no relation to the table that the report is based on, the default view is used.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Never</strong>: never displays the chart title.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Report only</strong>: displays the chart title on reports.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Always</strong>: displays the chart title on reports and homepage gauges.</td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title.</td>
</tr>
<tr>
<td></td>
<td>This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when <strong>Report only</strong> or <strong>Always</strong> is selected from the <strong>Show chart title</strong> list.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Legend</td>
<td></td>
</tr>
<tr>
<td>Show legend</td>
<td>Select this check box to display the chart legend. This field is available when a Group by field is selected on the report form.</td>
</tr>
<tr>
<td>Legend horizontal alignment</td>
<td>Select how the legend is aligned horizontally. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Legend vertical alignment</td>
<td>Select how the legend is aligned vertically. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Show legend border</td>
<td>Select this check box to display a border around the legend. This field is available when Show legend is selected.</td>
</tr>
<tr>
<td>Axis</td>
<td></td>
</tr>
<tr>
<td>Axis button</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range.</td>
</tr>
</tbody>
</table>

**Trendbox charts**

A trendbox chart shows the distribution of values in a data set, with an additional time period.

A trendbox chart is similar to a box report. However, a trendbox chart allows you to specify an additional time period for the report. When defining the report, use a descriptive title that indicates the use of the time period. Use trendbox charts 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.

Use a trendbox chart to show, for example, incident resolution duration for high priority incidents by support employee. More precisely, each support employee handles a certain number of P1 incidents and the time it takes to resolve each P1 incident varies. A trendbox chart would show, by employee, the longest and shortest resolution times, and a grouping with the most common or closely clustered resolution times. With this information, you can compare resolution times by employee, or you can use the information to estimate future support staffing levels.
Figure 39: Trendbox chart

Understanding trendbox charts

A trendbox chart displays the following for each group of data:
Create trendbox chart reports

Create a trendbox chart to show the distribution of values in a data set, with an additional time period.

Role required: itil, 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.

1. Navigate to Reports > Create New.
2. Fill in the fields, as appropriate (see table).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique and descriptive name for your report.</td>
</tr>
<tr>
<td>Description</td>
<td>Click the information icon to enter a more detailed description of what the report does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Data</td>
<td>Specify the table or report source containing the data set that you want to include in the report. From the first choice list, select <strong>Table</strong> or <strong>Report source</strong>. Then select the specific table or predefined data set from the second choice list.</td>
</tr>
<tr>
<td>Type</td>
<td>Select <strong>Trendbox</strong>. Alternatively, click the question mark icon to use the report type selector.</td>
</tr>
<tr>
<td>Style your chart</td>
<td>Click the gear icon after the <strong>Type</strong> field and configure the chart style options to edit the layout and look of your chart.</td>
</tr>
</tbody>
</table>
| Group by | Select the field that you want to group the report data by. For example, in an incident report that is grouped by **Assignment group**, all incidents belonging to Software, Service Desk, Network, and so on, are grouped together. Make sure you give the report a name that reflects the field you select.  

**Note:** It is not possible to group or stack reports by the **Tags** field. |
| Trend by | Select the table field whose values you want to display in a time sequence. |
| per | Select a time period to display in the chart. Time periods range from a year to an hour. You can also select a specific date.  

Note that when you select, for example, **Created per Hour** in the trend field, the resulting trend chart based on the incidents table shows incidents created from the start of the hour (for example: 8:00:00) until the end of the hour (8:59:59) in the same bar. So an incident created at 8:14 is shown under 8, and an incident created at 9:01 is shown under 9. |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation</td>
<td>Select a computational method for aggregating report data. The default is <strong>Count</strong>, which displays the number of records selected. If you select <strong>Count Distinct</strong>, only unique records are counted. For example, if 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, these users would be counted twice unless you use count distinct. If you select <strong>Average</strong>, <strong>Sum</strong>, or <strong>Count Distinct</strong>, a list of fields from the selected <strong>Table</strong> appears. From this list, select a field to aggregate by. For example, if you select a duration field, such as the <strong>Business duration</strong> field on the Incident table, the aggregated data is expressed in days, hours, and minutes. If you select an integer field, such as the <strong>Priority</strong> field, the data is expressed as a number. <strong>Note</strong>: For duration values, the unit of measurement displayed in the aggregation axis cannot be customized.</td>
</tr>
<tr>
<td>Add Filter Condition</td>
<td>Create conditions for filtering data to include in the report. For example, to include only records with priorities of 2 - High and 1 - Critical, select <strong>[Priority] [less than] [3 - Critical]</strong>.</td>
</tr>
<tr>
<td>Add &quot;OR&quot; Clause</td>
<td>Select a second condition that must be met if the first condition is invalid. For example, select <strong>[Assignment Group] [is] [Database]</strong>, to include records that are assigned to the Database group if the first condition is false.</td>
</tr>
<tr>
<td>Add Sort Field</td>
<td>Select fields to sort data by. For example, to sort results from lowest to highest priority, select <strong>[Priority] [z to a]</strong>.</td>
</tr>
</tbody>
</table>

3. Click **Save** or **Insert**.
Note: For duration values, it is not possible to customize the unit of measurement displayed in the aggregation axis.

Add reports to homepages or dashboards, publish to the internet, schedule email distribution of PDFs or URLs of published reports, and share reports with others. See Distribute reports on page 169.

Trendbox chart style options

Change the look of your trendbox chart.

When you create or edit a report, click the gear icon ( ) after the Type field to open the Style your chart dialog box with options to configure the look of your chart. Chart options are automatically saved when you click Close. To see how the chart looks with the saved settings, click Save.

Table 100: Trendbox chart style options

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Custom chart size</td>
<td>Select this check box to specify the chart width and height in pixels.</td>
</tr>
<tr>
<td>Chart size</td>
<td>Select a chart size. This field is available when Custom chart size is cleared.</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Show chart title</td>
<td>Select when the chart title is displayed.</td>
</tr>
<tr>
<td>• Never: never displays the chart title.</td>
<td></td>
</tr>
<tr>
<td>• Report only: displays the chart title on reports.</td>
<td></td>
</tr>
<tr>
<td>• Always: displays the chart title on reports and homepage gauges.</td>
<td></td>
</tr>
<tr>
<td>Chart title</td>
<td>Enter a title for this chart. The title has a maximum length of 40 characters. If no title is entered, the report name is used for the title.</td>
</tr>
<tr>
<td>This field is available when Report only or Always is selected from the Show chart title list.</td>
<td></td>
</tr>
<tr>
<td>Chart title size</td>
<td>Enter the size of the chart title in pixels. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Chart title color</td>
<td>Select the color for the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Custom chart title position</td>
<td>Select this check box to specify the X and Y coordinates for the position of the chart title. This field is available when Report only or Always is selected from the Show chart title list.</td>
</tr>
<tr>
<td>Title horizontal alignment</td>
<td>Select how the chart title is aligned horizontally. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Title vertical alignment</td>
<td>Select how the chart title is aligned vertically. This field is available when Custom chart title position is cleared.</td>
</tr>
<tr>
<td>Axis</td>
<td>Configure the titles, appearance, and labels of the X and Y axis. For the Y axis, you can also specify a From and To range.</td>
</tr>
</tbody>
</table>

Advanced reporting

Learn about advanced reporting.

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.
Figure 41: Drilldown example

All report types except for list, histogram, calendar, control, box, and trendbox support drilling down. Drilling down is not available on reports added to forms, and charts embedded as iframes. You can define any number of drilldown levels for a report.

**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 allow 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.

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.

1. Navigate to Reports > View / Run.
2. Select the report you want to add a drilldown to.
3. Click the report options arrow next to the **Save** button.
4. Select **Report drilldown**.
5. Enter a **Title** for the drilldown.
6. Select the chart **Type** to display the data.

**Figure 42: Save menu > Report drilldown**
The drilldown chart type may be different than the parent report.

7. Click the cog icon ( ) to configure the report. Configuration options depend on the selected Type. See Report types on page 185.

8. Click Save.

The user can now 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. User access to list information is determined by platform access control lists. Users who do not have rights to any or all of the list data will see the message "Number of rows removed from this list by Security constraints:" followed by the number. See Access control rules.
Metrics

A metric measures and evaluates the effectiveness of IT service management processes.

For example, a metric could measure the effectiveness of the incident resolution process by calculating how long it takes to resolve an incident.

Sometimes a metric can be easily obtained from the data. For example, to find the number of incidents that were created today, a report will simply count the number of incidents in the incident table with a Created date of today. Often, however, metrics need to be gathered as data is updated. For example, determining how long an incident was assigned to a certain group requires collecting information about assignment changes and calculating the duration of each assignment.

The Metric plugin provides an easy, declarative way of defining metrics. Once defined, the data for the metric will be gathered, and instances of the metric will be calculated and stored. By an instance we mean a specific occurrence. For example, the "Assigned to Duration" metric measures the duration of time an incident is assigned to an individual. The metric is defined by creating a metric definition of type "Field value duration" and selecting the "Assigned to" field from the Incident table. A metric instance is then created for each incident assignment showing its duration. Reporting on the duration of incident assignments becomes easy.

Reporting on a metric is done using the database view that links the metric to the table on which it is defined.

Create a metric

Create a metric definition for a task table.

1. Navigate to Metrics > Definitions.
2. Click New.
3. Complete the Metric definition form.
4. Click Submit.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The system generates a unique record number for the metric definition.</td>
</tr>
<tr>
<td>Name</td>
<td>Enter a unique name to describe what metrics will be collected.</td>
</tr>
<tr>
<td>Table</td>
<td>Select the table that you want to collect metrics for. A metric can only apply to one table.</td>
</tr>
</tbody>
</table>

Note: The list shows only tables and database views that are in the same scope as the metric definition.

Field | Select the table column you want to monitor for changes. Metrics only work on audited fields. Creating a metric for non-audited field produces unreliable metrics.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Type        | Select what values this metric will generate.  
  • **Field value duration**: This type of metric measures the duration of time from when the value of the specified field is set until it’s changed. A Field value duration metric can optionally specify a script. The script can either return a duration value or set the answer variable to false to stop processing the metric. For example, the baseline incident metrics stop calculating duration when an incident’s Active field is set to false. The script can also carry out any other action such as closing the duration of other metrics defined on the same record. See the example script for more information.  
  • **Script calculation**: This type of metric creates a metric instance using a script. The script has access to the current row in the table (for example an incident) and the metric definition. The script can then perform any calculation and insert data into the metric_instance table. The calculation does not have to result in a duration. It can calculate any type of value and store it in the metric instance value. |
| Timeline    | Select this checkbox to display the metric on a timeline. |
| Active      | Select this checkbox to monitor changes for this metric. |
| Description | [Optional] Specify what data the metric monitors and it’s conditions. |
| Script      | Enter the script you want the metric to run to either calculate a duration or perform some calculation on the metric_instance table. |
In the base system, metrics are configured to work on the task table only. To apply metrics to cmdb_ci tables, duplicate the metric events business rule that currently runs on the task table for the cmdb_ci table. Without the events created, no metric processing can occur.

### Sample field value duration script

Review the existing Incident Open metric definition to see how you can create your own custom metric.

This script either provides a duration value or stops processing durations (sets the answer variable to false) when an incident is closed.

```javascript
// script can set answer to false to terminate processing of the metric
// mi - MetricInstance
// answer
if (!current.active) {
    answer = false;
    mi.endDuration();
gs.log("Closing field durations");
    closeDurations(mi.current);
}

function closeDurations(current) {
    var gr = new GlideRecord('metric_instance');
gr.addQuery('id', current.sys_id);
```
Metric instance

A metric instance is a record in the metric_instance table. A record holds one instance of a metric.

![Metric instance](image)

**Figure 44: Metric plugin**

Some of the notable fields in this table are:

- **Metric definition**: the metric definition for which this metric instance was gathered.
- **Value**: For a "Field value duration" metric this is the value of the table field for which duration is calculated. For example, for the "Assigned to Duration" metric, the Value is the name of the person assigned to the incident. For other metrics, the value can be any value calculated by the metric.
- **ID**: Identifies the specific record for which the metric is gathered. For example, the specific incident.
- **Duration**: Time duration for a Field value duration metric.

Database views

A database view defines table joins for reporting purposes.
For example, a database view can join the Incident table to the Metric Definition and Metric Instance tables. This view can be used to report on incident metrics and may include fields from any of these three tables.

A number of useful database views are installed with the Database View plugin and the Database Views for Service Management plugin. These database views cover most metric reporting needs and greatly reduce the need to define new ones.

**Note:** In general, as the number of tables that are included in the view and the number of records that those tables contain increases, the accumulated impact on performance grows. In addition, to optimize the performance of the database view ensure that the ‘where’ clauses that are defined in the database view are based on indexed fields.

**Limitations**

- Database views cannot be created on tables that participate in table rotation.
- It is not possible to edit data within a database view.

**ACLs and database views**

You need to create a read ACL for your users on the tables in a view to generate reports on database views. Non-admin users do not have access to database view records unless a read ACL on the database view record allows access.

**Creating a database view**

Create a database view to join tables. You can then create a report based on the joined tables.  
*Create a database view*  
Create the database view.

1. Navigate to **System Definition > Database Views**.
2. Click **New**.
   
   The Database View form appears.
3. Name the view as you would name a new table.
   
   The **Label** and **Plural** fields define how the database view is labeled in lists and forms.
Add a table to the database view

Specify the table to join to the database view.

The **Table** field in the View Table form names the table to join to the database view. A **Variable prefix** can be assigned and used later when specifying a **Where clause** to define the conditions for the join. These conditions can refer to any field, but typically define the join by matching a field in the table to a field in another table that is part of the database view. When writing the **Where clause**, add the field name to the **Variable prefix** of its table with an underscore. For example, in the following screenshot, in the **Where clause** field, `mi_id` refers to the `id` field in the Metric Instance [metric_instance] table (mi) and the `inc_sys_id` refers to the `sys_id` field in the Incident [incident] table (inc). Database views can not be created on tables that participate in Table Rotation.
The **Where clause** supports these JavaScript conditional operators:

- =, !=, <, <=, >, >=, &&, ||

1. From the Database View form, click **New** on the View Tables related list.
2. Configure the form and add the **Left join** field (a check box) to the form.
3. Click **Save**.
4. Complete the form and select the **Left join** check box.
   
   - Selecting **Left join** causes the left-hand table in the database view to display all records, even if the join condition does not find a matching record on the right-hand table. Select this check box for view tables that specify a **Where clause**. Selecting **Left join** for view tables without a **Where clause** does not affect the query.
   - Joined tables are ordered left to right from lowest to highest **Order** values.

5. Click **Submit**.
6. Personalize the **View Tables** related list to show the **Left join** column.
The **Left join** field shows a value of **true**.

7. Click a record to view a table.

   The View Table form appears.

8. To add an OR to your where clause use `||`.

   For example, to query all incidents related to RFCs OR all incidents that are the parent of a change request, use the following syntax:

   ```
   inc_rfc = chg_sys_id || chg_parent = inc_sys_id
   ```

   ![View Table form](image)

---

**Specify a field to return**

Use the View Field form to restrict or specify a field that you want returned by the joined table.

If no fields are defined in the View Field list, all fields are returned. If any fields are defined, only those fields are returned.

![View Field form](image)

---

**Figure 45: View Field list**

When you restrict the fields returned by creating View Field records, you must create a record for the join field from the Where clause in the parent record. If you omit a record for this field, it cannot be returned, and the join fails. In the previous example, the Where clause uses the sys_id field from the Incident table to
establish the join. For the join to succeed with a restricted field list, you must include a record for the sys_id field.

*Relabel a column*

In some cases, two different tables may have fields of the same name that are both important (such as two tables with a sys_updated_on field). You must rename one of these fields.

To create clear reports, relabel the fields on the Database View [sys_db_view] table without changing the names of the fields.

1. Navigate to **System Definition > Language File**.
2. Click **New**.
3. Fill in the form as follows:

   Table 102: New language file fields

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table</td>
<td>Name of the database view</td>
</tr>
<tr>
<td>Label</td>
<td>Display label</td>
</tr>
<tr>
<td>Plural</td>
<td>Plural form of the display label</td>
</tr>
<tr>
<td>Element</td>
<td>Name of the field on the database view</td>
</tr>
</tbody>
</table>

*Specify the number of records to return*

Specify the number of records to return for a database view.

A property called glide.db.max_view_records controls the maximum number of rows returned when running a GlideRecord query in a script. The default value for this property is 10,000. To change this value, add the property to the System Property [sys_properties] table and edit the number of rows to return.

This property only applies when querying a database view table in a script. When displaying the database view table in a list or report, this property does not apply.

*Test the database view*

Verify that the database view works correctly.

After the new view is defined, test it by clicking **Try It** under Related Links on the Database View form.

If you do not see the Try It link, the tables necessary for the view do not exist. If this occurs, it is possible that you did not activate the necessary plugins to create the supporting tables. When tables are not present to support the view, the form looks like this:
Use disjunctions in complex queries

ServiceNow performs conjunction statements before disjunction statements in a query. When you create a complex query, you must use parenthesis around disjunctions where appropriate to ensure proper grouping of query elements. For example, you must use parenthesis in the query (md_table = 'incident' || md_table = 'task') && mi_definition = md_sys_id && mi_id = inc_sys_id. Removing the parenthesis from this query returns all records where the md_table value is incident.

Database views in the base system

Certain views are included in the base system with the Database Views and Database Views for Service Management plugins.

**Note:** Database view tables are not included in FTP exports.
### Table 103: Database views

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>change_request_metric</td>
<td>Join change to metric definition to metric instance, creating a view that can be reported on for things like: Changes that were closed by category.</td>
<td>Change Metric</td>
</tr>
<tr>
<td>change_request_sla</td>
<td>Join change_request to sla (task_sla), creating a view that can be reported on for things like change request resolved by sla per change category.</td>
<td>Change Request SLA</td>
</tr>
<tr>
<td>change_task_metric</td>
<td>Join change task to metric definition to metric instance, creating a view that can be reported on for things like: Change tasks that were closed by change state</td>
<td>Change Task Metric</td>
</tr>
<tr>
<td>change_task_sla</td>
<td>Join change_task to sla(task_sla), creating a view that can be reported on for things like change tasks resolved by sla.</td>
<td>Change Task SLA</td>
</tr>
<tr>
<td>change_task_time_worked</td>
<td>Join change task to task time worked to pull time worked entries associated with incidents.</td>
<td>Change Task Time Worked</td>
</tr>
<tr>
<td>incident_metric</td>
<td>Join incident to metric definition to metric instance creating a view that can be reported on for things like: Incidents that were resolved on the first call by category.</td>
<td>Incident Metric</td>
</tr>
<tr>
<td>incident_sla</td>
<td>Join incident to sla(task_sla) to report on things like incidents resolved by sla per incident category.</td>
<td>Incident SLA</td>
</tr>
<tr>
<td>incident_time_worked</td>
<td></td>
<td>Incident Time Worked</td>
</tr>
<tr>
<td>pm_project_metric</td>
<td>Join pm_project to metric definition to metric instance creating a view that can be reported on for things like: Projects that were closed by name or date</td>
<td>Project Metric</td>
</tr>
<tr>
<td>pm_project_sla</td>
<td>Join pm_project to sla(task_sla) to report on things like project names by sla.</td>
<td>Project SLA</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
<td>Label</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>pm_project_task_metric</td>
<td>Join <code>pm_project_task</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Project tasks that were closed by name or date</td>
<td>Project Task Metric</td>
</tr>
<tr>
<td>pm_project_task_sla</td>
<td></td>
<td>Project Task SLA</td>
</tr>
<tr>
<td>pm_project_task_time_worked</td>
<td>Join <code>pm_project_task</code> to <code>task time worked</code> to pull time worked entries associated with project tasks.</td>
<td>Project Task Time Worked</td>
</tr>
<tr>
<td>problem_metric</td>
<td>Join <code>problem</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Problems that were resolved on the first call by category</td>
<td>Problem Metric</td>
</tr>
<tr>
<td>problem_sla</td>
<td>Join <code>problem</code> to <code>sla(task_sla)</code> to report on things like problems resolved by sla per problem state.</td>
<td>Problem SLA</td>
</tr>
<tr>
<td>release_feature_metric</td>
<td>Join <code>release_feature</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Release Features that were closed by product</td>
<td>Release Feature Metric</td>
</tr>
<tr>
<td>release_project_metric</td>
<td>Join <code>release_project</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Releases that were closed by category</td>
<td>Release Metric</td>
</tr>
<tr>
<td>release_task_metric</td>
<td>Join <code>release_task</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Release Features that were closed by feature</td>
<td>Release Task Metric</td>
</tr>
<tr>
<td>release_task_sla</td>
<td>Join <code>release_task</code> to <code>sla(task_sla)</code> to report on things like release tasks by sla.</td>
<td>Release Task SLA</td>
</tr>
<tr>
<td>sc_request_metric</td>
<td>Join <code>sc_request</code> to <code>metric definition</code> to <code>metric instance</code> creating a view that can be reported on for things like: Requests that were closed by category</td>
<td>Catalog Request Metric</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
<td>Label</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>sc_request_sla</td>
<td>Join sc_request to sla(task_sla) to report on things like requests by sla.</td>
<td>Catalog Request SLA</td>
</tr>
<tr>
<td>sc_req_item_metric</td>
<td>Join sc_request_item to metric definition to metric instance creating a view that can be reported on for things like: Request Items that were closed by item</td>
<td>Catalog Request Item Metric</td>
</tr>
<tr>
<td>sc_req_item_sla</td>
<td>Join sc_req_item to sla(task_sla) to report on things like request items by sla.</td>
<td>Catalog Request Item SLA</td>
</tr>
<tr>
<td>sc_task_metric</td>
<td>Join sc_task to metric definition to metric instance creating a view that can be reported on for things like: Catalog tasks that were closed by item</td>
<td>Catalog Task Metric</td>
</tr>
<tr>
<td>sc_task_sla</td>
<td>Join sc_task to sla(task_sla) to report on things like tasks by sla.</td>
<td>Catalog Task SLA</td>
</tr>
</tbody>
</table>

### Database view reserved words

Certain words have special functionality when used as table identifiers.

Using the terms may cause unintended or undesirable performance. For more information, see the [MySQL reserved words document](#).

### Chart colors

Report administrators can change the look of charts by specifying colors used to represent specific report data categories.

You can configure the system to use the same color for all bars on a bar chart. You can also define new system colors that can be used in charts.

#### Using chart colors

Newly generated bar or pie chart reports update the Chart Colors list to show each data category for the report and the color associated with the category. The colors used in bar and pie charts for a particular data category are consistently used across all bar and pie charts created. For example, priority 1 incidents in a chart always have the same color and do not change color based on their relative position within the chart.

Colors from the following list are automatically assigned to each category the first time the category is used in a chart. If there are more than 15 possible categories, the colors repeat.
By default, the bars on a bar chart use different colors for different data categories. To use the same color for all bars, set the glide.ui.chart.use_full_color_palette property to false and specify the desired color in the glide.ui.chart.color property.

Define colors for report data categories

You can define colors for a specific value for a data category.

1. Navigate to Reports > Administration > Chart Colors.
2. Click New.
3. Fill in the fields, as appropriate.
Table 104: New Chart Colors form

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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. |

<table>
<thead>
<tr>
<th>Element</th>
<th>Column name specific to the selected Table.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>Value for which the specified color should be displayed.</td>
</tr>
<tr>
<td>Color name</td>
<td>Color name, as defined in the Color Definition module. When a report is generated, this color is used to represent the specified Value.</td>
</tr>
</tbody>
</table>
| Color   | Hexadecimal value used to specify a color that is not already defined in the Color Definition module.  
*Note:* If the Color name field contains a value, the Color field is ignored. |

4. Click **Submit**.

Define system colors for reports

You can define colors that the system uses in reports.

1. Navigate to **Reports > Administration > Color Definition**.
2. Click **New**.
3. Fill in these fields.

Table 105: New color definition form

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique name for the new color.</td>
</tr>
<tr>
<td>Color</td>
<td>Enter a hexadecimal value, for example #003366.</td>
</tr>
</tbody>
</table>

4. Click **Submit**.

The default color scheme glide.ui.chart.default.colors contains the following 20 colors:
Custom charts

The Custom Charts plugin enables administrator to create custom reports in several ways.

- Combine reports that ServiceNow creates separately into a single chart, such as one that displays trends for open and closed incidents.
- Combine data from outside the ServiceNow ITSA Suite platform with internal data to produce a single chart.
- Merge data from multiple tables in the platform to create a meaningful report.

Create a custom chart

Use the Custom Chart form to design the physical report and to create the script that renders the chart.

This is the first step in the process of creating custom charts.

1. Activate the Custom Charts plugin.
2. Navigate to Reports > Custom Charts.
3. Click New.
4. Complete the form using the following fields:
   a) Set the Width and Height for the chart.
   b) Select a Type of chart (such as Bar Chart or Pie Chart).
c) Define the maximum number of bars or slices that are produced in the Other threshold field.

d) Enter labels to be used for the X Axis and the Y Axis.

e) Identify the script to run in the Render script field. This script renders the information gathered by the data generator.

5. Submit the form.

The related list for generating data appears.
```javascript
// Script will generate a trending chart of open incidents and combine that with a
// trending chart of the closed incidents and then over the top of that will
// place a line that shows the backlog of incidents in the same time period.

// Get the sys_id values for the sys_report_summary table entries build by our generators
var openID = summary_sets.get("Trend of Open Incidents");
var closedID = summary_sets.get("Trend of Closed Incidents");
var backlogID = summary_sets.get("Incident Backlog");

// Gets a utility class for dataset manipulation
var cu = new ChartUtil();
cu.setColors("#FF0000,#FF00FF");

// Get the dataset for the Open incidents
var open = new ChartGenerator("bar");
open.setTable("incident");
open.setSummaryID(openID);
var ds = open.getDataset();

// Get the dataset for the Closed incidents and combine with the open incidents into
// a multi series dataset
var closed = new ChartGenerator("bar");
closed.setTable("incident");
closed.setSummaryID(closedID);
ds = cu.mergeDatasets(ds, "Open", closed.getDataset(), "Closed");

// Get the chart for the multi series bar chart of open and closed incidents
var chart = closed.getChart(ds);
```

After creating the custom chart record, configure the \textit{data generator} to populate the chart.

Custom chart data generation

The basic data necessary to render a chart is saved within the Summary Set \( [\text{sys\_report\_summary}] \) table.

The detailed data needed to create charts is contained in the related Report Summary Line \( [\text{sys\_report\_summary\_line}] \) table.

\textit{Generate custom report data}

Generate data for a custom report.

1. Navigate to \textbf{Reports > Custom Charts}.
2. Select an existing chart or create a new one.
3. In the Custom Chart form, click \textbf{New} in the \textit{Uses Generator} related list.

The Scheduled Report Summary Generation form appears.

4. Use this form to run the script that creates the summary lines of data used by the chart.
The data generation form has the following characteristics:

- A custom chart generator can be scheduled to run at the times desired to ensure that the data being rendered in the chart is up to date.
- The reference to the Summary Set table shows the data that was last produced by this generator. This data is used when the chart is rendered.

5. Click **Execute Now** to execute the generation script.

**Warning:** Configure the generator so that each time it runs and produces a new summary set, it deletes the previous summary set or gives an expiration date to the previous summary set.

### Generation script examples

The generation script creates the Summary Set and Report Summary Line database records that are used by the chart rendering code to produce a chart. The Summary Set and Report Summary Line tables are described here.

### Example 1: First level locations script

This code is basic high level code to set up some variables to perform the following tasks:

- Call a function to get the locations from the incident table.
- Create location lines, line items, and location items.
- Place the sys_id of the new summary set into the custom generation record.
- Update the previous summary to expire now.

Each generation script must end with the three lines that set the summary id value (current.summary), set workflow off to avoid recursion on generation, and update the current record.

```javascript
//
var g_sequence = 0;
var g_colors = new GlideChartFieldColors('incident', 'location');
var sid = fll_createSummary();
var xx = new GlideRecord('cmn_location');
xx.addNullQuery('parent');
xx.query();
while (xx.next()) {
  fll_createLine(xx, sid);
}
var oldSummary = current.getValue('summary');
current.summary = sid;
current.setWorkflow(false);
current.update();
fll_updatePreviousSummaryToExpireNow(oldSummary);
```

**fll_createSummary Function**

The `fll_createSummary` function creates a new summary set record that will be used to record the details for first level locations.

```javascript
function fll_createSummary() {
  var s = new GlideRecord("sys_report_summary");
  s.title = "First Level Locations";
  s.field = "location";
  s.table = 'incident';
  s.grouping = 'location';
  return s.insert();
}
```
fll_createLine Function

The fll_createLine function records the locations of an incident by creating a report summary line and associating it with the summary set.

```javascript
function fll_createLine(location, summaryID) {
  if (location.name == 'Earth')
    return;

  var s = new GlideRecord("sys_report_summary_line");
  s.summary = summaryID;
  s.sequence = g_sequence++;
  s.category = location.sys_id;
  s.name = location.name;
  s.insert();
  fll_createLineItems(location, summaryID);
}
```

fll_createLineItems Function

The fll_createLineItems function creates the line items in the database according to the locations.

```javascript
function fll_createLineItems(location, summaryID) {
  var inc = new GlideAggregate('incident');
  inc.addQuery('active=true');
  inc.addQuery('location.full_name', 'STARTSWITH', location.full_name.toString());
  inc.addAggregate('COUNT', 'location');
  inc.query();
  while (inc.next()) {
    fll_createLocationItem(location, inc, summaryID);
  }
}
```

fll_createLocationItem Function

The fll_createLocationItem function creates the location items in the database according to the locations.

```javascript
function fll_createLocationItem(location, inc, summaryID) {
  var s = new GlideRecord("sys_report_summary_line");
  s.summary = summaryID;
  s.sequence = g_sequence++;
  s.level = 1;
  s.value = inc.getAggregate('COUNT', 'location');
  s.category = inc.location;
  s.name = inc.location.getDisplayValue();
  s.color = g_colors.get(inc.location.toString());
  s.query_text = "active=true^location=" + inc.location.toString();
  s.insert();
}
```

fll_updatePreviousSummaryToExpireNow Function

The fll_updatePreviousSummaryToExpireNow function updates the previous summary to expire now.

```javascript
function fll_updatePreviousSummaryToExpireNow(summaryID) {
  if (summaryID == null)
    return;
```
```javascript
var previous = new GlideRecord("sys_report_summary");
previous.get(summaryID);
if (previous.isValidRecord()) {
    previous.expires = gs.nowDateTime();
    previous.update();
}
```

**Figure 48: First level locations**

**Example 2: Trend of open incidents generation script**

This example creates the chart data necessary to show the trend of open incidents created by month. Notice that the script has the standard three ending lines as documented in the previous example and that it uses the server script include called SummaryTableWriter to generate the data.

```javascript
var opened = new SummaryTableWriter("incident", ",");
```
opened.setTitle("Trend of Open Incidents");
opened.setTrend('opened_at', 'month');
current.summary = opened.generate();
current.setWorkflow(false);
current.update();

Summary set table

Table 106: Summary Set Table

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Title given to the summary set that is used as the chart title. Also used as the key field for chart generators to see if the data has been generated.</td>
</tr>
<tr>
<td>Table</td>
<td>The table used in the query to generate the data.</td>
</tr>
<tr>
<td>Query</td>
<td>The query that was issued to load the data.</td>
</tr>
<tr>
<td>Field</td>
<td>The field that is used for X axis values if grouping is not used. If grouping is used, then this field is the stacking field.</td>
</tr>
<tr>
<td>Grouping</td>
<td>The field that is used to determine the X axis values.</td>
</tr>
<tr>
<td>Build Duration</td>
<td>Set to indicate how long it took to generate the data.</td>
</tr>
<tr>
<td>Number</td>
<td>Display field for the Summary Set table.</td>
</tr>
</tbody>
</table>

SummaryTableWriter script include

Use the SummaryTableWriter script include to create summary sets for reports that can be generated with standard queries and trending.

The methods involved are described below.
### Table 107: SummaryTableWriter script include

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Input parameters</th>
<th>Script</th>
</tr>
</thead>
<tbody>
<tr>
<td>SummaryTableWriter (tableName, columnName)</td>
<td>Produces a summary set for the COUNT of all incidents grouped by category.</td>
<td>• tableName: the table used in the query to generate the data.</td>
<td>var summarySet = new SummaryTableWriter('incident', 'category'); summarySet.generate();</td>
</tr>
</tbody>
</table>

**Note:** The custom chart definition table contains a field named **Table** that is hidden by default. If the field is set (which it is in some of the base custom charts), then, no matter what is defined within the custom chart scripts, clicking on the chart points you to this table.

For example, if you create a custom chart against the [task] table through a script, but you copied the custom chart from a custom chart that contains Table = incident, then clicking on any bar in the custom incident.do...
SummaryTableWriter.generate()

In all examples above, the generate method actually creates the summary set records.

Additional parameters that can be used:
- Build Duration: set to indicate how long it took to generate the data.
- Number: display field for the Summary Set table.

Report summary line table
The report summary line table.

Table 108: Report Summary Line Table

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>The reference to the summary set to which this detail line applies.</td>
</tr>
<tr>
<td>Sequence</td>
<td>The order in which the values are read during chart generation.</td>
</tr>
<tr>
<td>Level</td>
<td>Zero (0) if there is a single level of grouping. If multiple levels of grouping exist, then the level increases with each group (category stacked by priority would represent two levels). Currently, only two levels are supported by the standard charting code. Custom charts can use this to any level desired.</td>
</tr>
<tr>
<td>Category</td>
<td>Raw data value from the database associated with this line item.</td>
</tr>
<tr>
<td>Name</td>
<td>Display value that corresponds with the category value.</td>
</tr>
<tr>
<td>Value</td>
<td>Aggregation value associated with this entry (COUNT of incidents in this category for example).</td>
</tr>
<tr>
<td>Color</td>
<td>Color that should be used to display this entry.</td>
</tr>
<tr>
<td>Percent</td>
<td>Percent that this entry represents within its group of values.</td>
</tr>
<tr>
<td>Query Text</td>
<td>Query that is necessary to get the data from the database that generated this detail item.</td>
</tr>
</tbody>
</table>

After creating the data generators, create the rendering script that uses the data generated in this task to render the chart.

Custom chart rendering
To generate a more complex chart than the system is naturally capable of creating, write a rendering script.
Caution: The customization described here was developed for use in specific instances, and is not supported by ServiceNow. This method is provided as-is and should be tested thoroughly before implementation. Post all questions and comments regarding this customization to our community forum.

To generate a more complex chart than the system is naturally capable of creating, write a rendering script. This rendering script must return a JFreeChart chart object and can do whatever needs to be done as long as the end result is a chart object. ServiceNow provides some helper script includes which should reduce the reliance on the JFreeChart API.

Included here is an example of a script used to generate a combination chart that displays the number of open incidents per month, the number of closed incidents per month, and the backlog of incidents in the same time frame. The custom chart shown here has generators that produce the sets of data necessary to produce the chart. The rendering script is used to build a chart that combines this data.

To access the Custom Chart form, navigate to Reports > Custom Charts and select a custom chart from the list.
// Script will generate a trending chart of open incidents and combine that with a
// trending chart of the closed incidents and then overlay the top of that will
// place a line that shows the backlog of incidents in the same time period.

// Get the sys_id values for the sys_report_summary table entries build by our generators
var openId = summary_sets.get("Trend of Open Incidents");
var closedId = summary_sets.get("Trend of Closed Incidents");
var backlogId = summary_sets.get("Incident Backlog");

// Gets a utility class for dataset manipulation
var cu = new ChartUtil();
cu.setTable('incident');
cu.setColors('#FF69B4,#00FF7F');

// Get the dataset for the Open incidents
var open = new ChartGenerator("bar");
open.setTable('incident');
open.setSummaryId(openId);
var ds = open.getDataset();

// Get the dataset for the Closed incidents and combine with the open incidents into
// a multi series dataset
var closed = new ChartGenerator("bar");

// Related Links
Try it

Renderer = Incident Backlog
Generator

Trend of Open Incidents
Trend of Closed Incidents
Incident Backlog

Actions on selected rows...
Incident backlog rendering script
The incident backlog rendering script and an explanation of the script.

// Script generates a trending chart of open incidents and combines that with a
trending chart of the closed incidents and then above that places a line that shows the backlog of incidents in the same time period.

// Gets the sys_id values for the sys_report_summary table entries built by our generators
var openID = summary_sets.get("Trend of Open Incidents");
var closedID = summary_sets.get("Trend of Closed Incidents");
var backLogID = summary_sets.get("Incident Backlog");

// Gets a utility class for dataset manipulation
var cu = new ChartUtil();
cu.setTable('incident');
cu.setColors("#FFDEAD,#7FFF00");

// Gets the dataset for the Open incidents
var open = new ChartGenerator("bar");open.setSummaryID(openID);var ds = open.getDataset();

// Gets the dataset for the Closed incidents and combines this with the open incidents into a multi series dataset
var closed = new ChartGenerator("bar");
closed.setSummaryID(closedID);
ds = cu.mergeDatasets(ds,"Open", closed.getDataset(),"Closed");

// Gets the chart for the multi series bar chart of open and closed incidents
var chart = closed.getChart(ds);

// Changes the spacing
closed.setNoMargins();

// Adds a line renderer to the chart to show the backlog of incidents
var line = new ChartGenerator("line");
line.setSummaryID(backLogID);
var lineDS = cu.addEmptyValues(line.getDataset(), ds);
lineDS = cu.changeDatasetLabel(lineDS,"BackLog");var renderer = line.getChartGenerator().getLineRenderer(Packages.java.awt.Color.RED,3.0,false,true,true);
closed.addRenderer(renderer, lineDS,true,"Back log");

// returns our chart
answer = chart;

• The first part of the code returns the summary set ID values for the data that was created by the generators. These are available via the global variable called summary_sets, which has a get method that takes the name of the generator and returns the ID of the summary set produced by that generator.

// Gets the sys_id values for the sys_report_summary table entries built by our generators
var openID = summary_sets.get("Trend of Open Incidents");var closedID = summary_sets.get("Trend of Closed Incidents");var backLogID = summary_sets.get("Incident Backlog");

• The next code fragment obtains a new ChartUtil object, initializes the table that it will be going against, and sets up the colors for the two series of data that are produced. Because there is an Open
series of data and a Closed series of data, the colors must be established for each series. The methods available in ChartUtil are described later in this page.

```javascript
// Gets a utility class for dataset manipulation
var cu = new ChartUtil();
 cu.setTable('incident');
 cu.setColors("#FFDEAD,#7FFF00");
```

- The next code fragment gets the dataset (JFreeChart object) that represents the trend of open incidents. This uses the ChartGenerator script include, which reads the summary set data produced by the generator and returns the JFreeChart dataset. The methods available in ChartGenerator are described later in this page.

```javascript
// Gets the dataset for the Open incidents
var open = new ChartGenerator("bar");
open.setSummaryID(openID);
var ds = open.getDataset();
```

- The next code fragment is similar to the previous sample, but also uses a utility routine to merge the two datasets so that the database contains both the open and the closed data. This condition creates a multi-series dataset that is used to create stacked bar charts via the reporting system. This example, however, combines two totally separate datasets obtained by different generators. This is where you use the colors that were set in the first bit of code. The first color is used for the open items and the second color indicates the closed items.

```javascript
// Gets the dataset for the Closed incidents and combines this with the open incidents into
// a multi series dataset
var closed = new ChartGenerator("bar");
closed.setSummaryID(closedID);
ds = cu.mergeDatasets(ds,"Open", closed.getDataset(),"Closed");
```

- The next code fragment gets the bar chart that contains the multi-series dataset. This is the JFreeChart chart object that is returned to be displayed.

```javascript
// Gets the chart for the multi-series bar chart of open and closed incidents
var chart = closed.getChart(ds);
```

- Normally, there is some spacing between the bars in the multi-series bar chart. There is a helper function in the JFreeChart API to remove this spacing.

```javascript
// Changes the spacing
closed.setNoMargins();
```

- Next, the line is added to the chart that represents the backlog of incidents over the same time frame. This is very similar to the code used to get the other datasets. You need to get the dataset from the summary set data that was created by the generator. For the line to cover the same time span as the open and closed datasets, use the addEmptyValues method of the ChartUtility. This compares the dataset for the line with the dataset for the open or closed data, and then adds empty values where necessary to make the time spans identical. Then, get a JFreeChart line renderer to display the line above the bars. The last item adds the new renderer to the chart.

```javascript
// Adds a line renderer to the chart to show the backlog of incidents
var line = new ChartGenerator("line");
 line.setSummaryID(backLogID);
 var lineDS =
 cu.addEmptyValues(line.getDataset(), ds);
 lineDS = cu.changeDatasetLabel(lineDS,"BackLog");
 var renderer =
 line.getChartGenerator().getLineRenderer(Packages.java.awt.Color.RED,3.0,false,true);
 closed.addRenderer(renderer, lineDS,true,"Back log");
```

- Finally, the answer is set to return the chart to the system for display.

```javascript
// return our chart
```
Add a custom chart to a dashboard or homepage as a gauge

You can add custom charts to homepages and dashboards.

1. Click **Add content** in the homepage.
2. Select **Custom Charts**.
   All the custom charts defined in the system appear in the selection list.

Restrict who can see a custom chart

Administrators can configure which users can see custom charts that have been made into gauges.

A pre-configured widget (System UI > Widgets) enables an administrator to add a custom chart to a homepage as a gauge. Admins can restrict which users can see this gauge.

1. Open the Widget form for Custom Charts.
2. Select a role from the **Roles** field.

```javascript
/**
 * Loads up the custom charts defined in sysauto_custom_chart
 *
 */

function sections() {
    var graphs = {};
    var gr = new GlideRecord('sys_report_custom_chart');
    gr.addActiveQuery();
    gr.query();
    while (gr.next()) {
        if (!gr.roles.isNil() && !gs.hasRole(gr.roles))
            continue;

        var graph = {};
        graph.name = gr.name + '';
        graph.desc = gr.name + '';
        graph.sys_id = gr.sys_id + '';
        graphs[graph.desc] = graph;
```
Using multiple datasets

You can create reports that display multiple datasets from various tables within a single chart.

**Note:** Multiple datasets requires Performance Analytics premium.

When using multiple datasets, the chart legend is always displayed.

![Chart showing incident and problem data in one report](image)

**Figure 50: Incident and problem data in one report**

Charts that support multiple datasets

You can use only certain chart types when displaying multiple datasets in a single report.

- Bar
- Horizontal bar
- Line
- Column
- Area
- Spline

Multiple **Group by** values are not supported when displaying multiple datasets. This option does not appear on charts using multiple datasets.

Multiple datasets requirements

Reports using multiple datasets must meet certain requirements.
System requirements

- Performance Analytics premium must be enabled.
- The property glide.ui.doctype must be enabled.
- You must use a modern browser such as Internet Explorer 9 or above, or the latest version of Chrome or Firefox.

Report requirements

If a report using multiple datasets does not meet these requirements, an error message appears on the report describing the issue.

- All datasets must be of the same type. For example, if the base report uses a time series chart, other datasets added to the report must also use a time series chart.
- If using time series charts, all datasets must specify the same Per field value. This ensures the frequency interval matches for all datasets.
- If using bar or horizontal bar charts, all datasets must specify the same Group by value.

Add an extra dataset to a report

Add an extra dataset to a report to show data from multiple sources in a single report.

Role required: itil

Performance Analytics premium must be enabled to use multiple data sets.

The property glide.ui.doctype must be enabled.

1. Navigate to Reports > View/Run.
2. Select a report with a type that supports multiple datasets, such as a bar chart or time series chart.
3. Select Save > Multiple dataset from the report options from the upper right of the report form.
4. Click the New Series tab.
5. Configure the new dataset using standard report builder options, such as to specify the data source, chart type, grouping and filtering, and color options.
6. Optional: Select Show in y Axis to add an extra Y axis to the chart for this dataset. Additional Y axes appear on the right side of the chart.
7. Optional: If you selected Show in y Axis, define the Y-axis label in the Title field, and set minimum and maximum values to show on the Y axis.

Warning: The Y axes may show a greater range than specified in the From and To fields, depending on the actual Y values for all datasets. The From and To field values from the parent report may also be overridden. This behavior ensures that all data can be accurately displayed on the chart.

8. Click Save.

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.

Role required: admin
The following report types are not supported on forms: List, Pivot, Multilevel Pivot, Calendar, and Single Score.

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.
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.
   The label appears next to the report in the form. If you do not specify a label, the label New Chart is used.
5. Click Save.
   A gray box with the text Configure chart appears on the form in the specified position.
6. Click Configure chart.
7. Click the search icon (🔍) to select a report.
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 and use the Available Fields slushbucket.
   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 Extensions and paste the script in the Report Qual text box. Advanced condition extensions, if present, override report condition extensions.
10. Click Update.
11. To change the configuration, right-click the label and select Configure.
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.

Configure a report for multiple grouping and stacking choices

You can configure a report to let users adjust the chart grouping and stacking without modifying the report record.

Role required: itil

You must have Performance Analytics premium to use this functionality.

Configure alternative Group by and Stacked 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:** Additional Group by values you select also appear in the Stack by choice list. As a result, date/time fields may appear in the Stack by choice list in generated reports. However, if you stack by a date/time field in a generated report, an error occurs.

1. Navigate to Reports > View / Run.
2. Select a report.
3. Select a Group by field.
4. Optional: Select a Stacked by field used to show the relationship of individual items from the selected field to the whole. 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 Stacked by field values are the default choices.

**Note:** Only bar and horizontal bar reports use stacked data. Other report types allow only grouping.

5. Arrange the fields in the Selected column in the order you want them to appear to users.
6. Click Close.
7. In the report builder, click Save.

Modify chart grouping and stacking fields

Select an alternative field to group or stack the data without modifying the report record.

Role required: None

You must have Performance Analytics premium to use this functionality. The report must be configured to display alternative grouping and stacking field choices.

View a report chart and adjust the Group by or Stacked by values without modifying the report.

1. Navigate to a report chart, such as on a homepage or Performance Analytics dashboard. If you can change grouping for a chart, it displays a Group by choice list. Bar and horizontal bar charts also display a Stacked by choice list.
2. Select a different Group by or Stacked by field.

You can disable stacked values by selecting a Stacked by value of None.

The chart updates to use the new organization.
Use a service catalog variable in a report

For reports on service catalog data, you can stack and group data by variables, use variables as columns in line reports, and use variables as columns and rows in multilevel pivot tables.

Role required: itil, report_admin, report_global, or report_group

**Note:** The report where you want to use the variable to must report on the Requested Items table [sc_req_item] or any table that can dot walk to this table. Using other types of variables causes an error when generating the report.

For primary **Group by** and **Stack by** these steps are intuitive.

![Variable use in Group by and Stack by fields.](image)

**Figure 51: 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.

Follow these steps below to use a variable as an additional **Group by**, as a column in a list report, or in a multilevel pivot table.

1. Navigate to **Reports > View / Create** and open the report to add the variable to.
2. Do one of the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add as a column in a list report</strong></td>
<td>Select <strong>Variables</strong>+ at the bottom of the <strong>Available</strong> slushbucket.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Add as an additional Group by</td>
<td>Click the plus sign (+) next to Group by, then select Variables+ at the bottom of the Available slushbucket that appears.</td>
</tr>
<tr>
<td>As as a column or row on a multilevel pivot table</td>
<td>Click Select Groups, then select Variables+ at the bottom of the Available slushbucket that appears.</td>
</tr>
</tbody>
</table>

3. Click the plus sign that appears.  
   A list of service catalog items appears.
4. Select a catalog item where the variable has been added.  
   The variables for that item appear in the Available slushbucket.
5. Move the variable that you want to use to the Selected column.
6. Save the report.

How to access fields on extended tables

Watch of video about how to access fields on extended tables.

How to access related tables

Watch video to learn more about accessing related tables in reports.

Data URLs for report images

You can use data URLs for report and chart images to reduce the number of round trips between client and server.

Modern web pages with images in them actually consist of two components:
- The HTML page, which includes overall page structure
- Image tags that tell the browser where to put images

The image is not included in the page, so a second round trip is performed to download the image from the server.

Much of the content does not change between page renders, so the browser caches it locally to avoid the round trip. However, dynamically generated content (such as reports and home pages) must be freshly reloaded with every report or home page cell. Each of these reloads represents an extra round trip to the server. These extra round trips slow down the overall page render, especially to computers at the end of a slow network link. Likewise, most browsers will display a “placeholder” image while downloading content so users will end up seeing a potentially unsightly place-holder image during the download process.

The platform uses data URLs to include dynamic images within the HTML file itself, saving multiple round trips and speeding up rendering.
Note: Data URLs are not supported at all on Microsoft Internet Explorer 6 and 7, and are only partially supported on Internet Explorer 8. As such, the platform will not use data URLs for transactions initiated by those browsers. For IE users, reports will load using the old method.

When data URLs are enabled, the page size for reports or home pages increases, but overall server traffic is essentially flat, because the same amount of information is exchanged.

Data URLs apply only to dynamic images generated as part of reports or graphs. More traditional content such as icons and navigation images is still downloaded either as a sprite or a traditional URL and then cached.

Most modern browsers fully support data URLs. Microsoft Internet Explorer 6 and 7, however, do not. Internet Explorer 8 provides limited support but imposes a size limit on how large the data block can be. The application server will use data URLs for supported browsers and continue to use traditional URLs for all versions of Internet Explorer.

To disable Data URLs, add the property glide.ui.inline.images and set it to false.

Note that some report images do not display correctly in Internet Explorer. To ensure reports display in Internet Explorer:

1. In Internet Explorer, navigate to Tools > Internet Options
2. Select the Security tab
3. Select Custom Level
4. Enable Open files based on content, not file extension
5. Access the instance

Administering reports

Learn how to administer reports on the ServiceNow platform.

This module is not enabled by default, and must be activated. For a list of the reporting roles delivered with the ServiceNow platform, see Base System 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.

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 rules for more information.
Available Report Fields

The following fields can be manipulated:

Table 109: Available Report Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Input Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>A unique and descriptive name for the report.</td>
</tr>
<tr>
<td>Table</td>
<td>The ServiceNow table against which this report will be run.</td>
</tr>
<tr>
<td>Field Name</td>
<td>The name of the group-by field.</td>
</tr>
<tr>
<td>Type</td>
<td>The report type for this report.</td>
</tr>
<tr>
<td>Chart Size</td>
<td>Large, medium, or small.</td>
</tr>
<tr>
<td>Visible to</td>
<td>Select a group whose members are authorized to see the report. Select <strong>Everyone</strong> to give all your users access.</td>
</tr>
<tr>
<td>User</td>
<td>The user who can view the chart. Enter <strong>GLOBAL</strong> to make the report accessible to all.</td>
</tr>
<tr>
<td>Filter</td>
<td>The filter applied to the report's data.</td>
</tr>
<tr>
<td>Roles</td>
<td>The roles required to view the report.</td>
</tr>
</tbody>
</table>

The following fields are also available if added to the form:

| 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**, may have numerical values associated with their levels and can be used as aggregators. |
| Content   | An HTML field for describing the content of the report. Not processed in the report's generation. |

**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-grey colored zero are not included in the field count that is used when dividing the sum.
<table>
<thead>
<tr>
<th>Field</th>
<th>Input Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display grid</td>
<td>Mark this check box to display a table under the chart that contains a breakdown of the requested data in the aggregation units you have selected (Count, Average, Sum, or Count Distinct) and the values for the stacked field, if selected. You can see what percentage of the total data is represented by each discrete piece.</td>
</tr>
<tr>
<td>Group</td>
<td>Select a group whose members are authorized to see the report. select Everyone to give all your users access.</td>
</tr>
<tr>
<td>Interval</td>
<td>For Trend or Trendbox charts, the interval of time to measure along.</td>
</tr>
<tr>
<td>No Groups</td>
<td>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.</td>
</tr>
<tr>
<td>Others</td>
<td>Whether the Other category should appear on the report.</td>
</tr>
<tr>
<td>Select fields for list</td>
<td>The fields that will appear in a list report.</td>
</tr>
<tr>
<td>Select fields for orderBy</td>
<td>The order of fields that will appear in the report.</td>
</tr>
<tr>
<td>Show Empty</td>
<td>Whether to display empty categories.</td>
</tr>
<tr>
<td>Sumfield</td>
<td>The field to perform a sum on for Trend or Trendbox Charts.</td>
</tr>
<tr>
<td>Trend Field</td>
<td>The field to track over time for Trend or Trendbox Charts.</td>
</tr>
</tbody>
</table>

Getting started with report management
Watch this video to learn more about managing reports.

Restrict report creation with an ACL rule
Create an ACL rule to restrict who can create a report.
Requires role: security_admin

Note: In addition to report_on ACLs for specific tables, write access for all reports is controlled by a write ACL on the Reports [sys_reports] table. If this ACL prevents you from saving the current report, such as when viewing a report that another user shared with you, the Save button in the report builder is disabled. Depending on other security settings, you may be able to save an editable copy of the report using Insert choice from the save menu.

1. Navigate to System Security > Access Control (ACL).
2. Add a new access control record with the following information:
3. Define the rules that determine whether a user can create a report against the table. To learn more, see Access control rules.

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 new report.

Note:
- Users can still run published (global) reports against tables for which they have read rights, even if they cannot create reports.
- 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 default ACL report_on operation gives access to report on the target table, any associated database view, and archived version of 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 view to create reports on it. See Database views on page 313.

Share a report

Control which users and groups can see a report in their Reports list.

You can control who sees reports by making them:
- Globally visible to all users
- Visible only to 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 on page 348.

ACLs control access to the underlying table data. List reports require the reporting user to satisfy ACLs on the target table to view records in the list. Users without sufficient permissions may see filtered list reports.

Reports that present aggregate data, such as pie or bar charts, do not require the user to satisfy target table ACLs to view the chart. These reports are not filtered due to security, though may be filtered by an on-query business rule defined for the target table. ACLs are required to view the list of records when you click on a portion of a chart.

1. Navigate to 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.
### Table 110: Sharing settings

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible to</td>
<td>Users to whom the report is available. You can select the following options:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Me</strong> allows only you to view the report. This option is only available to you on reports that you created.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Everyone</strong> allows all users to view the report. If roles are selected from the <strong>Roles</strong> field and added to the <strong>Role required</strong> list, only users with those roles can view the report.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Groups and Users</strong> allows only specific groups and users to see the report.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Groups and Users</strong> option is visible to users with the report_group role.</td>
</tr>
<tr>
<td>Groups</td>
<td>Groups whose members are authorized to see the report. This field is available when the <strong>Groups and Users</strong> option is selected.</td>
</tr>
<tr>
<td>Users</td>
<td>Users who are authorized to see the report. This field is available when the <strong>Groups and Users</strong> option is selected.</td>
</tr>
</tbody>
</table>

**Reporting on system tables**

System tables are, by default, restricted from the Reporting module. These tables include, but are not limited to:

- **Sys audit** [sys_aud\it]
- **Log** [syslog]
- **Transaction Log** [syslog_transaction]
- **Attachment** [sys_attachment]
- **Email** [sys_email]

The reason for this is because Sys audit is typically the largest table in any instance. It is not unusual for the audit table, in even a mid-sized instance, to be several gigabytes. At a large installation, this table can be 50GB or more.

When we access the Sys audit table programmatically, we know what our query pattern is going to look like, so we have added appropriate data indexes to match our queries. This means that when you bring up, for example, the history on an incident, the database can use an index to efficiently pull back the few dozen rows it needs for that query.

With freeform reporting, however, we cannot predict what your query pattern is going to look like. Maybe you want to group by **fieldname**, or sort by **oldvalue**. So it is possible your queries are not going to be
indexed queries. The net result is you will be asking the database to table scan a multiple GB file, which is bad for these reasons:

- It is slow, so your report will take an unacceptably long time
- While the database is grinding the disk to scan your table, your instance will slow down or even become unavailable because other queries cannot get the resources they need.

If you must report on a system table, you can add it to the glide.ui.permitted_tables property. Navigate to System Properties > UI Properties and locate the property labeled List of system tables (beginning with "sys_", comma separated), that are reportable. By default, system tables are not reportable. Proceed with caution.

**Excel export threshold**

Excel exports are intended for relatively small exports, fewer than 500,000 cells, while CSV can handle larger exports.

Whenever you export to Excel and the resultant spreadsheet has more than 500,000 cells (by default), the export process stops and you are given the Excel file at that point. In the bottom row, there will be the following message: Export stopped due to excessive size. Use CSV for a complete export:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Table</td>
<td>Column name</td>
<td>Text index</td>
</tr>
<tr>
<td>16848</td>
<td>cmdb_tcp_half</td>
<td>sys_mod_count</td>
<td>FALSE</td>
</tr>
<tr>
<td>16849</td>
<td>cmdb_tcp_half</td>
<td>sys_created_on</td>
<td>FALSE</td>
</tr>
<tr>
<td>16850</td>
<td>cmdb_tcp_half</td>
<td>sys_created_by</td>
<td>FALSE</td>
</tr>
<tr>
<td>16851</td>
<td>Export stopped due to excessive size. Use CSV for a complete export.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Figure 52: Excel export threshold 1**

The Excel export cell threshold is customizable using the glide.excel.max_cells integer property.

**Note:** Increasing this threshold may cause a memory issue in your instance. The threshold is set at an appropriate level to prevent resource issues.

The export will put the information into the Excel document with 32,000 rows per spreadsheet.

**Ensure domain separation on a report and a gauge**

By default, the Domain Support plugin separates data on certain tables by domain. It does not, however, separate reports and gauges by domain except if the MSP Extensions plugin is installed. The report will display data only from the user's domain, but the user will be able to see all of the reports.

To ensure domain separation on reports and gauges, a domain field must be added to the table for reports, gauges, and gauge counts. This domain field must then be set as a reference field.

Follow these steps too ensure domain separation on reports and gauges if the MSP Extensions plugin is not installed.

1. Navigate to Reports > Administration (this module may need to be enabled) and select a report to separate by domain.
2. Configure the form layout and add a new field named sys_domain.
3. Configure the dictionary on the sys_domain field and fill in the Reference field with the domain for this report. If left blank, the report is global.

4. Navigate to System UI > Gauges and select a gauge.

5. Repeat steps 2 and 3.

6. Select one of the gauge counts records under the gauge’s related lists.

7. Repeat steps 2 and 3.

*Domain* fields appear on reports, gauges, and gauge counts, and the 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 of these records are global.

---

**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.

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 and then define the conditions. Some examples of report sources are open incidents, closed problems, and so on.

---

**Create a report source**

Create a custom set of data that you can use to create reports. Create a report source when the data you need does not exist in a single table.

Role required: report_admin

If you update the conditions in a report source, these conditions are automatically propagated to all reports based on that report source.

1. Navigate to Reports > Administration > Report Sources.
2. Click New.
3. Fill in the fields on the form, as appropriate.

---

**Table 111: Name of form**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the report source. For example, <em>Open incidents</em></td>
</tr>
<tr>
<td>Table</td>
<td>The table on which the report source is based. For example, <em>Incident [incident]</em>.</td>
</tr>
<tr>
<td>Description</td>
<td>A more detailed description of what the report source does and its purpose.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| Filter | Conditions for the specific table records to include in the report source. For example, to include open incidents, select [State] [is] [Active] for the Incident table.  

**Note:** If the report source is used for a report that also includes OR conditions, records are only included in the report if they match the conditions in both the report source and the report. |

4. To view any reports based on a report source, click the **Reports using this report source** related link in the report source record.

Use the report source to create a report.

**Note:** While a report source is used by active reports, you cannot delete it.

**Report ranges**

A report range to defines data intervals that are used in bar and pie charts.
Figure 53: Incidents created date with ranges

**Note**: The module for report ranges is hidden by default. You may need to enable the module before use.

How report ranges work

Report ranges work with elements that hold only dates, lists, or integers.

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dates</td>
<td>Using the Created field in the Incidents table: Same Day, 2 Days, 2-5 Days, 5-7 Days, 1-2 Weeks, 2-4 Weeks, 1-2 Months, &gt; 2 Months</td>
</tr>
<tr>
<td>Type</td>
<td>Examples</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lists</td>
<td>Using the Priority field in the Incidents table: Low, Moderate, High, Critical, Planning</td>
</tr>
<tr>
<td>Integers</td>
<td>Using the Count field in the Incidents table: Overloaded, Optimized, Under Utilized</td>
</tr>
</tbody>
</table>

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 Reports > Administration > Report Ranges.

Figure 54: Report ranges list

The following are important columns and their associated data types:

<table>
<thead>
<tr>
<th>Field</th>
<th>Corresponding data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper value duration</td>
<td>Date - works with elements that store dates.</td>
</tr>
<tr>
<td>Upper value int</td>
<td>Integer - works with elements that store numbers.</td>
</tr>
</tbody>
</table>
Create a report range

Create a report range to define data intervals that are used in bar and pie charts.

1. Navigate to **Reports > Administration > Report Ranges**.
2. Select **New**.
3. Fill in the form (see table):

<table>
<thead>
<tr>
<th>Field</th>
<th>Corresponding data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value list</td>
<td>List - works with elements that store a list item.</td>
</tr>
</tbody>
</table>

Use the following fields to refine the data displayed in the report and to design the appearance of your line chart:
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the table to draw the values from.</td>
</tr>
<tr>
<td>Element</td>
<td>The table field to draw the values from.</td>
</tr>
<tr>
<td>Label</td>
<td>The name for the report range that is displayed in reports.</td>
</tr>
<tr>
<td>Value list</td>
<td>For choice 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.</td>
</tr>
<tr>
<td>Color name</td>
<td>The color to display this report range in. The color appears in the <strong>Display</strong> field. If you enter a color name, you do not need to enter a color value.</td>
</tr>
<tr>
<td>Color</td>
<td>The hexadecimal value for the color to report this report range in. The color appears in the <strong>Display</strong> field. If you enter a value for color, you do not need to enter a color name.</td>
</tr>
<tr>
<td>Upper value int</td>
<td>For integer-type elements, this field defines the highest value in the range from either zero or the upper value of a report range with a lower order.</td>
</tr>
<tr>
<td>Upper value duration</td>
<td>For duration-type elements, this field defines the highest value in the range from either zero or the upper value duration of a report range with a lower order.</td>
</tr>
<tr>
<td>Display</td>
<td>Read-only field that displays the color that is used for the specific report range.</td>
</tr>
<tr>
<td>Order</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Customize calendar reports**

You can specify the fields that are displayed for calendar task.

By default, the **number** and **short_description** fields are displayed, but this is configurable. You can configure radio buttons to appear on reports for various fields in the *task* table that enable you 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.

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.

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, you must include the `number` and `short_description` fields in your attributes. For example, to add risk level information to your change calendar, add the following attribute to the change_request table:

```plaintext
calendar_elements=number;short_description;risk
```
6. If the table already has an attribute, separate it from the new attribute you are adding with a comma, as in this example:

```
update_synch=true,calendar_elements=number;short_description;risk
```

7. Click Update.
**Note:** If a calendar entry has a duration, it includes parenthetical information to indicate how many days since the event started and how many days until the event ends. For example, the parenthetical information included for the "CHG00000005 - Install new PBX (-2 to +2)" entry indicates that the change started 2 days ago and has 2 days left until the end date. The start or end time might also show up here on the start day and end day of the change. To remove the information, add a property named glide.ui.calendar.include_duration_info and set its value to false.

### Highlight a calendar entry

By default, ServiceNow calendar reports provide three radio buttons above the calendar that enable you to highlight tasks by priority level, approval status, and escalation level.

When you select **Priority**, for example, all tasks in the calendar at a priority level of **1 - Critical** or **2 - High** are highlighted in a different color.

The glide.ui.report.extend_calendar_choices property specifies how calendar highlighting options are determined. If the property is set to true, highlighting options are based on the current reporting table plus the base table. If the property is set to false, highlighting options are set by the styles in the **Task** table only.

![Figure 55: Reports highlights controls](image)

To suit your own business needs, you can add or remove highlight controls and configure any combination of levels and states to be highlighted in a wide range of possible colors. The calendar selects the highlighting controls from the table in which they are defined (incident, change, problem, and so on). If no
field styles are applied in a related table, then the calendar uses any highlighting definitions from the task (base) table.

1. Navigate to System UI > Field Styles.
2. To see the default highlighting controls, filter the view of the record list for the task table. Notice that there are several records for each field, representing different levels or states possible for that field, and that each state is represented by a different highlight color. You can delete records for those levels or states you are not interested in seeing, change the highlight colors, or add new controls.

3. To add a new control, click New in the record list.
4. Select the Task [task] table from the list of tables.
5. Select the Field you want to use as a control from the list of task fields.
6. Type the field Value to use for your highlight trigger. If you are unsure of the value to use, navigate to System Definitions > Tables and Columns and look up the data type for your field in the task table. Field values may be a boolean, an integer, or a string in the table, regardless of how the value appears in the form.
7. Define the Style (highlight color) for this level or state. Type background-color:<color name>, where <color name> is the configured name of a ServiceNow color as defined in Reports > Color Definition. The following record creates a radio button for the Knowledge check box that highlights all entries for which a knowledge base article has been created.
8. Open a calendar report, such as Change Calendar from Reports > View/Run and select the Knowledge radio button. All calendar entries for changes that have knowledge base articles are highlighted in your selected color.

Set calendar record limit

In the out-of-box ServiceNow system, calendar reports can save a maximum of 10,000 records. To override this default setting, use the glide.ui.max_calendar_records property. This property is not available in the list of properties and must be created.

1. In the navigation filter, enter sys_properties.list.
2. Click New in the list of properties.
3. Complete the form as follows:
   • **Name**: glide.ui.max_calendar_records
   • **Description**: Type a phrase that describes the function of the property, such as Maximum number of calendar records saved. The default is 10,000.
   • **Type**: Select integer from the list.
   • **Value**: Type a new value for the number of records retained by the platform.

The completed form looks like this:
4. Click Submit.

Customize a start and end date

Out-of-the-box calendar reports support multi-day events.

For example, a change request with a Work Start date Monday and a Work End date 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 does not occur.

To achieve the multi-day span behavior in a calendar report with custom fields, name the fields in the following way:

- u_first_date # u_my_start_date
- u_last_date # u_my_end_date

The code looks for an ending field with exactly 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 correctly interprets the meaning of these fields because their names are exactly the same except for the word start and end.
Calendar: Change first day of week

By default, weeks for calendar reports start on Monday. You can add system properties to start weeks on Sunday instead. Weeks use ISO numbering regardless of what day they start on.

Role required: report_admin or admin.

The `glide.ui.date_format.first_day_of_week` system property specifies the first day of the week in calendar views. The `glide.ui.filter.first_day_of_week` system property specifies the first day of the week used in the queries.

1. Add the `glide.ui.date_format.first_day_of_week` and the `glide.ui.filter.first_day_of_week` system properties.
2. Set one of the following integer values for each property.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start weeks on Monday</td>
<td>Set Value to 2</td>
</tr>
<tr>
<td>Start weeks on Sunday</td>
<td>Set Value to 1</td>
</tr>
</tbody>
</table>

Reporting properties

The Properties module provides access to some configurable properties for the Reporting application. Additional properties can be added to the System Properties table to fine tune report settings.

**Table 115: Reporting properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>glide.ui.report.new_home</code></td>
<td>Enables the redesigned Reports list layout. If false, group reports are shown. If true, the number of rows removed from lists by security constraints is shown.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: false</td>
</tr>
<tr>
<td></td>
<td>• <strong>Location</strong>: System Property [sys_properties] table</td>
</tr>
<tr>
<td><code>glide.report_home.group_report.show_usr.grp</code></td>
<td>Enables the Reporting preferences link in the user's profile.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: false</td>
</tr>
<tr>
<td></td>
<td>• <strong>Location</strong>: Add to the System Property [sys_properties] table</td>
</tr>
</tbody>
</table>

**Note:** The `glide.report_home.group_report.show_usr.grp` system property is deprecated and can no longer be used.
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.report.new_home.heavy</td>
<td>Sets the number of performance-intensive reports that are displayed on the <strong>Heavy</strong> tab of the report_admin's Reports list.</td>
</tr>
<tr>
<td></td>
<td>• Type: Integer</td>
</tr>
<tr>
<td></td>
<td>• Default value: 25</td>
</tr>
<tr>
<td></td>
<td>• Location: System Property [sys_properties] table</td>
</tr>
<tr>
<td>glide.report.new_home.most_used</td>
<td>Sets the number of most used reports that are displayed on the <strong>Most used</strong> tab of the report_admin's Reports list.</td>
</tr>
<tr>
<td></td>
<td>• Type: Integer</td>
</tr>
<tr>
<td></td>
<td>• Default value: 25</td>
</tr>
<tr>
<td></td>
<td>• Location: System Property [sys_properties] table</td>
</tr>
<tr>
<td>glide.report.new_home.unused</td>
<td>Sets the number of unused reports that are displayed on the <strong>Unused</strong> tab of the report_admin's Reports list.</td>
</tr>
<tr>
<td></td>
<td>• Type: Integer</td>
</tr>
<tr>
<td></td>
<td>• Default value: 180</td>
</tr>
<tr>
<td></td>
<td>• Location: System Property [sys_properties] table</td>
</tr>
<tr>
<td>glide.report.use_charting_v2</td>
<td>Enables the new charting engine when the plugin is activated.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Location</strong>: System Property [sys_properties] table</td>
</tr>
</tbody>
</table>

**Note:** The glide.report.use_charting_v2 property is deprecated because the Report Charting v2 is automatically used after the ServiceNow instance is upgraded.

Global Chart Properties
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.ui.chart.color</td>
<td>Specifies the default color for all bars in non-stacked bar charts when the glide.ui.chart.use_full_color_palette property is set to false. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: string</td>
</tr>
<tr>
<td></td>
<td>• <strong>Location</strong>: Add to the System Property  [sys_properties] table</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: #006DDA</td>
</tr>
<tr>
<td>glide.ui.chart.height</td>
<td>Specifies the height of a chart in pixels. This property is applicable to charts generated using the Report Charting v1 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: integer</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: 300</td>
</tr>
<tr>
<td>glide.ui.chart.use_full_color_palette</td>
<td>Enables the full color palette when set to true. When set to false, disables the full color palette and displays a single color for all bars in bar and Pareto charts unless stacking is applied. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>:</td>
</tr>
<tr>
<td></td>
<td>• false - for new instances</td>
</tr>
<tr>
<td></td>
<td>• true - for existing instances</td>
</tr>
<tr>
<td>glide.ui.chart.width</td>
<td>Specifies the width of a chart in pixels. This property is applicable to charts generated using the Report Charting v1 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: integer</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: 500</td>
</tr>
<tr>
<td>glide.chart.drill.open_new_win</td>
<td>Opens a drill-down page in a new window or tab when set to true. When set to false, opens a new page. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: false</td>
</tr>
<tr>
<td>glide.chart.truncate.x_axis_labels</td>
<td>Truncates X axis labels at 20 characters. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: true</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: true</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>glide.chart.label.legend.truncate_to</td>
<td>Truncates legend labels for left or right legend alignment for all chart sizes except large charts. Prevents shrinking of charts in case of long labels.</td>
</tr>
<tr>
<td>• Type</td>
<td>integer</td>
</tr>
<tr>
<td>• Default value</td>
<td>14</td>
</tr>
<tr>
<td>glide.chart.label.legend.truncate_to.large</td>
<td>Truncates legend labels for left or right legend alignment for large charts. Prevents shrinking of charts in case of long labels.</td>
</tr>
<tr>
<td>• Type</td>
<td>integer</td>
</tr>
<tr>
<td>• Default value</td>
<td>20</td>
</tr>
</tbody>
</table>

**Pie Chart Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.ui.chart.pie.labels</td>
<td>Enables labels on all pie chart slices. This property is applicable to charts generated using the Report Charting v1 plugin.</td>
</tr>
<tr>
<td>• Type</td>
<td>true</td>
</tr>
<tr>
<td>• Default value</td>
<td>true</td>
</tr>
<tr>
<td>glide.ui.chart.pie.labels.max_items</td>
<td>Sets the maximum number of pie chart slices on which to display labels.</td>
</tr>
<tr>
<td>• Type</td>
<td>integer</td>
</tr>
<tr>
<td>• Default value</td>
<td>8</td>
</tr>
</tbody>
</table>

**Bar Chart Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.ui.chart.bar.horiz.max_col_slant_labels</td>
<td>Sets the maximum number of columns in a horizontal bar chart before slanting (angling) the labels.</td>
</tr>
<tr>
<td>• Type</td>
<td>integer</td>
</tr>
<tr>
<td>• Default value</td>
<td>5</td>
</tr>
</tbody>
</table>

**Histogram Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.chart.histogram.bins</td>
<td>Determines the number of sections that appear on the Y axis of the histogram. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td>• Type</td>
<td>integer</td>
</tr>
<tr>
<td>• Default value</td>
<td>10 (Allowed range of values 1 - 20)</td>
</tr>
</tbody>
</table>

**Box and Trendbox Chart Properties**
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>glide.chart.box.color</td>
<td>Sets the color of the box chart. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: string</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: #FF0000</td>
</tr>
<tr>
<td>glide.chart.box.mean.color</td>
<td>Sets the color of the 'mean' value dot in a box or trendbox chart. This property is applicable to charts generated using the Report Charting v2 plugin.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: string</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: #2f7ed8</td>
</tr>
<tr>
<td>glide.ui.report.datasets.default_colors</td>
<td>Sets the default colors to use when adding multiple data sets to a single chart. These values are used when the <strong>Chart color</strong> value is <strong>Use one color</strong>.</td>
</tr>
<tr>
<td></td>
<td>Enter a comma-separated list of chart color <strong>Color name</strong> values. You can view available colors and define new colors on the Chart Colors [sys_report_chart_color] table.</td>
</tr>
<tr>
<td></td>
<td>Each color is used in order as the default chart color when adding a new data set to a chart. If there are more data sets than default colors, the colors repeat.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: string</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: Default Color</td>
</tr>
<tr>
<td>glide.ui.report.datasets.default_pallettes</td>
<td>Sets the default palette to use when adding multiple data sets to a single chart. These values are used when the <strong>Chart color</strong> value is <strong>Use color palette</strong>.</td>
</tr>
<tr>
<td></td>
<td>Enter a comma-separated list of chart color scheme <strong>Name</strong> values. You can view available palettes and define new palettes on the Chart Color Schemes [pa_chart_color_schemes] table.</td>
</tr>
<tr>
<td></td>
<td>Each palette is used in order as the default chart palette when adding a new data set to a chart. If there are more data sets than default palettes, the palettes repeat.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: string</td>
</tr>
<tr>
<td></td>
<td>• <strong>Default value</strong>: Default UI14</td>
</tr>
</tbody>
</table>
Reporting upgrade information

Reporting upgrade information for the Geneva release. Review this information to ensure users retain access to reports.

In Fuji, the logic behind how sys_report ACLs were applied changed. If you upgrade from a release before Fuji to Fuji or later without the Report Security - enforce access control checks plugin enabled, changes in report access may occur. For example, users without the admin role may lose read access to reports because of security constraints.

Because the Report Security plugin overrides ACL customizations, it is not enabled by default upon upgrade. You must enable it manually.

Follow these steps to enable the plugin. You can enable it before or after upgrade.

1. Activate the Report Security (com.glideapp.report_security) plugin on a sub-production instance and test to ensure activation does not cause changes to existing reporting functionality.
2. After testing is completed, activate the plugin in production.

If changes in reporting functionality persist after you activate the plugin, this may be because ACLs were improperly updated because of customizations. Manually update your sys_report ACLs to comply with the ACLs below.

sys_report create ACL

```javascript
var userID = current.user.toString();
var answer = false;
var isMe = gs.getUserID() == userID;
var isGlobal = userID == "GLOBAL";

if (gs.hasRole('report_admin'))
  answer = true;
else if (isGlobal)
  answer = gs.hasRole('report_global');
else if (current.user == 'group')
  answer = gs.hasRole('report_group');
else
  answer = gs.hasRole(current.roles);

function isGroup(){
  var grpList = gs.getUser().getMyGroups();
  var myGrps = '';
  for (var i = 0; i != grpList.size(); i++) {
    if (i != 0) myGrps += ',';
    myGrps += grpList.get(i);
  }

  var myUserId = gs.getUserID();
  var gr = new GlideRecord('sys_report_users_groups');
  gr.addQuery('report_id', current.getUniqueValue());
  var qc = gr.addQuery('user_id', myUserId);
  if (myGrps != '')
    qc.addOrCondition('group_id', 'IN', myGrps);
  gr.query();
  if (gr.getRowCount() > 0)
    return true;
  return false;
}
```
sys_report delete ACL

```javascript
var answer = false;
var userID = current.user.toString();
var isMe = gs.getUserID() == userID;
var isGlobal = userID == "GLOBAL";

if (isMe || gs.hasRole('report_admin'))
    answer = true;
else if (isGlobal)
    answer = gs.hasRole('report_global');
else if (isGroup())
    answer = gs.hasRole('report_group');

function isGroup() {
    var reportUserId = current.user.toString();
    if (reportUserId != "group"){
        return false;
    }

    var grpList = gs.getUser().getMyGroups();
    var myGrps = '';
    for (var i = 0; i != grpList.size(); i++) {
        if (i != 0) myGrps += ',';
        myGrps += grpList.get(i);
    }

    var myUserId = gs.getUserID();
    var gr = new GlideRecord('sys_report_users_groups');
    gr.addQuery('report_id', current.getUniqueValue());
    var qc = gr.addQuery('user_id', myUserId);
    if (myGrps != '')
        qc.addOrCondition('group_id', 'IN', myGrps);
    gr.query();
    if (gr.getRowCount() > 0)
        return true;
    return false;
}
```

sys_report read ACL

```javascript
answer = false;
var userID = current.user.toString();

var isUser = gs.getUserID() == userID;
if (isUser) {
    answer = true; // my own report
} else {
    var isGlobal = userID == "GLOBAL";
    if (isGlobal)
        answer = gs.hasRole(current.roles);
    else
        answer = isGroup();
}

function isGroup() {
    var reportUserId = current.user.toString();
    if (reportUserId != "group"){
        return false;
    }

    var myUserId = gs.getUserID();
```
var grpList = gs.getUser().getMyGroups();
var myGrps = '';
for (var i = 0; i != grpList.size(); i++) {
  if (i != 0) myGrps += ' ,';
  myGrps += grpList.get(i);
}

var gr = new GlideRecord('sys_report_users_groups');
gr.addQuery('report_id', current.getUniqueValue());
var qc = gr.addQuery('user_id', myUserId);
if (myGrps != '')
  qc.addOrCondition('group_id', 'IN', myGrps);
gr.query();
if (gr.getRowCount() > 0)
  return true;
return false;
}

sys_report write ACL

var answer = false;
var userID = current.user.toString();
var isMe = gs.getUserID() == userID;
var isGlobal = userID == "GLOBAL";

if (isMe || gs.hasRole('report_admin'))
  answer = true;
else if (isGlobal)
  answer = gs.hasRole('report_global');
else if (isGroup())
  answer = gs.hasRole('report_group');

function isGroup(){
  var reportUserId = current.user.toString();
  if (reportUserId != "group")
    return false;
}

var grpList = gs.getUser().getMyGroups();
var myGrps = '';
for (var i = 0; i != grpList.size(); i++) {
  if (i != 0) myGrps += ' ,';
  myGrps += grpList.get(i);
}

var myUserId = gs.getUserID();
var gr = new GlideRecord('sys_report_users_groups');
gr.addQuery('report_id', current.getUniqueValue());
var qc = gr.addQuery('user_id', myUserId);
if (myGrps != '')
  qc.addOrCondition('group_id', 'IN', myGrps);
gr.query();
if (gr.getRowCount() > 0)
  return true;
return false;
}
Interactive Filters

Interactive Filters allow you to filter report widgets directly from a homepage or Performance Analytics dashboard without modifying the reports.

You can create an interactive filter and add it to a homepage or Performance Analytics dashboard as a widget. Selecting a value in the Interactive Filter widget filters the data in report widgets on the homepage or dashboard.

Interactive Filters are available for all instances. Creating a new Interactive Filter requires Performance Analytics premium.

Available Interactive Filter types

You can create Interactive Filters for multiple field types.

Table 116: Interactive filter types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice list</td>
<td>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.</td>
</tr>
<tr>
<td>Reference</td>
<td>Allows you to filter data 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.</td>
</tr>
<tr>
<td>Date</td>
<td>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.</td>
</tr>
<tr>
<td>Boolean</td>
<td>Allows you to filter data based on the value in a specific true/false field. You must select the table and true/false field. The filter affects reports on the specified table.</td>
</tr>
<tr>
<td>Group</td>
<td>Allows you to display multiple interactive filters in a single widget on a homepage. Users viewing the homepage can select which grouped filters to apply.</td>
</tr>
</tbody>
</table>

Create a choice list interactive filter

A choice list interactive filter allows users to filter report widgets based on the value of a choice list.

You must have Performance Analytics premium to create new interactive filters.

Role required: hp_publisher_admin and report_admin

1. Navigate to **Homepage Admin > Filters**
2. Click **New**.
3. In the **Filter based on** choice list, select **Choice list**.
4. Set the following fields.
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.

Role required: hp_publisher_admin and report_admin

You must have Performance Analytics premium to create new interactive filters.

1. Navigate to Homepage Admin > Interactive filters
2. Click New.
3. In the Filter based on choice list, select Reference.
4. In the Reference table choice list, select the table that stores the referenced records you want to filter on.
5. Set the following fields.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name for the filter. This name appears on the homepage widget for the filter.</td>
</tr>
<tr>
<td>Look up name</td>
<td>Enter a look up name for the filter. This name appears in the Add content menu when adding a filter to a homepage or dashboard. Use this name to help organize your filters. If you do not specify a look up name, the Name value is used instead.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the filter.</td>
</tr>
<tr>
<td>UI control type</td>
<td>Select how the available filtering options for this filter appear on the homepage widget.</td>
</tr>
</tbody>
</table>

6. Right-click on the form header and select Save.
7. In the **Interactive filter references** related list, click **New**.
8. In the **Reference table** field, select a table that has reports you want to filter.
9. 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**.
10. Click **Submit**.

Repeat steps 7-10 as needed for each reference field you want to filter on. After you create the filter, add it to a homepage or dashboard.

### Create a date interactive filter

A date interactive filter allows users to filter report widgets based on the value in a date field.

**Role required:** hp_publisher_admin and report_admin

You must have Performance Analytics premium to create new interactive filters.

1. Navigate to **Homepage Admin > Interactive filters**
2. Click **New**.
3. In the **Filter based on** choice list, select **Date**.
4. Set the following fields.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name for the filter. This name appears on the homepage widget for the filter.</td>
</tr>
<tr>
<td>Look up name</td>
<td>Enter a look up name for the filter. This name appears in the Add content menu when adding a filter to a homepage or dashboard. Use this name to help organize your filters. If you do not specify a look up name, the <strong>Name</strong> value is used instead.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the filter.</td>
</tr>
<tr>
<td>UI control type</td>
<td>Select how the available filtering options for this filter appear on the homepage widget.</td>
</tr>
</tbody>
</table>

5. 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.
6. Right-click on the form header and select **Save**.
7. In the **Interactive filter Dates** related list, click **New**.
8. In the **Table** field, select a table that has reports you want to filter.
9. In the **Field** field, select a date field to filter on.
10. Click **Submit**.

Repeat steps 7-10 as needed for each date field you want to filter on. After you create the filter, add it to a dashboard or homepage.
Create a boolean interactive filter

A boolean interactive filter allows users to filter report widgets based on the value of a true/false field.

Role required: hp_publisher_admin and report_admin

You must have Performance Analytics premium to create new interactive filters.

1. Navigate to **Homepage Admin > Interactive filters**
2. Click **New**.
3. In the **Filter based on** choice list, select **Boolean**.
4. Set the following fields.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name for the filter. This name appears on the homepage widget for the filter.</td>
</tr>
<tr>
<td>Look up name</td>
<td>Enter a look up name for the filter. This name appears in the Add content menu when adding a filter to a homepage or dashboard. Use this name to help organize your filters. If you do not specify a look up name, the <strong>Name</strong> value is used instead.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the filter.</td>
</tr>
<tr>
<td>UI control type</td>
<td>Select how the available filtering options for this filter appear on the homepage widget.</td>
</tr>
</tbody>
</table>

5. In the **Table** choice list, select the table that contains the true/false field to filter on.
6. In the **Field** choice list, select the true/false field to filter on.
7. Click **Submit**.

After you create the filter, add it to a homepage or dashboard.

Create a group interactive filter

A group interactive filter allows users to select multiple interactive filters to apply to reports on a homepage.

Role required: hp_publisher_admin and report_admin

You must have Performance Analytics premium to create new interactive filters.

Before starting this procedure, create several choice list, reference field, boolean, or date filters to group.

1. Navigate to **Homepage Admin > Interactive filters**
2. Click **New**.
3. In the **Filter based on** choice list, select **Group**.
4. Set the following fields.

   Table 117: Filter fields

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name for the filter. This name appears on the homepage widget for the filter.</td>
</tr>
</tbody>
</table>
### Available interactive filter UI control types

The interactive filter UI control type field provides several options for displaying the filter.

<table>
<thead>
<tr>
<th>UI control type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Buttons</td>
<td>Displays each filtering option as a radio button. Users can select only one radio button at a time.</td>
</tr>
<tr>
<td>Checkboxes</td>
<td>Displays each filtering option as a checkbox. Users can select any number of checkboxes at a time.</td>
</tr>
<tr>
<td>Select Single Input</td>
<td>Displays the filtering options as a choice list. Users can select only one choice at a time.</td>
</tr>
<tr>
<td>Select Multiple Input</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Note:** Filtering behavior depends on the filter type when selecting multiple values using the Checkboxes or Select Multiple Input control types. Choice and reference filters use an AND query, meaning records must match all conditions. Date filters use an OR query, meaning records must match only one condition.

### Interactive Filters on homepages and dashboards

You can expose an Interactive Filter to users by adding the filter to a homepage or a Performance Analytics dashboard.

**Note:** Add interactive filters only to homepages and Performance Analytics dashboards. Interactive filters are not supported on CMS pages.
Add an interactive filter widget to a homepage

You can use an interactive filter by adding the filter widget to a homepage.

Role required: itil

Add an interactive filter to a homepage to filter reports on that homepage.

1. Navigate to a homepage.
2. 
   Click the add content icon ( ).
3. In the Add content menu, select Interactive filters from the left column.
4. Select the type of filter to add, such as Choice list or Reference.
5. Select the filter you want to add to the homepage.
6. Click Add here in the section you want the filter to appear.

Add an interactive filter widget to a dashboard

Add an interactive filter to a dashboard to filter reports on that dashboard.

Role required: pa_power_user

1. Navigate to a Performance Analytics dashboard.
2. Click Edit.
3. 
   Click the add content icon ( ).
4. In the Add content menu, select Interactive filters from the left column.
5. Select the type of filter to add, such as Choice list or Reference.
6. Select the filter you want to add to the homepage.
7. Click Add here in the section you want the filter to appear.

Make a breakdown act as an interactive filter

Configure a breakdown on a dashboard to act as an interactive filter for reports on the dashboard.

There must be a dashboard configured with one or more reports and breakdowns, and an interactive filter based on the same table as the breakdown source.

Role required: pa_power_user, pa_admin, or admin

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.

1. Navigate to Performance Analytics > Dashboards.
2. Select a dashboard with one or more breakdowns.
3. Click Edit to modify the dashboard.
4. 
   Click the dashboard settings icon ( ) and select Modify.
5. 
   In the Breakdown sources related list, click the reference icon ( ) next to the breakdown source you want to make into an interactive filter.
6. In the Act as filter field, select the interactive filter you want this breakdown source to act as.
   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.

7. Click **Update**.

**Make a report a subscriber**

You can configure a report widget to accept filters from interactive filters.

**Role required:** itil

1. Navigate to a homepage or a Performance Analytics dashboard.
2. If editing a dashboard, click **Edit**.
3. In the report widget, click the Edit widget icon (.Imaging).
4. Select **Follow interactive filter**.
5. Click **Done**.
6. Refresh the current browser page to apply the change.

Add one or more interactive filters to the homepage or dashboard.

**Make a report act as an interactive filter**

You can configure an existing report widget to filter other report widgets on the same homepage or dashboard.

**Role required:** itil

1. Navigate to a homepage or a Performance Analytics dashboard.
2. If editing a dashboard, click **Edit**.
3. In the report widget, click the Edit widget icon (.Imaging).
4. Select **Act as interactive filter**.
   - This field appears only for reports that can be filters. Only reports with a **Type** value of pie, donut, semi donut, funnel, or pyramid may be filters.
5. Click **Done**.
6. Refresh the current browser page to apply the change.

Click on 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 subscriber reports on the homepage or dashboard for the same table show information about that subset of data only.

**Custom interactive filters**

As an administrator, you can create scripted interactive filter widgets to provide advanced filtering options on dashboard reports.

By creating a custom interactive filter, you control all aspects of the filter interface and filtering logic. By defining these elements you can create filters that fit your specific needs, such as filters that perform multiple, common filtering operations with a single click.

Custom filters are scripted widgets (**System UI > Widgets**) that use the **DashboardMessageHandler** JavaScript class to define and publish report filters.

You must define the appearance of the widget, such as available buttons, using Jelly.
You must have Performance Analytics premium to create new interactive filters.

Custom interactive filter example

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 that filters reports on the Task table, or child tables, to show only 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.

Create the widget

To create a custom filter, you must create a new dynamic content record and define the user interface for the filter.

Add any buttons or other interface elements to the widget.

```xml
<j:jelly trim="false" xmlns:j="jelly:core" xmlns:g="glide" xmlns:j2="null" xmlns:g2="null">
  Example of a filter, that generates a static filter on 'task' table reports, or remove it <br/>
  <input id="allTasks" type="button" value="All tasks"/>
  <input id="onlyMine" type="button" value="Only mine" onclick="my_dashboardMessageHandler.publishFilter('task','caller_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe');"/>
</j:jelly>
```

Define the filtering logic

After defining the buttons or other elements visible to users, define how each option filters reports on the dashboard.

Filters use the DashboardMessageHandler class to manage active filters.

The Only mine button publishes a filter on Task table reports using the encoded query caller_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe. The All tasks button

```xml
<script>
  var my_dashboardMessageHandler = new DashboardMessageHandler("my_unique_id");
</script>
Example of a filter, that generates a static filter on 'task' table reports, or remove it <br/>
<input id="allTasks" type="button" value="All tasks" onclick="my_dashboardMessageHandler.removeFilter();"/>
<input id="onlyMine" type="button" value="Only mine" onclick="my_dashboardMessageHandler.publishFilter('task','caller_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe');"/>
```
Add the filter to a dashboard

After creating the filter, add it to a dashboard that contains reports on the Task table or child tables. Clicking the **Only mine** button on the filter filters reports on the dashboard to only show tasks where the current user is the caller.

![Figure 56: The custom filter](image)

Debug filter

The debug interactive filter facilitates the creation of custom filters by displaying a JSON array representation of all active filters on a dashboard.

To use the debug filter, add it to a homepage. The debug filter is read-only and intended to aid in the design and implementation of custom interactive filters.
Figure 57: Debug filter with filters

DashboardMessageHandler

The DashboardMessageHandler class allows you to define custom filtering logic for interactive publishers.

DashboardMessageHandler - DashboardMessageHandler(String id)
Instantiate a DashboardMessageHandler object with a given unique ID.
Table 119: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>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.</td>
</tr>
</tbody>
</table>

```javascript
var my_dashboardMessageHandler = new DashboardMessageHandler("my_unique_id");
```

`DashboardMessageHandler - publishFilter(String table, String encodedQuery)`
Each DashboardMessageHandler object can publish a single filter.

Publishing a new filter from the same object overwrites the original filter. Use multiple DashboardMessageHandler objects to publish multiple filters.

Table 120: Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>table</td>
<td>String</td>
<td>The table to filter, such as task.</td>
</tr>
<tr>
<td>encodedQuery</td>
<td>String</td>
<td>An encoded query that specifies the filter to publish.</td>
</tr>
</tbody>
</table>

Table 121: Returns

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td></td>
</tr>
</tbody>
</table>

```javascript
var my_dashboardMessageHandler = new DashboardMessageHandler("my_unique_id");
<input id="onlyMine" type="button" value="Only mine" onclick="my_dashboardMessageHandler.publishFilter('task','caller_idDYNAMIC90d1921e5f510100a9ad2572f2b477fe');"/>
```

`DashboardMessageHandler - removeFilter()`
Removes the current filter published by this DashboardMessageHandler object from all reports on the homepage or dashboard.

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**Table 122: Parameters**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 123: Returns**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>void</td>
<td></td>
</tr>
</tbody>
</table>
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