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SAS® BI Dashboard 4.2

User's Guide

SAS® Documentation

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SAS® BI Dashboard 4.2: User's Guide

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Part 1

Information for All Users

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Chapter 1

Introduction

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Audience 3

Overview

The SAS BI Dashboard enables users to employ dashboards to monitor key performance indicators that convey how well an organization is performing. Dashboards include graphics, text, colors, and hyperlinks. Dashboards are created, maintained, and viewed through an easy-to-use Web-based interface. All content is displayed in a role-based, secure, customizable, and extensible environment. End users can customize how information appears on their personal dashboards.

Audience

As is true for many SAS®9 applications, the users of the SAS BI Dashboard can be grouped based on their skills and on whether they play a role in defining and managing the system. The following table shows the three types of users of the SAS BI Dashboard:

User	Description	Example
Dashboard user	The ultimate audience of dashboards. This role views dashboards and uses them as a launching point for further exploration and action.	Executives and employees presented with dashboards as part of their intranet home page.

User	Description	Example
Dashboard administrator	This role defines indicators and dashboards. This role is responsible for setting user access to various dashboards and for controlling the extent to which dashboard users can personalize the dashboards. This role might also be responsible for extending the functionality of the SAS BI Dashboard by creating custom code.	A business manager with some SAS technical knowledge, or a SAS consultant involved in the initial implementation or major overhauls of the SAS BI Dashboard who works with outside consultants and corporate developers.
IT support personnel	This role installs the SAS BI Dashboard and maintains its setup, configuration, and administration.	An IT person who is responsible for supporting application deployment and maintenance on an organization's computer network.

This guide is intended for SAS BI Dashboard users and dashboard administrators.

Chapter 2

Getting Started: The SAS Information Delivery Portal

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Overview

The SAS BI Dashboard is accessed from within the SAS Information Delivery Portal. This guide assumes that you are familiar with the SAS Information Delivery Portal. If you are not, see the online Help.

Open the Portal and Log On

To open the SAS Information Delivery Portal:

1. Open your Web browser and point it to the portal's URL address.

   To obtain the URL, contact your portal administrator.

2. To identify yourself to the portal, log on with your user name and password.

   If you do not have a user name and password, contact your system administrator to obtain them.

   The logon procedure varies depending on how your organization has installed the portal. Use either the portal logon procedure or the Web server logon procedure, as appropriate.

3. If your organization uses the portal's logon feature, do the following:

   a. Open your browser and point to the portal's URL.

      Either a public page or the portal's logon page appears.

   b. If a public page appears, click **Log On** in the banner.

   c. On the logon page, enter your user name and password.

   d. Click **Log On**.

Your personal portal opens.

4. If your organization uses a Web server to identify each user, do the following:
   a. Use the Web server logon procedure specified for your organization.

      The Web server logon procedure is different in each organization.
   b. After you have logged on to the Web server, point your browser to the portal's URL.

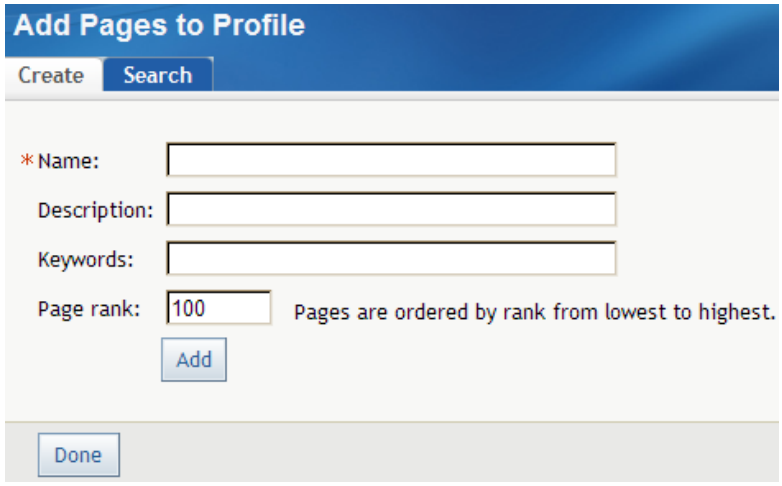
      Your personal portal opens.

Create a Page and Add It to Your Navigation Bar

To create a new page and add it to your navigation bar:

1. Click **Options** ⇨ **Add Page**.

   The Add Pages to Profile page appears.



2. On the **Create** tab, enter descriptive information about the page:

   Name
   A short name that will appear in the page's tab in the navigation bar.

   Description
   A short description that will appear with the page title in search results.

   Keywords
   Single words that you or other users can use to search for this page. Use spaces to separate keywords from one another.

   Note: To ensure efficient searching, develop a standard list of keywords and use these keywords consistently.

   Page rank
   A number that indicates the importance of this page as compared to other pages. The default value is 100.

   This number determines the order in which pages are listed in the navigation bar. The pages are ordered by rank from lowest to highest. Pages with equal rank are listed in the order in which they were created.

Note: You can choose to override page ranks by explicitly defining the order of pages.

Location (group) and **Share type**
These fields appear only if you are a group content administrator. In these fields, you can specify a group with which the page is to be shared and specify the share type.

3. Click **Add**.

   A message appears, indicating that a new page was added.

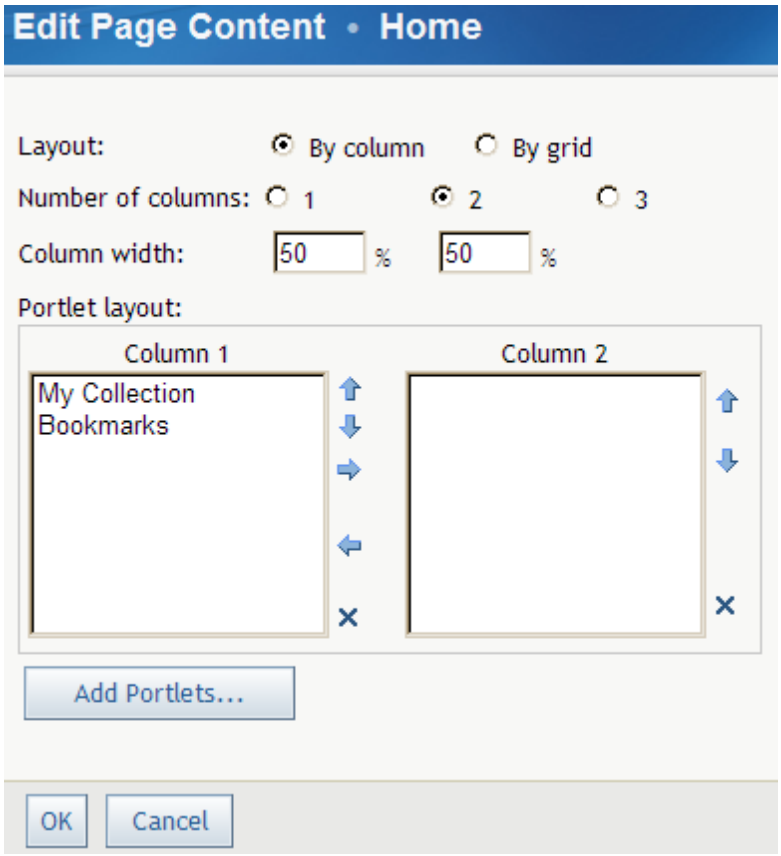
4. Click **Done**.

Add a SAS BI Dashboard Portlet to a Page

To add a SAS BI Dashboard portlet to a page:

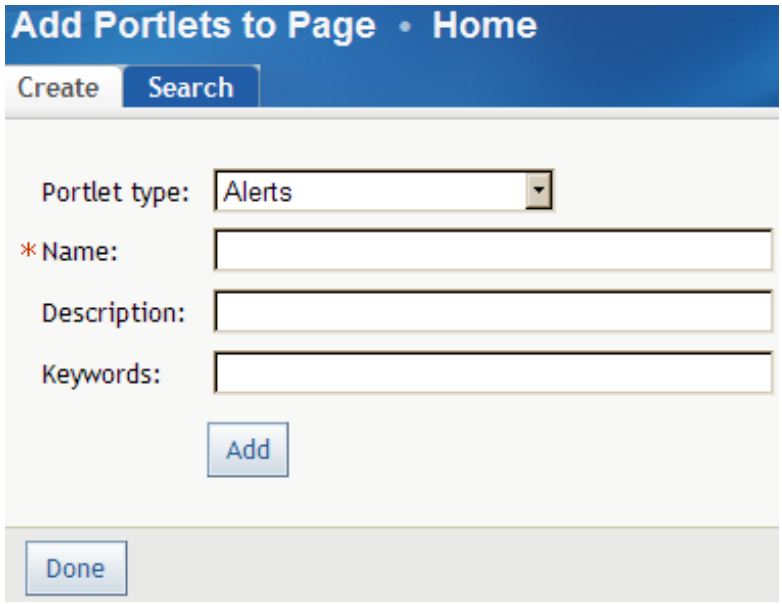
1. Navigate to the page that you want to add the portlet to.
2. Click **Options** ⇨ **Edit Page Content**.

   The Edit Page Content page appears.



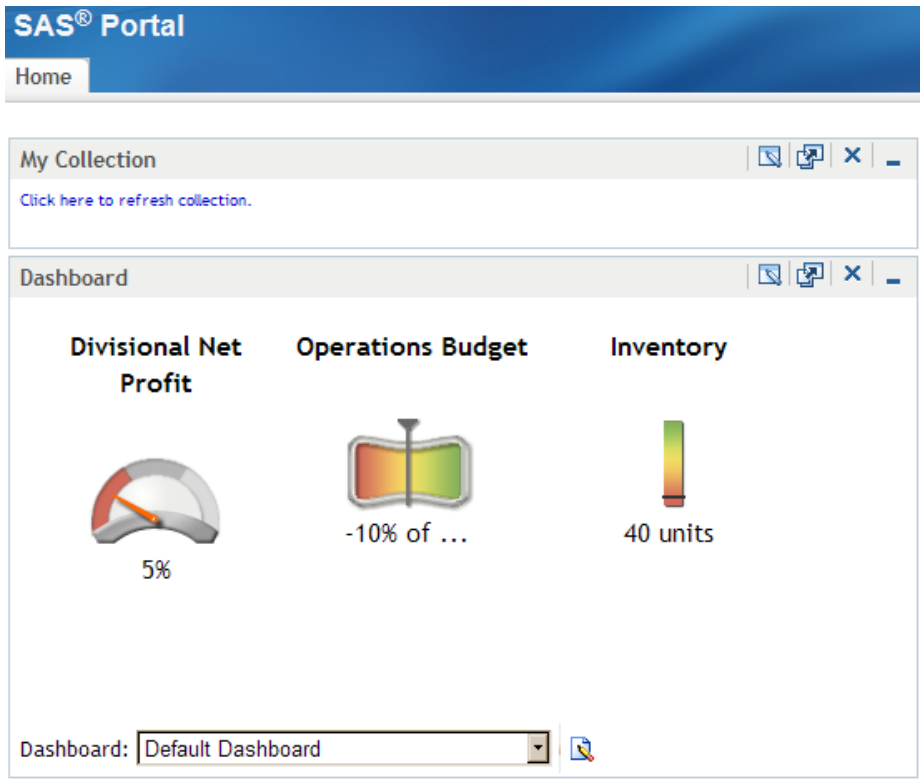
3. Click **Add Portlets**.

   The Add Portlets to Page page appears.



4. From the **Portlet type** drop-down list, select **SAS BI Dashboard**.
5. Type the name for the portlet and, if desired, the description and keywords.
6. If you are a group content administrator, select a group with which the portlet is to be shared from the **Location (group)** drop-down list.
7. Click **Add**, and then **Done**.
8. On the Edit Page Content page, click **OK**.

   The original page is displayed, with the new portlet added.



Chapter 3

Working with Lists

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Overview

Lists appear in many places in the SAS BI Dashboard. You manipulate each list in the same way.

Scroll Through a List

To scroll through a list, click one of these icons:

Move to the first page.

Move to the previous page.

Move to the next page.

Move to the last page.

Delete One or More Items in a List

To delete a single item, click the action menu that is next to the item and select **Delete**.

To delete multiple items:

1. In the last column, select the check box that is next to the item.
2. To select all items, select the check box at the top of the last column.

The check box that is next to each item is selected.

3. At the top of the last column, click the action menu and select **Delete**.

Part 2

Information for Dashboard Users

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Working in the SAS BI Dashboard Portlet *13*

Chapter 4

Working in the SAS BI Dashboard Portlet

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Select a Dashboard

To select a dashboard, select one from the **Dashboard** drop-down list in the SAS BI Dashboard portlet.

This list includes dashboards created by your organization and sample dashboards that are distributed with the SAS BI Dashboard if the installer chose to install and configure them.

Personalize a Dashboard

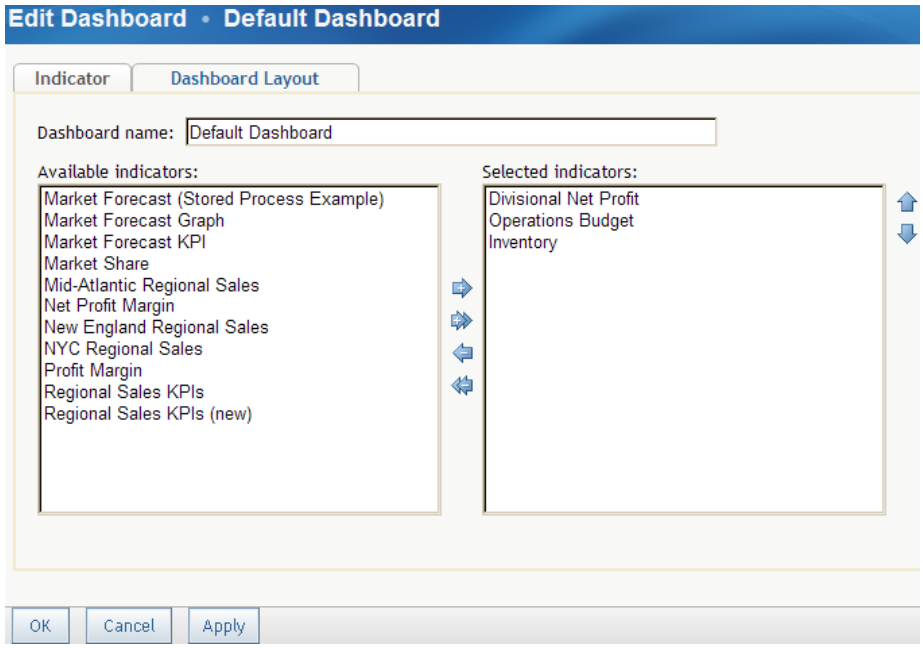
You can personalize some aspects of a dashboard to suit your needs. These changes affect only your view of the dashboard, not other users' views.

To personalize a dashboard:

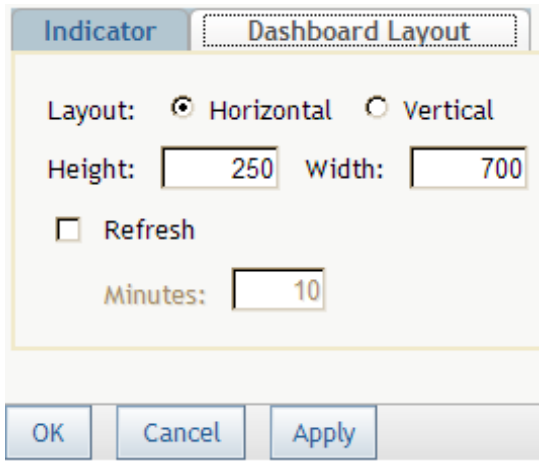
1. In the SAS BI Dashboard portlet, click .

   Note: If you do not see , then you do not have access permission to personalize dashboards. Contact your SAS BI Dashboard system administrator.

   The Edit Dashboard page appears. The **Indicator** tab is selected by default.



2. To rename the dashboard, type a name in the **Dashboard name** field.
3. To change which indicators are displayed in the dashboard, move indicators between the **Available indicators** list and the **Selected indicators** list by selecting one or more indicators and clicking the arrows between the lists.
4. To change the order of the indicators in the SAS BI Dashboard portlet, select one or more indicators in the **Selected indicators** list, and click the up and down arrows that are next to the list.
5. Click the **Dashboard Layout** tab.



6. To change the orientation of the indicators in the dashboard, select **Horizontal** or **Vertical**.
7. To change the dimensions of the area that contains the indicators, type values for the height and width.
8. To automatically refresh the indicators, select the **Refresh** check box, and type how often to refresh in the **Minutes** field.

Personalize an Indicator

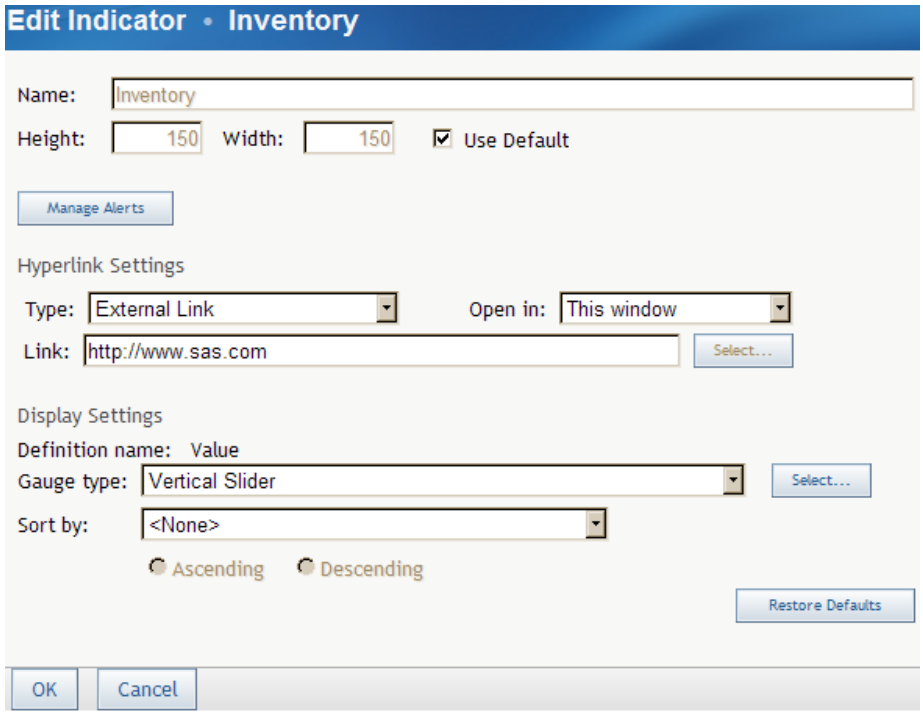
You can personalize some aspects of an indicator to suit your needs. These changes affect only your view of the indicator, not other users' views.

Note: You can personalize an indicator only when it has been set to allow personalization. Further, the following aspects appear only when they have been set to allow personalization: height and width, alerts settings, link settings, gauge type, and sorting method. For more information, see "Configure the Indicator" on page 63.

To personalize an indicator:

1. In the SAS BI Dashboard portlet, if the indicators do not have borders around them, move the mouse over an indicator.
2. Click in the lower right corner of the border around the indicator.

   The Edit Indicator page appears.



3. To use the default height and width of the indicator, select the **Use Default** check box.
4. To change the height and width of the indicator from the default values, clear the **Use Default** check box, and type the height and width.
5. To manage alerts, click **Manage Alerts**.

   For more information, see "Create or Edit a Personal Indicator Alert" on page 16.
6. To change the link settings:
   a. From the **Type** drop-down list, select the type of link.
   b. From the **Open in** drop-down list, select a window in which to open the link target.
   c. If you selected an external link, type the URL of the link in the **Link** field.

d. If you selected a type other than an external link, click **Select** next to the **Link** field and select an item.

   The available choices depend on the type of link.

7. To change the display settings:

   a. From the **Gauge type** drop-down list, select a type of gauge.

      You can also click **Select** to view the gauges graphically. For more information, see "Select a Gauge for an Indicator" on page 79.

   b. From the **Sort by** drop-down list, select a value to sort on, and then select the sort method.

8. To restore all settings to their states as defined for the indicator, click **Restore Defaults**.

   Note: Any personal alerts that you have created are deleted.

See Also

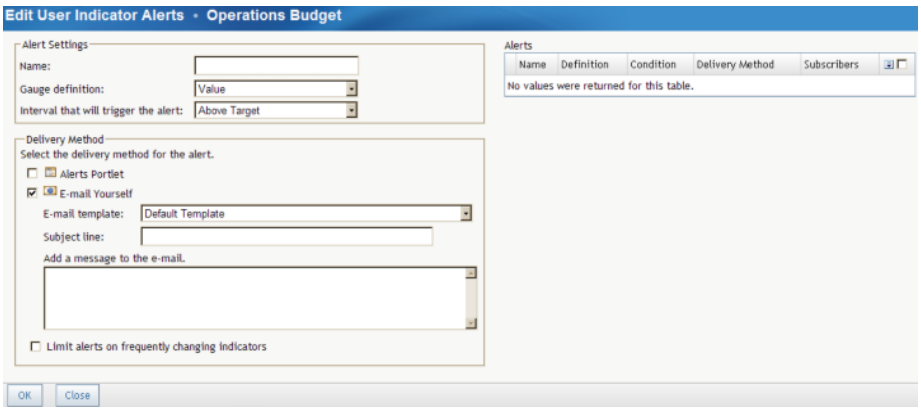
"Personalize a Dashboard" on page 13

Create or Edit a Personal Indicator Alert

A personal alert is in addition to any alerts attached to an indicator that was created by a dashboard administrator. You create or edit a personal indicator alert when you personalize an indicator. For more information, see "Personalize an Indicator" on page 15.

Note: The alerts shown on this page are only your personal alerts. Alerts created by dashboard administrators are not shown.

Note: E-mail alerts for the two interactive display types usually do not properly show the image of the display in e-mail clients.



To create a personal indicator alert:

1. Type the name of the alert.
2. From the **Gauge definition** and **Interval that will trigger the alert** drop-down lists, select the gauge definition and the interval to trigger the alert.
3. Select the delivery method for the alert: **Alerts Portlet** or **E-mail Yourself**.

4. (Optional) If you selected **E-mail Yourself**:
   a. From the **E-mail template** drop-down list, select the e-mail template to use to format the e-mail.
   b. Type the subject line and additional message to include in the e-mail.
5. To limit the number of alerts, select the **Limit alerts on frequently changing indicators** check box.

To edit a personal indicator alert:

1. From the **Alerts** table, click the action menu next to an alert and select **Edit**.

   The properties of the alert appear on the left side of the window.
2. Edit the properties.

See Also

"Delete One or More Items in a List" on page 9

Part 3

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Chapter 5

Getting Started: Create a Dashboard

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Create a Collection Portlet

After you have performed the tasks in "Getting Started: The SAS Information Delivery Portal" on page 5, you're ready to explore creating a dashboard.

To start the SAS BI Dashboard, you must create a collection portlet in the portal. To do this, follow the steps in "Add a SAS BI Dashboard Portlet to a Page" on page 7, but select **Collection Portlet** as the type of portlet.

Then, choose a method to start the SAS BI Dashboard. For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

Starting the SAS BI Dashboard from the SAS Information Delivery Portal

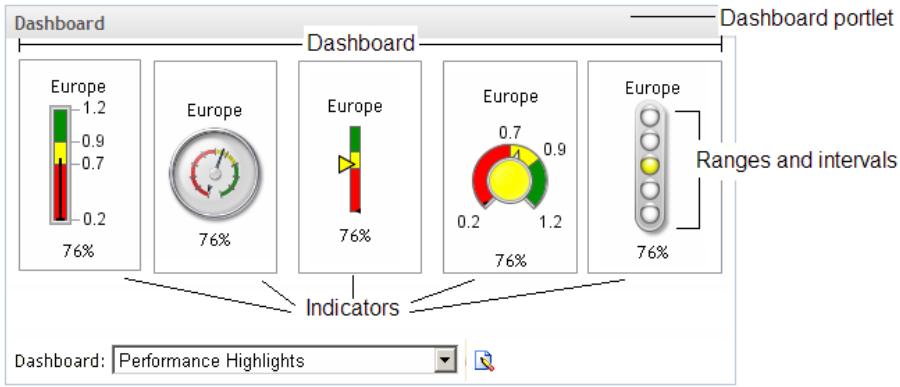
The preferred method to start the SAS BI Dashboard is to create an application in the SAS Information Delivery Portal. The current logon information from the portal is provided to the SAS BI Dashboard. Therefore, the SAS BI Dashboard appears immediately, without the need to log on. For more information, see the SAS Information Delivery Portal Help.

Specify the URL as shown in this example: **`http://localhost:8080/SASBIDashboard`**.

To get the URL for your organization, see your on-site SAS support personnel.

Creating a Dashboard

A dashboard is a container that has a collection of one or more indicators. A dashboard is displayed in a portlet, which is displayed on a page within the SAS Information Delivery Portal. Here is an example of a dashboard and its components in a portlet:



Four components are required to create and display dashboards within the portal:

- the data model, which defines the data source and how to access the data within the data source. A data model must be created before an indicator can be defined. (Only one type of indicator, the graph, does not require a data model to be created. This graph indicator is addressed in detail in "Graph Display" on page 68.)

  Data models are addressed in detail in "Data Models" on page 33.

- the range, which defines the measurement intervals by which a metric is evaluated, such as below target, on target, and above target. The dashboard administrator can define up to ten intervals. Each segment is assigned a user-selected color that is displayed when a metric falls within that particular segment. Ranges must be created before an indicator can be defined.

  Ranges are addressed in detail in "Ranges" on page 53.

- the indicator, which defines the display settings, image types, and links for all metrics displayed in a dashboard. An indicator must be created before a dashboard can be defined.

  Indicators are addressed in detail in "Indicators" on page 57.

- the dashboard, which is a collection of indicators to display.

  Dashboards are addressed in detail in "Dashboards" on page 83.

Create a Dashboard from Sample Data

Data File

The sample data file used in this section can be obtained from SAS Technical Support. Your SAS administrator must copy it to the **`sas-datasets`** folder under the SAS BI Dashboard configuration folder (for example **`C:\sas\<plan file name>`**

\Lev1\Appdata\SASBIDashboard4.2\sas-datasets). It is necessary to do this only once.

The data file contains the following fields:

VIEWTABLE: TMP1.region_summary

	SALES_YEAR_TO_DATE	RELATIVE_TO_LAST_YEAR	RELATIVE_TO_FORECAST	_NAME_FOR_RELATIVE_TO_FORECAST	REGION_REPORT_CODE	_LABEL_FOR_RELATIVE_TO_FORECAST
1	$900,000	-0.5	-0.7	Upper Midwest	UMW	(70%)
2	$3,265,040	-0.4	-0.35	Northwest	NW	(35%)
3	$1,000,000	0.1	-0.25	New England	NENG	(25%)
4	$2,420,000	0	-0.1	South Midwest	SMW	(10%)
5	$9,450,000	0.2	-0.1	NYC Metro	NYC	(10%)
6	$4,012,035	0.1	0	Southwest	SW	0%
7	$3,450,000	0.02	0.05	Mid Atlantic	MATL	5%
8	$2,402,000	-0.1	0.09	Southeast	SE	9%
9	$7,453,020	0.09	0.12	California	CAL	12%
10	$6,720,000	0.5	0.4	Central Midwest	CMW	40%

Create the Data Model

Your first step is to create a data model for the indicator. The data model can use a SAS data set data source, a SAS Information Map data source, a SAS metadata table data source, or a scorecard data source. This example uses a SAS data set data source.

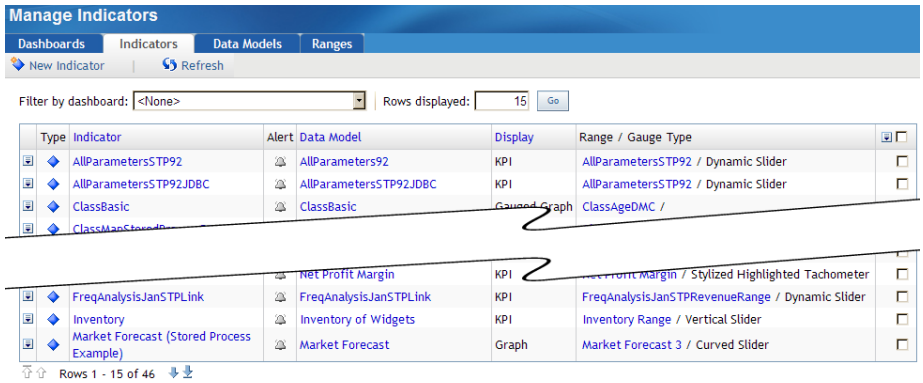
Note: This example uses a SAS data set data source because it is available to all customers. Within your own organization, a SAS Information Map is usually the easiest data source to use because you do not have to create an SQL query.

To create the data model:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

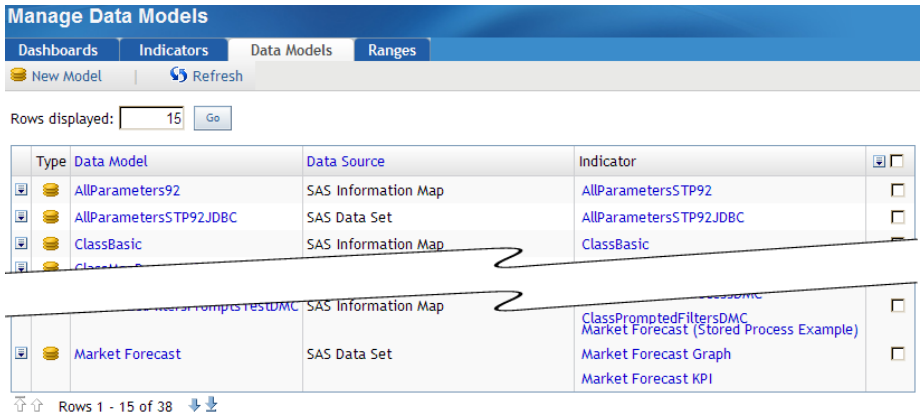
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



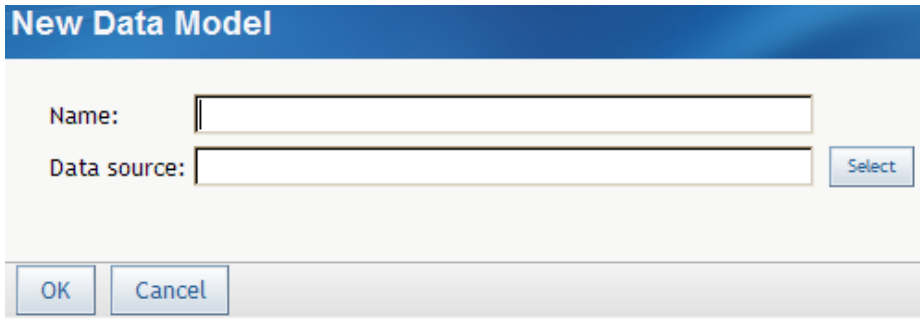
2. Click the **Data Models** tab.

   The Manage Data Models page appears.



3. Click **New Model**.

   The New Data Model page appears.

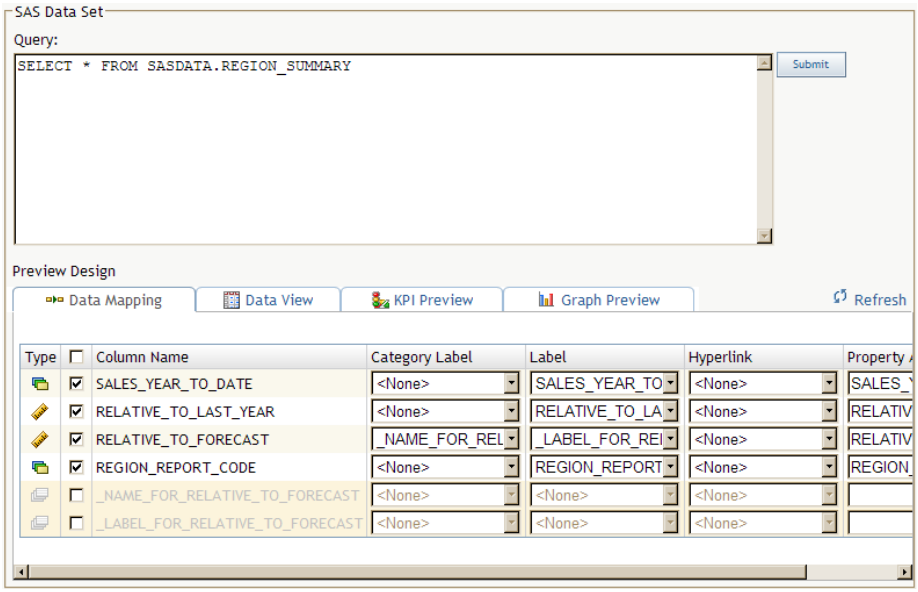


4. In the **Name** field, type `Regional Summary`.
5. Next to the **Data source** field, click **Select**, and select **SAS Data Set**.

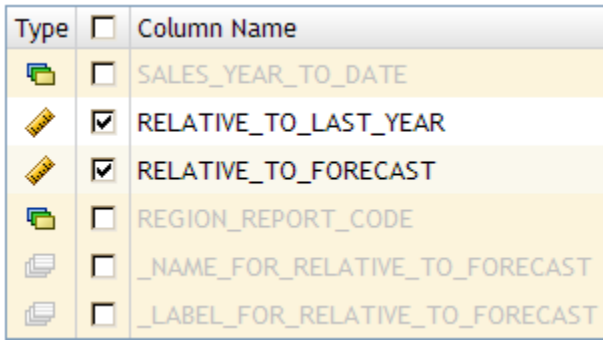
   The **Query** field appears.
6. In the **Query** field, type `SELECT * FROM SASDATA.REGION_SUMMARY`.

   If you are reading this document in an electronic format, you can copy and paste the query.
7. Click **Submit**.

   The fields to define a SAS data source appear.



8. From the **Column Name** column, ensure that the **RELATIVE_TO_LAST_YEAR** and **RELATIVE_TO_FORECAST** check boxes are the only check boxes selected.



The other data columns are not used in the dashboard.

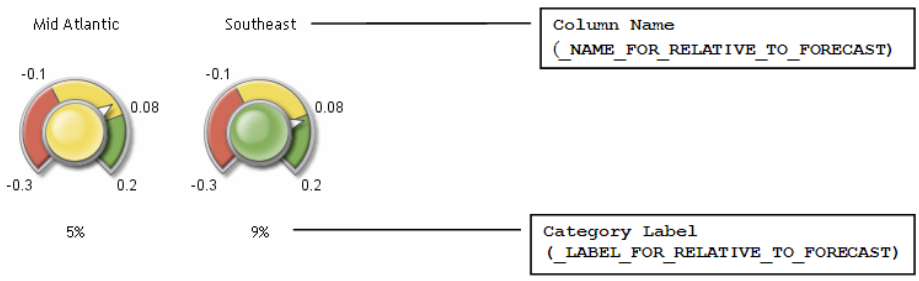
9. From the **Category Label** drop-down list in the **RELATIVE_TO_FORECAST** row, select **_NAME_FOR_RELATIVE_TO_FORECAST**.

   The value for **Category Label** is displayed on the KPI gauge. In this example, it appears at the top of the KPI gauge.

10. From the **Label** drop-down list, select **_LABEL_FOR_RELATIVE_TO_FORECAST**.

    The value for **Label** is the value displayed by the KPI gauge. In this example, it appears at the bottom of the KPI gauge.

    Here is how these two values appear in the example gauge:



Note: The value for **Hyperlink**, which specifies information about hyperlinks, and the value for **Property Alias**, which is text that replaces the value retrieved for **Column Name**, are not used in this example. The default values are used for this example.

11. Click **OK**.

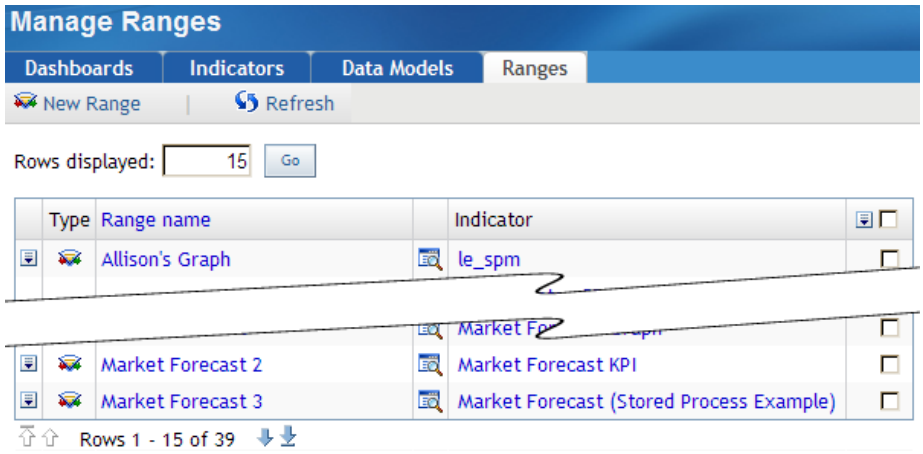
    You return to the Manage Data Models page.

Define the Range

Your next step is to create a range for the indicator.

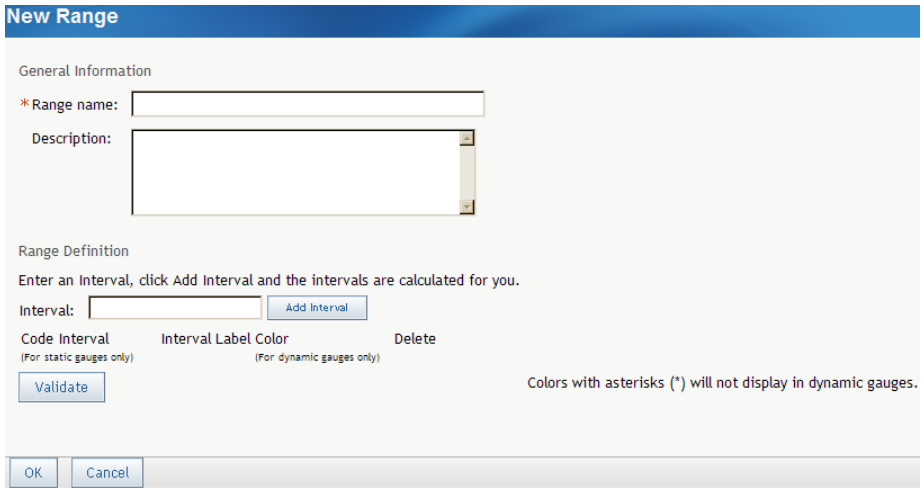
1. On the Manage Data Models page, click the **Ranges** tab.

   The Manage Ranges page appears.



2. Click **New Range**.

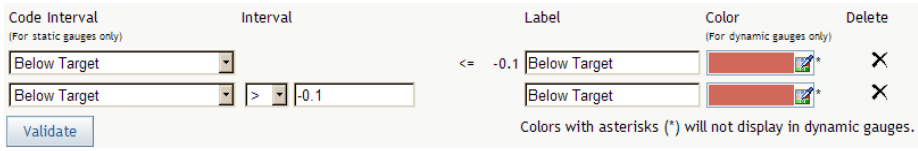
   The New Range page appears.



   For this example, you create a range with intervals at -.3, -.1, .08, and .2.

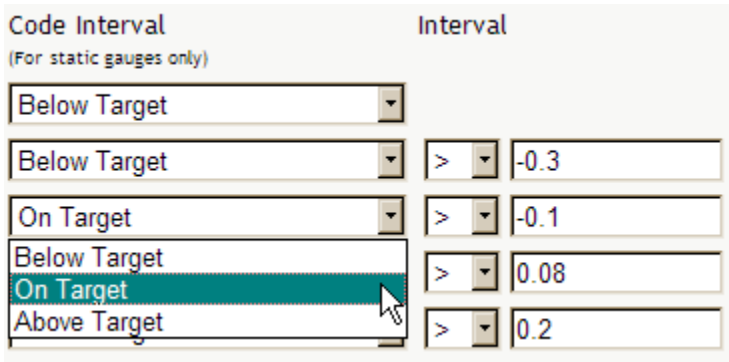
3. In the **Range name** field, type `Range 1`.
4. In the **Interval** field, type `-.1`, and click **Add Interval**.

   The interval appears in the table.



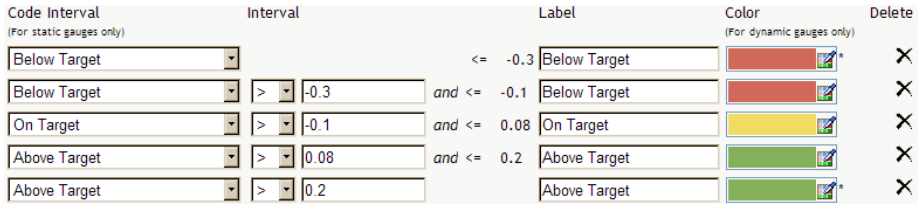
5. Type the values `.2`, `-.3`, and `.08`, clicking **Add Interval** after each value.
6. Notice that, although you typed the interval values in a random order, the intervals are ordered correctly in the table.

7. For the -.1 interval, select **On Target** from the drop-down list in the **Code Interval** column.



8. Notice that the value in the **Label** column for the -.1 interval is now **On Target** and that the color is yellow.
9. For the intervals .08 and .2, specify the code interval as **Above Target**.

   The table now looks like this:



10. Click **OK**.

    You return to the Manage Ranges page. Remain on this page.

Create the Indicator

Your next step is to create the indicator. There are four steps to create an indicator:

1. Define the indicator.

   This step is the minimum required to create an indicator.

2. Define the links.

   This example does not address links.

3. Define the display.

   This example changes the display of the indicator only in a minor way.

4. Configure the indicator.

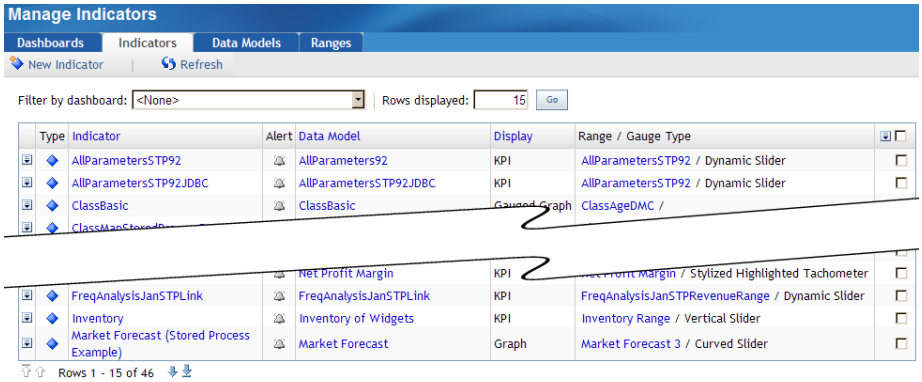
   This example does not address configuration.

The settings necessary to perform each step are presented on separate tabs.

To create the indicator for this example:

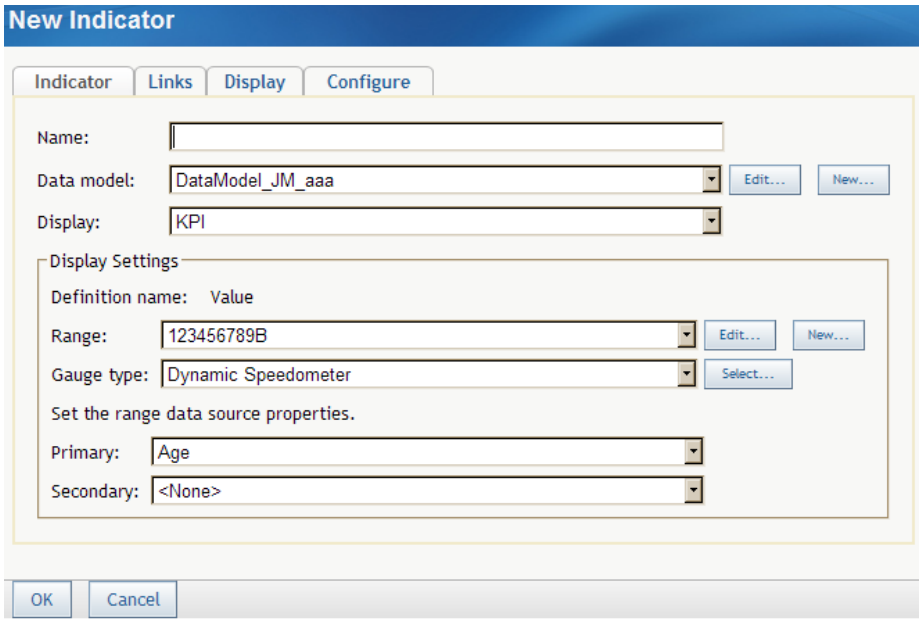
1. On the Manage Ranges page, click the **Indicators** tab.

   The Manage Indicators page appears.



2. Click **New Indicator**.

   The New Indicator page appears.



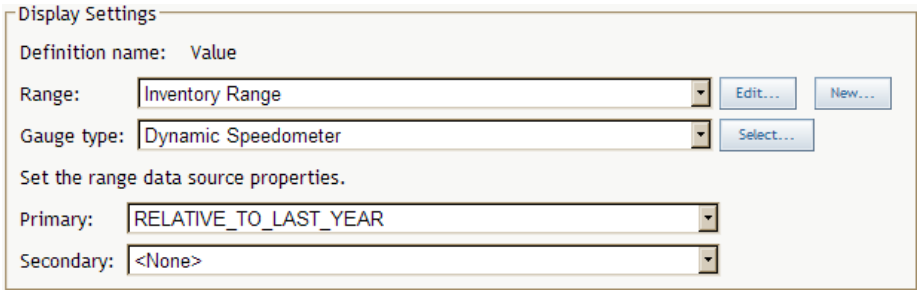
3. In the **Name** field, type `Regional Sales KPIs`.

4. From the **Data model** drop-down list, select **Regional Summary**.

   This is the data model that you just created.

5. From the **Display** drop-down list, select **KPI**.

   When you select a display, the information in the **Display Settings** area changes based on the display selected.



6. From the **Range** drop-down list, select **Range 1**.

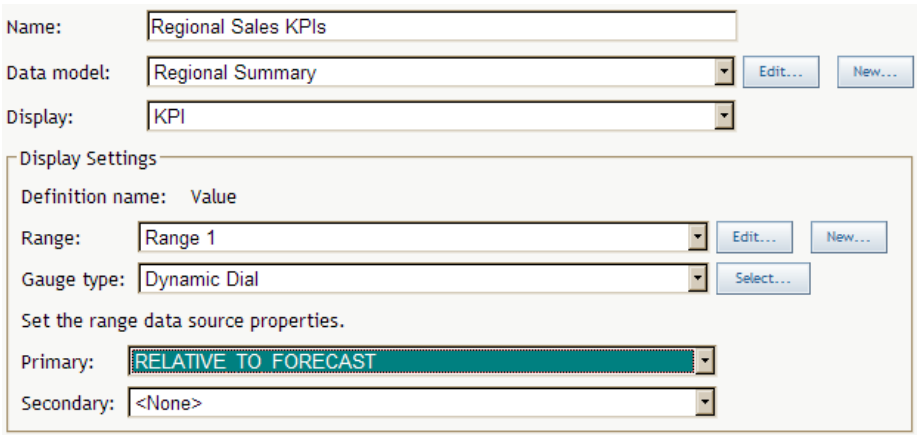
   This is the range that you just created.

7. From the **Gauge type** drop-down list, select **Dynamic Dial.**

   The **Dynamic Dial** appears as a three-dimensional, colorful gauge in the dashboard.

8. From the **Primary** drop-down list, select **RELATIVE_TO_FORECAST**.

   The page now looks like this:

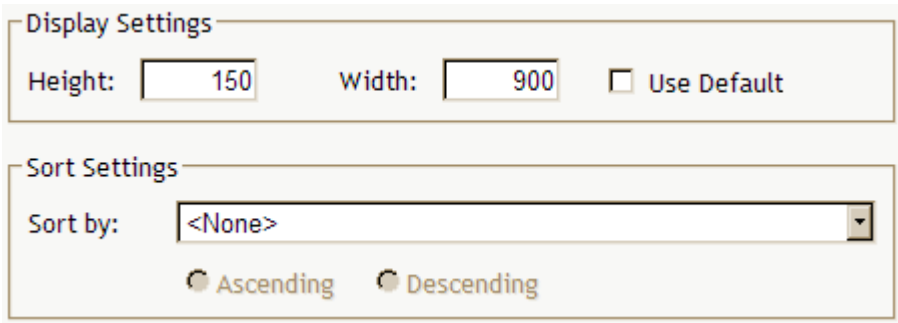


   The value in the data field **RELATIVE_TO_FORECAST** appears in the indicator.

   Although you have specified enough information to create the indicator, the following step will create a better display.

9. Click the **Display** tab.

10. Clear the **Use Default** check box, and in the **Width** field, type `900`.



   This value widens the indicator so that it doesn't wrap in the dashboard.

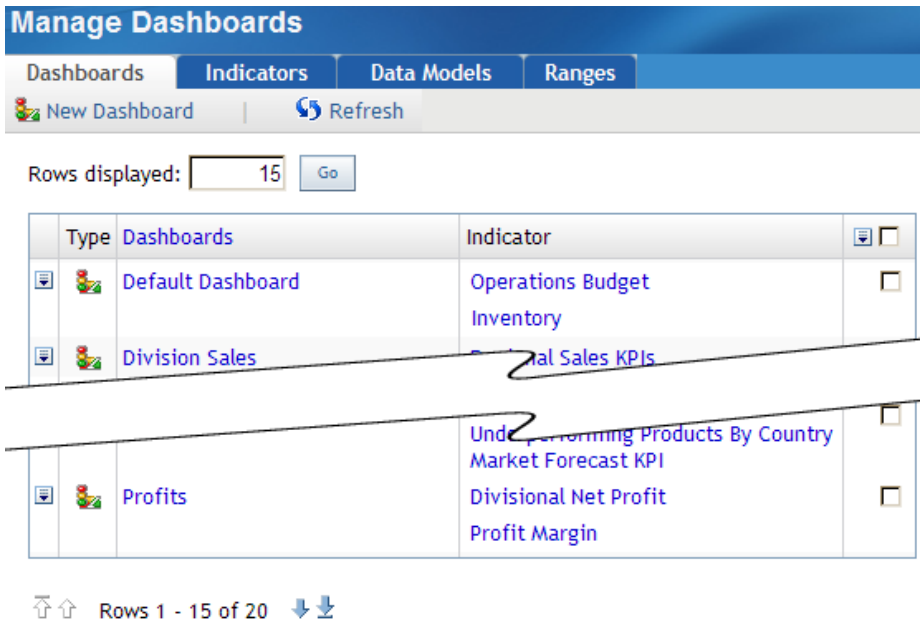
11. Click **OK**.

    You return to the Manage Indicators page. Remain on this page.

Create the Dashboard

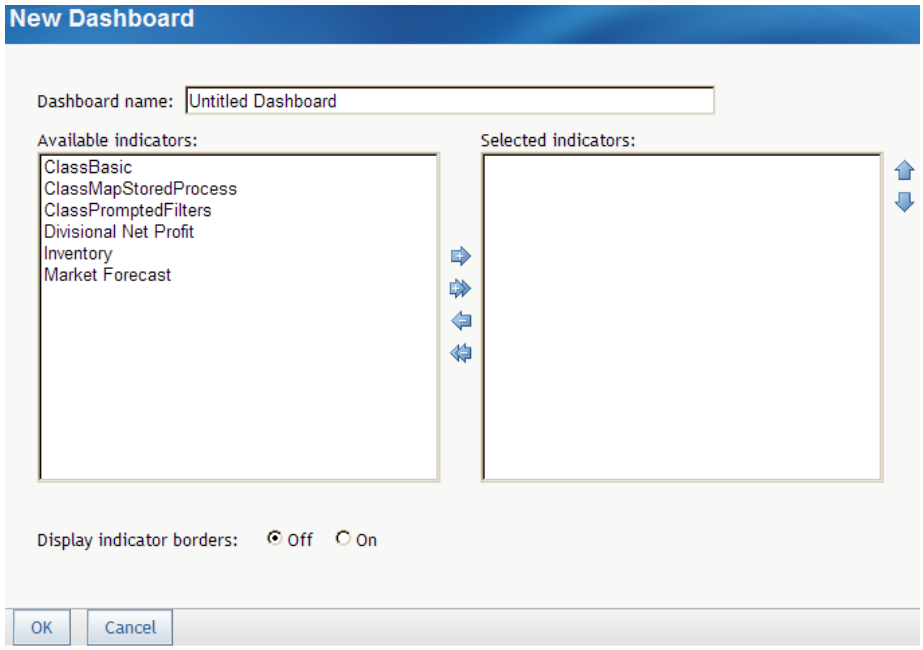
1. On the Manage Indicators page, click the **Dashboards** tab.

   The Manage Dashboards page appears.



2. Click **New Dashboard**.

   The New Dashboard page appears.



3. In the **Dashboard name** field, type `Example Dashboard`.

4. From the **Available indicators** list, select **Regional Sales KPIs**, and click the right arrow.

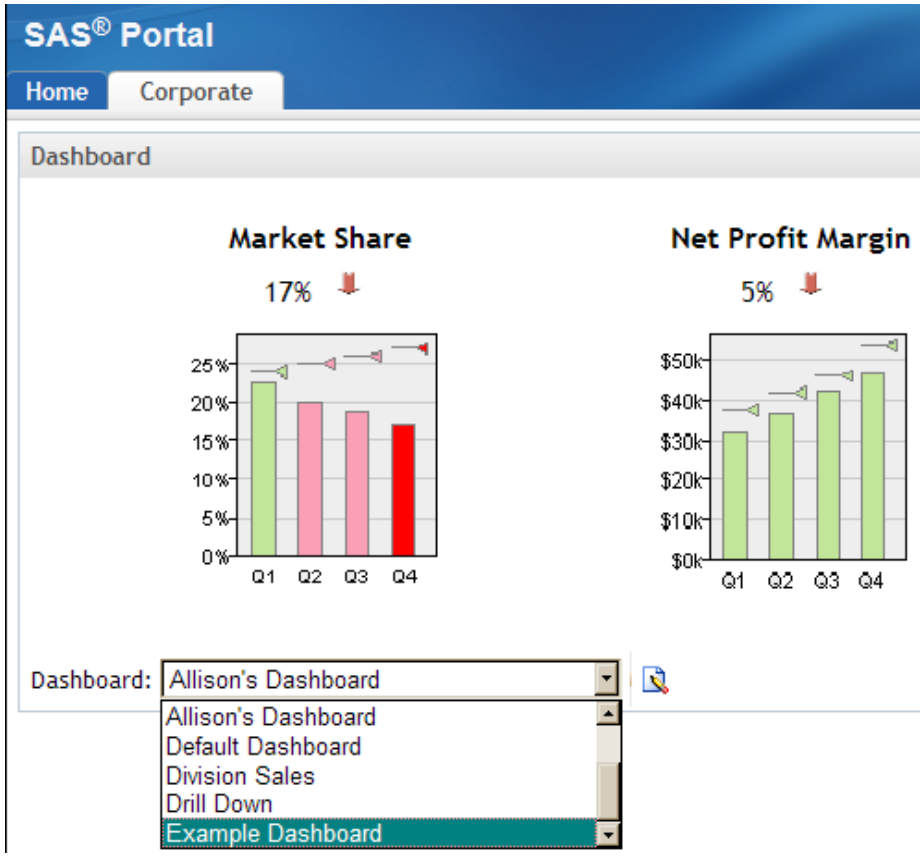
   Regional Sales KPIs moves to the **Selected indicators** list.

5. Click **OK**.

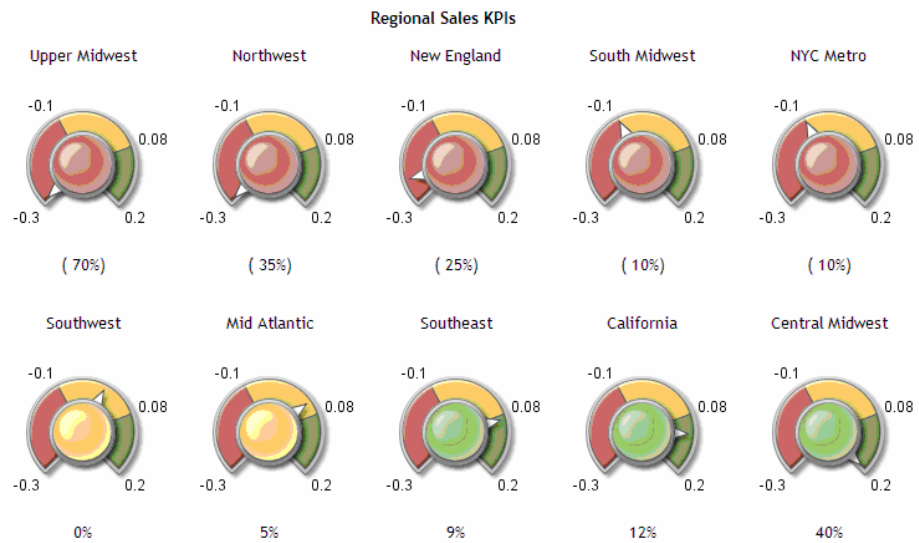
   You return to the Manage Dashboards page.

6. Reopen the SAS Information Delivery Portal.

7. From the **Dashboard** drop-down list in the portal, select **Example Dashboard**.



The example dashboard appears.



Congratulations! You just created your first dashboard. Compare the dashboard to the underlying data:

VIEWTABLE: TMP1.region_summary

	SALES_YEAR_TO_DATE	RELATIVE_TO_LAST_YEAR	RELATIVE_TO_FORECAST	_NAME_FOR_RELATIVE_TO_FORECAST	REGION_REPORT_CODE	_LABEL_FOR_RELATIVE_TO_FORECAST
1	$900,000	-0.5	-0.7	Upper Midwest	UMW	(-70%)
2	$3,265,040	-0.4	-0.35	Northwest	NW	(-35%)
3	$1,000,000	0.1	-0.25	New England	NENG	(-25%)
4	$2,420,000	0	-0.1	South Midwest	SMW	(-10%)
5	$9,450,000	0.2	-0.1	NYC Metro	NYC	(-10%)
6	$4,012,035	0.1	0	Southwest	SW	0%
7	$3,450,000	0.02	0.05	Mid Atlantic	MATL	5%
8	$2,402,000	-0.1	0.09	Southeast	SE	9%
9	$7,453,020	0.09	0.12	California	CAL	12%
10	$6,720,000	0.5	0.4	Central Midwest	CMW	40%

Chapter 6

Data Models

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Define a Metadata Table Data Source 48
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Overview

The SAS BI Dashboard uses data models to define data that is used in indicators. The core object is the indicator, and a dashboard is just a collection of indicators. An indicator never has more than one data model (and is rarely used without a query). The data model is an abstraction layer for the query. Access to four types of data sources is supplied with the SAS BI Dashboard:

- SAS data set, which can access relational data
- SAS Information Maps, which can access relational data and OLAP cubes
- SAS metadata tables, which can access data in a SAS data set that is registered in SAS metadata
- scorecards, which can access scorecard values directly from SAS Strategic Performance Management

  Note: The SAS BI Dashboard administrator can add access to other data sources.

Before you create a dashboard, you must understand how to create a data model. Understanding the data flow in the SAS BI Dashboard is the key to building enterprise dashboards that operate efficiently within your organization's Business Intelligence system.

Unlike the flow of data in a report (which is usually relatively simple), the flow of data in a dashboard can be very different. Consider the dashboard in your car. Although you see a single representation of the state of the car, the state is actually a collection of different types of data received by the dashboard. The fuel gauge receives data from the fuel tank,

the speedometer receives data from the wheels, the battery gauge receives data from the battery, and so on. Like your car's dashboard, a SAS BI Dashboard can have disparate data sources.

Whereas a report created with SAS Web Report Studio might fill several screens with data from a single information map, a dashboard might render data in a small display that is the result of SQL/JDBC queries, information maps, and SAS Strategic Performance Management scorecards. A dashboard can also render the output of stored processes. Here is an example of a portal page that contains three dashboards that use different data sources:

In the dashboard across the top, there are six indicators, each with its own data model underneath. These indicators are driven by six different SQL queries, but the data models could be all information maps, all scorecards, or some combination of these types.

Notice that the data models for the first four indicators and the last one return only one row of data. The best way to represent a single row of data is a gauge. Each of these indicators shows a different type of gauge.

The data model for the fifth indicator returns several rows of data. The best way to represent multiple rows of data is a graph, in this case a line graph. The dashboard in the lower left corner contains a single indicator that is driven by a query that returns eleven rows of data. The values in the Profit Margin data field drive the bar and trend display.

The dashboard in the lower right corner contains two indicators. The indicator on the left renders ten rows of data (one for each region) as a bar graph. Two columns are rendered: Sales YTD targeted as the bar height and Sales Quota YTD as the target line. A third computed column, Relative To Forecast, controls the bar color. This indicator is driven by an information map.

The last indicator, the US Sales Pipeline Map, contains output generated from a stored process. For more information, see "Graph Display" on page 68.

By using information maps and SQL queries to retrieve data, you are unconstrained with how the data is laid out at the data set level. For example, you can use computed columns and grouping in the data model. After you have the data configured, the lack of constraints helps you to get initial dashboards up and running quickly. But this same simplicity means that data structure is not enforced.

Data Model Rules

Here are several rules that will help you to create quicker and more efficient data models:

- Plan the data model by considering the kinds of indicator display types that will be used with the data model and the required appearance of the desired end result.

  For example, KPIs appear best with a data model that produces summarized data with a limited number of data rows. A data model with significant amounts of data, when used to drive a KPI indicator display, causes the SAS BI Dashboard to try to produce one KPI graphic representation for each row of data in the data model. Other indicator display types, such as the bar chart, automatically summarize the data. In this case, it might be appropriate to use a data model that produces a larger number of data rows.

- To display a single gauge in an indicator, the query must return a single row of data.

- Create a query so that it executes quickly.

  A single slow query will slow the entire dashboard. Even when a query returns only a single row of data, if it must first join tables that each contain thousands of rows of data, the query won't perform well.

- A query shouldn't return a lot of data.

  For example, if an indicator is defined to display a gauge, each row in the result set becomes a gauge. If the result set returns a large number of rows, the indicator will have a large, unwieldy number of gauges. Instead, a query should return a single row or a small number of rows, such as 10. Even an indicator that displays a graph shouldn't use more than 100 or 200 rows.

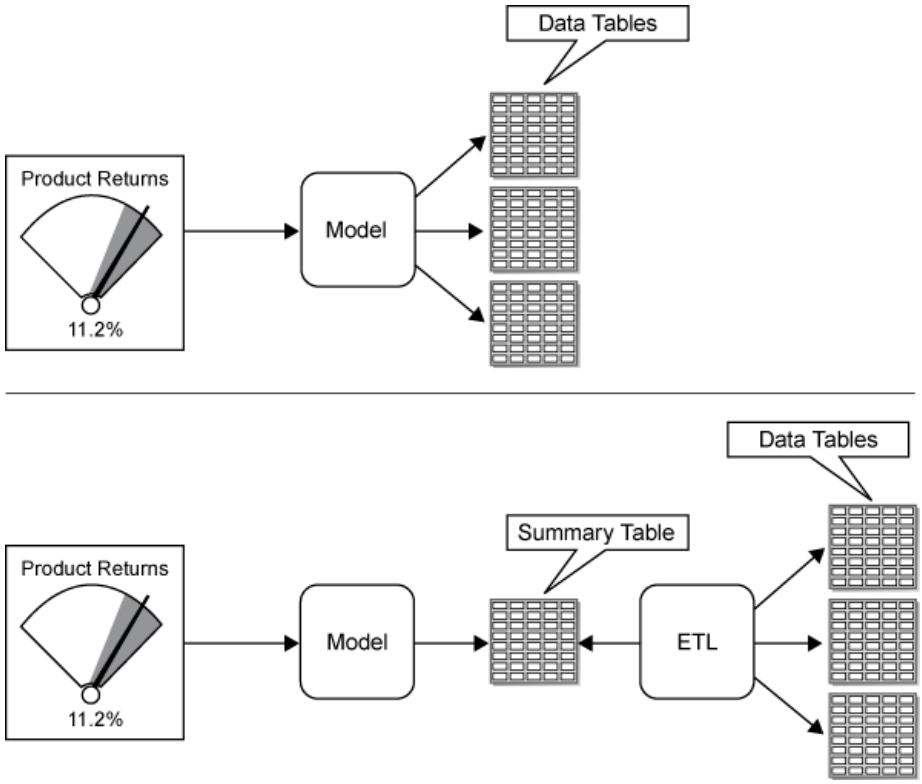
- If the source data has too many rows, aggregate the data.

  Summarize data at the query or data-model level. Do not rely on the indicator display to perform the summary.

  For a SAS Information Map, you can usually use an aggregation selected in the data model editor to summarize numeric data, which reduces the number of rows to a reasonable number.

  For an SQL query, you can summarize data using aggregation functions such as AVG() and the distinct keyword.

  Another summarization strategy is to summarize the data into a summary table. The summary table is then used as the basis for the SQL query or as the base table for the information map. The first illustration that follows shows the SAS BI Dashboard data model using a query that combines data from multiple tables. The second illustration shows the same two tables being summarized by an ETL program. The SAS BI Dashboard data model then uses this summarized table.



The first method is easier to set up and might result in more timely data, but the second method is more flexible and will probably be more scalable. You can employ a similar strategy when creating information maps that will be used by the SAS BI Dashboard data models.

- The numeric data field you choose to render in an indicator needs a label or it won't look right.

  For instance, you have a value such as .422644 that you want to display in an indicator as 42.3%. If you are using an information map, format the value in SAS Information Map Studio. For an SQL query, create a separate data field that formats the value and retrieve this data field in the query.

- To display multiple gauges or a graph in an indicator, each numeric value should be associated with a name.

  After you define a query, you select the data fields to include in the indicator display. For every numeric data field displayed in the indicator, select a data field from the **Category label** drop-down list to associate with the numeric value. This associated data field is displayed with the gauge or the category value in a graph.

Manage Data Models

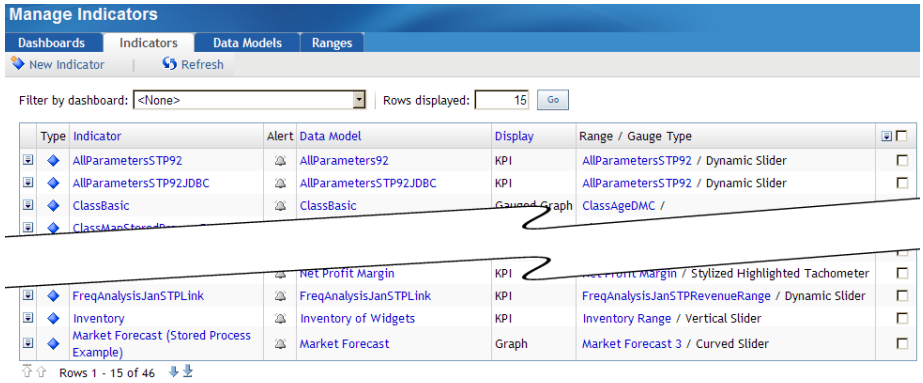
A data model defines a data source and how to access the data within the data source.

To manage data models:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

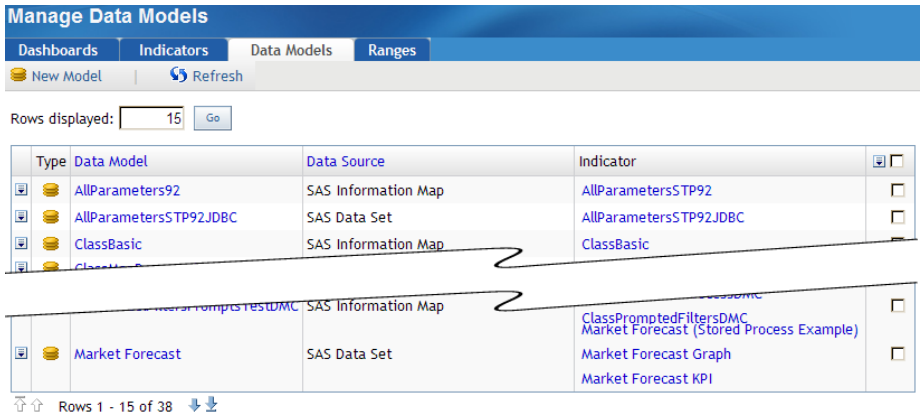
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

The Manage Indicators page appears.



2. Click the **Data Models** tab.

   The Manage Data Models page appears.



3. To specify the number of rows to display on the page, type a number in the **Rows displayed** field, and click **Go**.

   The number of rows displayed on this page is stored during the session. The number reverts to the default the next time you start the SAS BI Dashboard.

4. Scroll through the list.

   For more information, see "Scroll Through a List" on page 9.

5. (Optional) Create or edit a data model.

   For more information, see "Create or Edit a Data Model" on page 37.

6. To change the sort order, click a column heading.

7. (Optional) Delete one or more data models from the list.

   For more information, see "Delete One or More Items in a List" on page 9.

8. To refresh the list, click **Refresh**.

Create or Edit a Data Model

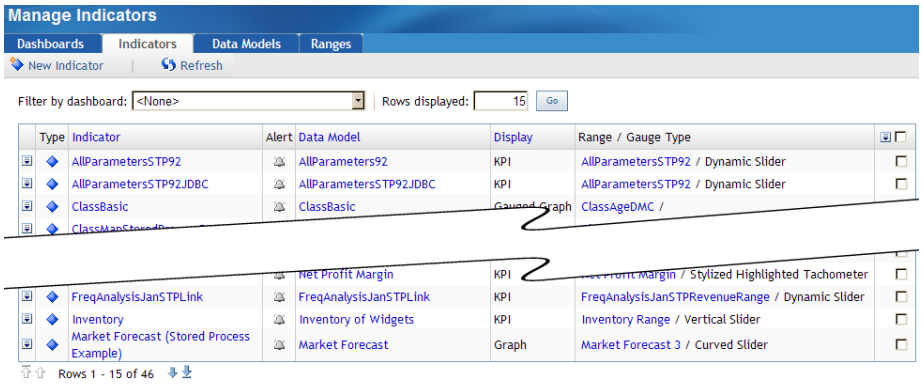
To create or edit a data model:

Note: You can also create or edit a data model when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

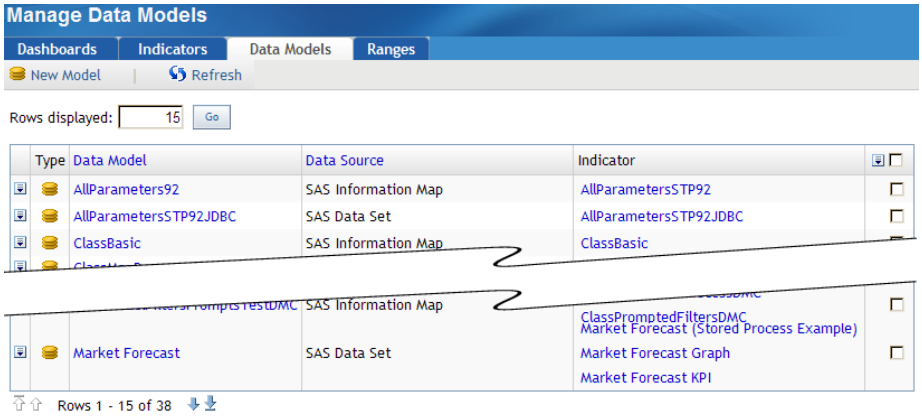
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. Click the **Data Models** tab.

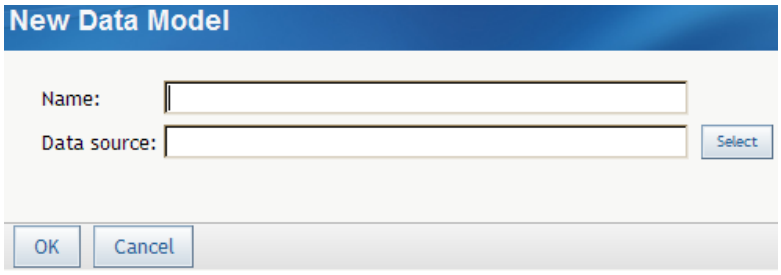
   The Manage Data Models page appears.



3. Do one of the following:

   - To create a data model, click **New Model**.

     The New Data Model page appears.



   - To edit a data model, click the name of the data model.

4. Define a data source.

   For more information, see one of the following:

- "Define a SAS Data Set Data Source" on page 47
- "Define a SAS Information Map Data Source" on page 45
- "Define a Metadata Table Data Source" on page 48
- "Define a SAS Strategic Performance Management Data Source" on page 50

See Also

"Manage Data Models" on page 36

Defining a Data Source

Data Columns

When you define a data source, part of the information that you specify is the display attributes for each data column that is retrieved from the data source by a query or an information map.

Here is an explanation of the fields:

Column Name
The name of the data column. You cannot modify this value.

In each type of display, Column Name is used as the default value for Category Label, Label, and Property Alias name.

Category Label
The data column that contains the name that is displayed on a KPI gauge or graph.

Here is how Category Label appears in each type of display:

Display Type	Appearance of Category Label
Bar and trend	Not used.
Gauged graph	For line and bar graphs, displayed as the category for a given value.
Graph	Displayed above each gauge.
Interactive Summary Chart and Detail Chart	Used as the label for the horizontal axis, under the bars. A Category Label is required for the field used for the Bar Value property in the indicator.
Interactive Summary Chart and Detail Plot	Used as the label that goes next to each data point on the plot. A Category Label is required for the field used for the Y Value property in the indicator.
KPI	Displayed above each gauge.
KPI table	Not used.
Range map	Displayed as a tooltip.

Label

The data column that contains the formatted value that is displayed. This format can be a simple numeric value of a label.

An SQL query does not require this field. To create a formatted label at the bottom of a gauge, create the label as a formatted string in the SQL query, and then define that formatted string as the Label attribute.

Here is how Label appears in each type of display:

Display Type	Appearance of Label
Bar and trend	Displayed to the right of each gauge.
Gauged graph	For line and bar graphs, displayed as the category for a given value.
Graph	Displayed below each gauge.
Interactive Summary Chart and Detail Chart	Displayed in the tooltip for each bar.
Interactive Summary Chart and Detail Plot	Displayed in the tooltip for each point.
KPI	Displayed below each gauge.
KPI table	Displayed in the value column.
Range map	Displayed next to each data point.

Hyperlink

The data column that contains hyperlinks.

In each type of display, hyperlinks are embedded in gauges or individual data points in graphs.

Property Alias

The text that replaces the value retrieved for Category Label.

Here is how Property Alias appears in each type of display:

Display Type	Appearance of Property Alias
Bar and trend	Displayed as the column heading.
Gauged graph	Displayed as the axis label.
Graph	Not used.
Interactive Summary Chart and Detail Chart	Displayed as the axis label and tooltip label
Interactive Summary Chart and Detail Plot	Displayed as the axis label and tooltip labels.

Display Type	Appearance of Property Alias
KPI	Not used.
KPI table	Displayed as the column heading.
Range map	Displayed as the axis label.

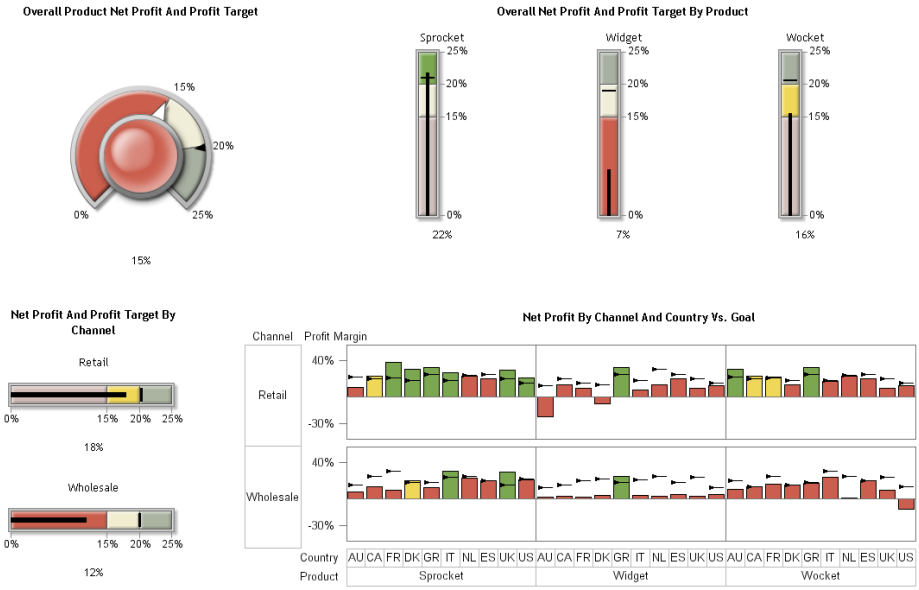
When you define a SAS Data Set data source or a scorecard data source, you create a query that retrieves data from the data source. After you create the query, you submit the query for validation. If the query is correct, data source column names appear in the **Available** list.

If the query is incorrect, the list is empty. If the query is incomplete or incorrect, it is stored so that you can edit it later.

SAS Information Map Data Source

Overview

A SAS Information Map data source easily aggregates data in such a flexible manner that a single SAS Information Map can drive several different dashboard indicators, such as the example shown here:



This example dashboard contains four indicators:

- Overall Product Net Profit And Profit Target shows a single gauge that represents the aggregate of all profit and profit target data across all product lines and sales channels.
- Overall Net Profit And Profit Target By Product shows three gauges, each of which is a pair of aggregated values for each product.
- Net Profit And Profit Target By Channel shows two gauges, each one representing aggregated profit and profit target for a specific sales channel.
- Net Profit By Channel And Country Vs. Goal shows 120 data values: 60 net profit values for each country and product, as well as targets for specific sales channels.

This example demonstrates how a single SAS Information Map can be configured to drive different indicators by taking advantage of aggregation at the SAS Intelligent Query Services level. The information map for this example is a simple relational SAS Information Map that returns approximately 60 rows of data. Here is a sample of the data:

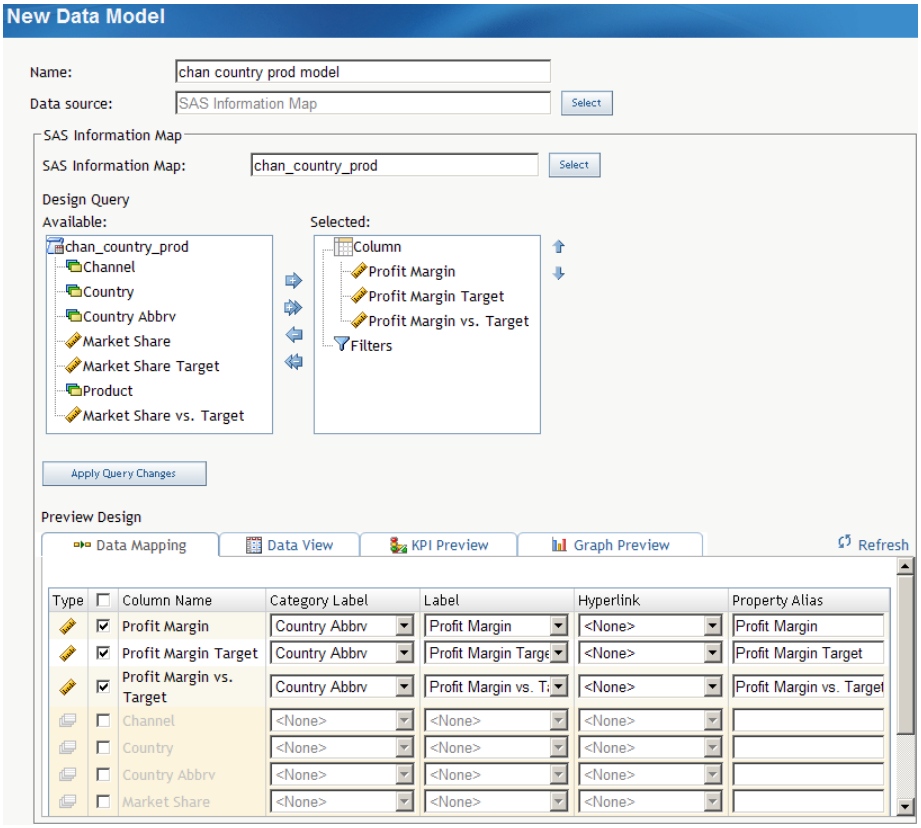
	Channel	Country ...	Product	Profit Margin	Profit Margin Target	Profit Margin vs. Target
21	Retail ...	IT ...	Wocket ...	17%	18%	-1%
22	Retail ...	NL ...	Sprocket ...	23%	24%	-1%
23	Retail ...	NL ...	Widget ...	13%	30%	-17%
24	Retail ...	NL ...	Wocket ...	23%	24%	-1%
25	Retail ...	UK ...	Sprocket ...	29%	20%	9%
26	Retail ...	UK ...	Widget ...	9%	20%	-11%
27	Retail ...	UK ...	Wocket ...	9%	20%	-11%
28	Retail ...	US ...	Sprocket ...	21%	15%	6%
29	Retail ...	US ...	Widget ...	12%	15%	-3%
30	Retail ...	US ...	Wocket ...	12%	15%	-3%
31	Wholesale...	AU ...	Sprocket ...	7%	15%	-8%
32	Wholesale...	AU ...	Widget ...	2%	12%	-10%
33	Wholesale...	AU ...	Wocket ...	10%	20%	-10%
34	Wholesale...	CA ...	Sprocket ...	13%	25%	-12%
35	Wholesale...	CA ...	Widget ...	3%	15%	-12%
36	Wholesale...	CA ...	Wocket ...	13%	13%	0%
37	Wholesale...	DK ...	Sprocket ...	20%	18%	2%
38	Wholesale...	DK ...	Widget ...	4%	22%	-18%
39	Wholesale...	DK ...	Wocket ...	15%	15%	0%
40	Wholesale...	ES ...	Sprocket ...	20%	20%	0%
41	Wholesale...	ES ...	Widget ...	5%	18%	-13%
42	Wholesale...	ES ...	Wocket ...	20%	20%	0%
43	Wholesale...	FR ...	Sprocket ...	9%	30%	-21%

View Query Close

The data columns Country, Channel, and Product contain data that is repeated. Repeated data is a great candidate for grouping.

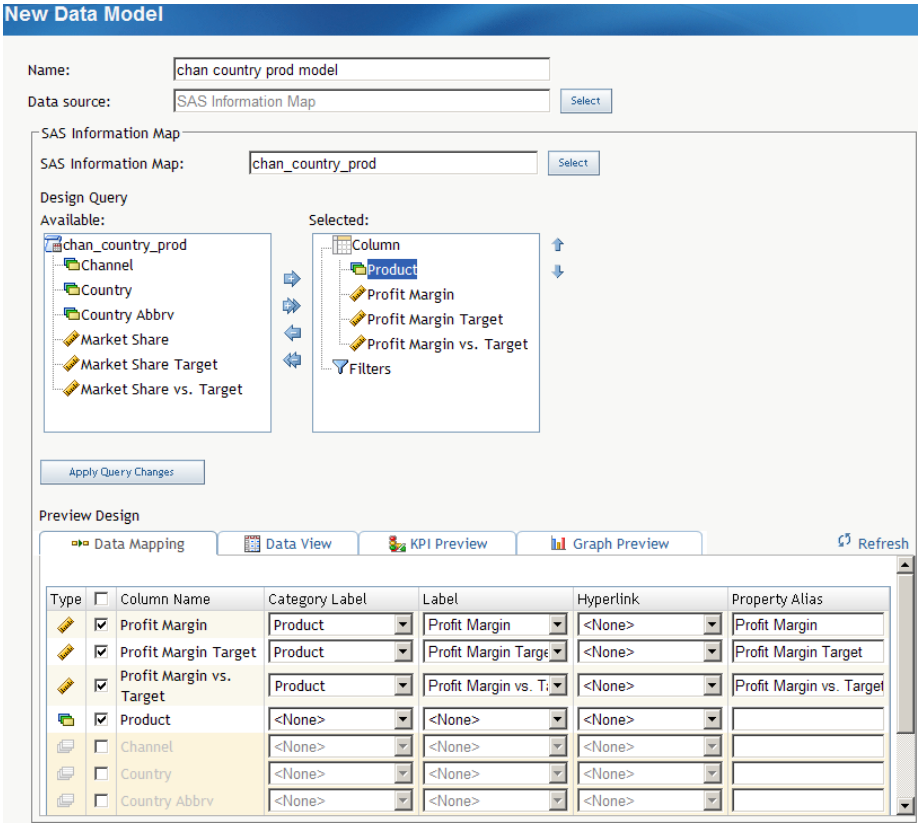
The first indicator (Overall Product Net Profit And Profit Target) requires only a single row of data. To specify a single row of data in SAS Information Map Studio, select the numeric values and specify that SAS Information Map Studio aggregate them. In the BI Dashboard, the KPI display type shows one gauge per row of data. To create a single gauge, you must aggregate the data so that only a single row of data is returned from the SAS Information Map. The one row of data returns the value by aggregating the data columns according to the aggregation method for the data item. In this example the method is average. The default aggregation method, sum, usually is not desirable for a dashboard, so you must specify the aggregation method on the **Classification/Formats** tab of the Data Item Properties dialog box in SAS Information Map Studio.

Here are the settings for the data model that drives the Overall Product Net Profit And Profit Target indicator:



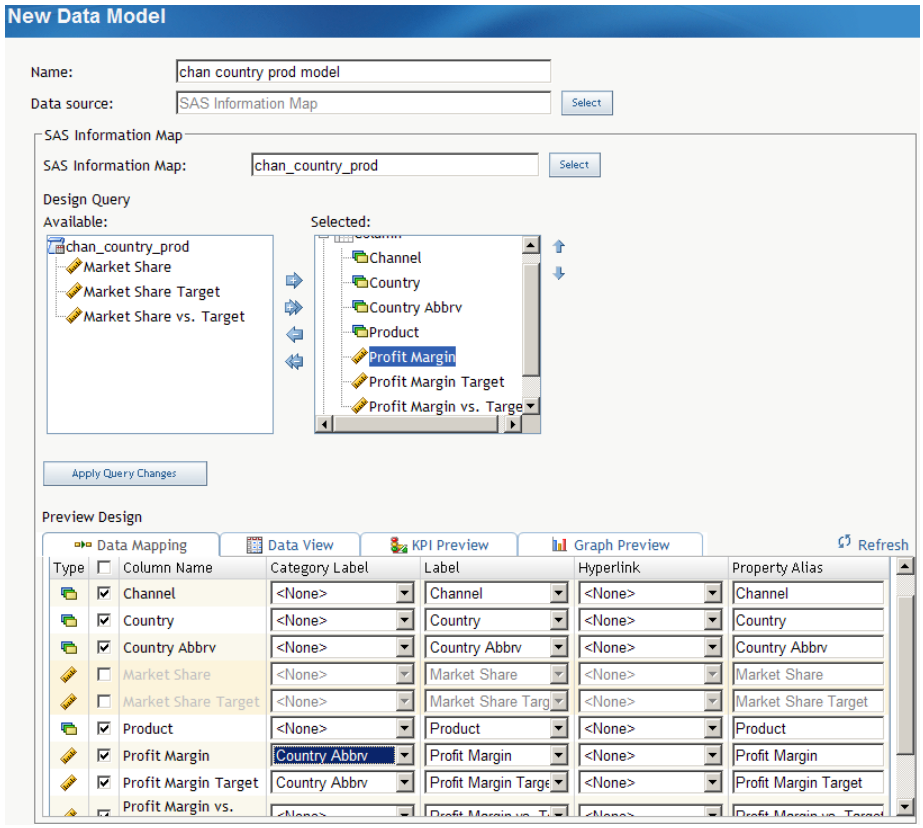
Notice that the **Selected** list contains only the numeric data columns.

For the Overall Net Profit And Profit Target By Product indicator, the data columns are different. This indicator displays three gauges, one for each product. For this data model, **Product** is selected, but **Channel** and **Country** are not. (There are also some numeric data columns concerning market share in this SAS Information Map that are not pertinent to this discussion.) For each numeric data column, **Product** is selected in the **Category label** field so that the gauge is labeled with the appropriate name. Here are the settings for this data model:



For the Net Profit And Profit Target By Channel indicator, the data model uses only the relevant numeric data columns and the Channel data column. For each numeric data column, **Channel** is selected in the **Category label** field so that the gauge is labeled with the appropriate name.

For the small-multiples gauged graph Net Profit By Channel And Country Vs. Goal, all of the details appear in the indicator, including **Product**, **Channel**, and **Country**. Here are the settings for this data model:



Because the labels for the individual bars in the indicator should denote the country, the data column selected in the **Category label** field for the numeric data column is **Country Abbrv**.

OLAP Information Maps

The data returned from an OLAP information map is flattened into a two-dimensional table structure. You assign a role for each dimension when you define the data source. The roles are Column, Row, and Slicer.

Note: You must assign the role of Row to at least one data column.

For dimensions with the role of Row, the levels of each hierarchy are the data fields. The corresponding members of the level are the values of the data field, where the field name is the label for the level. The other data fields are the columns that are typically seen in an OLAP viewer. The field names for the data fields are the comma-delimited levels of the dimensions with the role of Column, in the order of the dimensions with the role of Row.

You can use the grouping feature of the gauged graph display with an OLAP information map to create a multi-dimensional display of data.

Define a SAS Information Map Data Source

You define a SAS Information Map data source when you create or edit a data model, or create or edit an indicator. For more information, see "Create or Edit a Data Model" on page 37 and "Create or Edit an Indicator" on page 59.

To define a SAS Information Map data source:

1. In the **Name** field on the New Data Model page or the Data Model Properties page, type the name of the data source that you want to appear in the list of data models.
2. Next to the **Data source** field, click **Select** and select **SAS Information Map**.

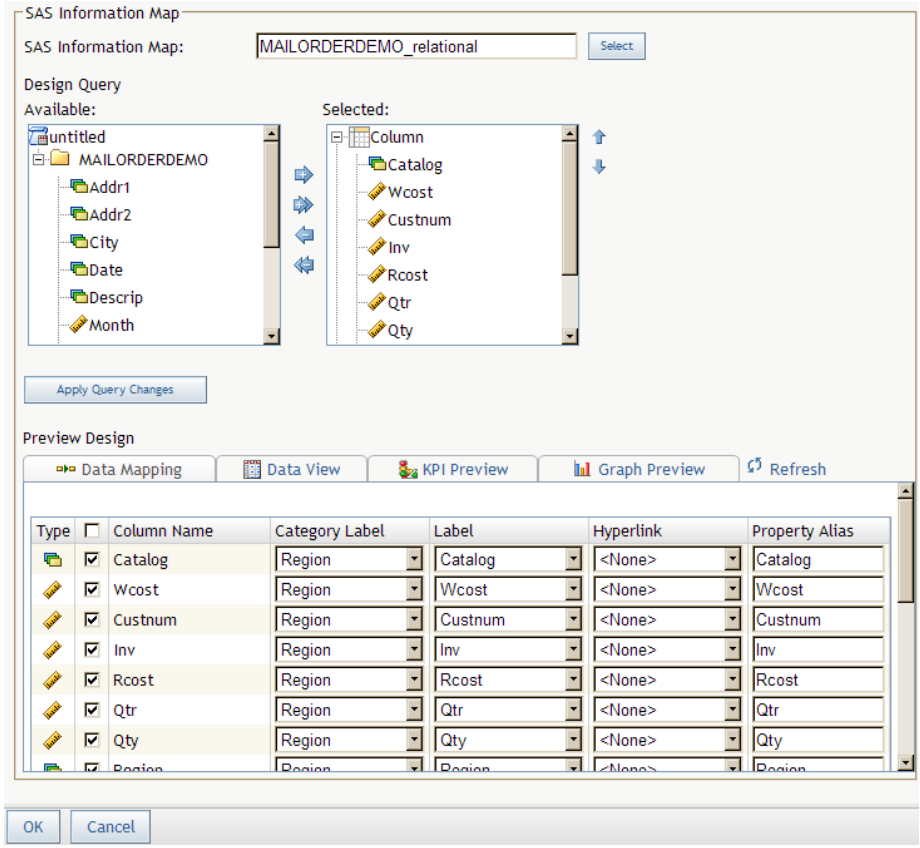
The **SAS Information Map** field appears.

3. Next to the **SAS Information Map** field, click **Select**.

   The list of repositories appears.

4. Expand a repository, select a SAS Information Map, and then click **OK**.

   The fields to define a SAS Information Map data source appear.



5. From the **Available** list of data columns and filters, move items between the **Available** list and the **Selected** list by selecting one or more items and clicking the arrows between the lists.

   A filter is moved under the **Filters** node. By default, a data column is moved under the **Column** node. If the SAS Information Map is based on an OLAP cube, the **Selected** list includes the nodes **Row** and **Slicer**. To use a data column in either of these roles, select **Row** or **Slicer** before moving the data column from the **Available** list.

   Note: To make available a filter that contains a user prompt, the prompt must have a default value specified in SAS Information Map Studio.

6. To order the data columns, click the name of a data column in the **Selected** list, and then move it up or down by clicking one of the arrows that are next to the list.

7. When the data columns are set, click **Apply Query Changes**.

8. To associate a data point property with data columns in the data source, do the following for each data point property:

   a. From the **Column Name** column, select the check box next to each data point property that you want to include in the display.

b. From the **Category Label** drop-down list, select a data column in the data source that contains the category label or group variable.

   If the data source contains a Name data column, this data column is selected automatically for all data point properties.

c. From the **Label** drop-down list, select a data column in the data source that contains the label for the data point property.

   If you need a complicated label, such as one that concatenates data fields and static text, create a data column in the data source to store the concatenation. Then type the name to display for the data point property in the **Property Alias** field.

d. From the **Hyperlink** drop-down list, select a data column in the data source that contains the hyperlink for the data point property.

e. In the **Property Alias** field, type the name to display for the data point property in the column heading in the KPI table display.

   Note: The KPI display ignores this value.

9. To view the first twenty rows of data that are included in the display, click the **Data View** tab.

10. To preview the KPI display or Graph display, click the **KPI Preview** tab or the **Graph Preview** tab.

Define a SAS Data Set Data Source

You define a SAS Data Set data source when you create or edit a data model, or create or edit an indicator. For more information, see "Create or Edit a Data Model" on page 37 and "Create or Edit an Indicator" on page 59.

To define a SAS Data Set data source:

1. In the **Name** field on the New Data Model page or the Data Model Properties page, type the name of the data source that you want to appear in the list of data models.

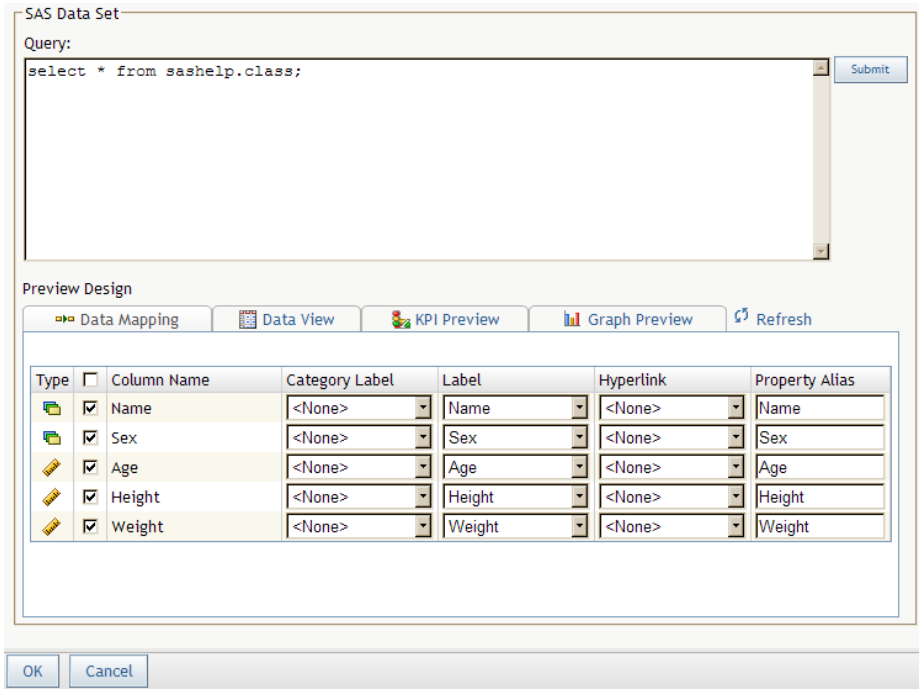
2. Next to the **Data source** field, click **Select** and select **SAS Data Set**.

   The **Query** field appears.

3. In the **Query** field, type the query code.

4. Click **Submit**.

   The fields to define a SAS Data Set data source appear.



5. To associate a data point property with data columns in the data source, do the following for each data point property:

   a. From the **Column Name** column, select the check box next to each data point property that you want to include in the display.

   b. From the **Category Label** drop-down list, select a data column in the data source that contains the category label or group variable.

   c. From the **Label** drop-down list, select a data column in the data source that contains the label for the data point property.

      If you need a complicated label, such as one that concatenates data fields and static text, create a data column in the data source to store the concatenation. Then select that data column from the **Property Alias** drop-down list.

   d. From the **Hyperlink** drop-down list, select a data column in the data source that contains the hyperlink for the data point property.

   e. In the **Property Label** field, type the name to display for the data point property in the column heading in the KPI table display.

      Note: The KPI display ignores this value.

6. To view the first twenty rows of data that are included in the display, click the **Data View** tab.

7. To preview the KPI display or Graph display, click the **KPI Preview** tab or the **Graph Preview** tab.

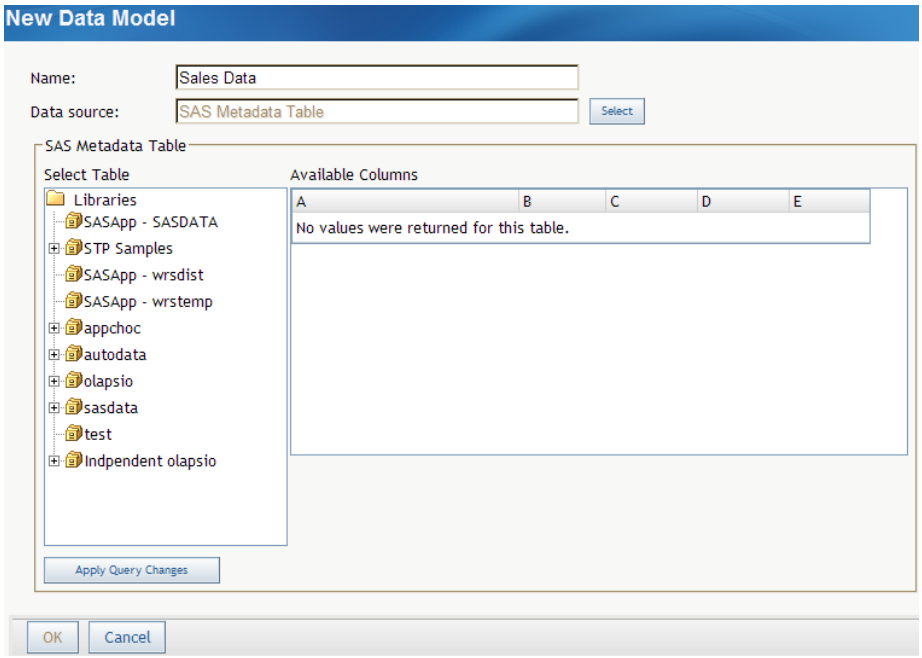
Define a Metadata Table Data Source

You define a SAS metadata table data source when you create or edit a data model, or create or edit an indicator. For more information, see "Create or Edit a Data Model" on page 37 and "Create or Edit an Indicator" on page 59.

To define a SAS metadata table data source:

1. In the **Name** field on the New Data Model page or the Data Model Properties page, type the name of the data source that you want to appear in the list of data models.
2. Next to the **Data source** field, click **Select** and select **SAS Metadata Table**.

   The **Select Table** tree and the **Available Columns** table appear.



   The **Select Table** tree includes all registered libraries that contain tables.
3. From the **Select Table** tree, select a table.

   The data columns in the table appear in the **Available Columns** table.
4. From the **Available Columns** table, select the data columns to include in the query by selecting the check box at the end of a row.

   Note: You can select all data columns by selecting the check box at the top of the last column.
5. For each selected data column, select a method to summarize the data from the **Summary** column.
6. For each selected data column, choose whether to group the data by selecting the check box in the **Group by** column.
7. To specify additional filters, type the filter (using SQL syntax) into the **Filter** field.
8. Click **Apply Query Changes**.

   More fields to define a SAS metadata table data source appear.
9. To associate a data point property with data columns in the data source, do the following for each data point property:

   a. From the **Column Name** column, select the check box next to each data point property that you want to include in the display.

   b. From the **Category Label** drop-down list, select a data column in the data source that contains the category label or group variable.

   c. From the **Label** drop-down list, select a data column in the data source that contains the label for the data point property.

If you need a complicated label, such as one that concatenates data fields and static text, create a data column in the data source to store the concatenation. Then select that data column from the **Property Label** drop-down list.

d. From the **Hyperlink** drop-down list, select a data column in the data source that contains the hyperlink for the data point property.

e. In the **Property Alias** field, type the name to display for the data point property in the column heading in the KPI table display.

Note: The KPI display ignores this value.

10. To view the first twenty rows of data that are included in the display, click the **Data View** tab.

11. To preview the KPI display or Graph display, click the **KPI Preview** tab or the **Graph Preview** tab.

Define a SAS Strategic Performance Management Data Source

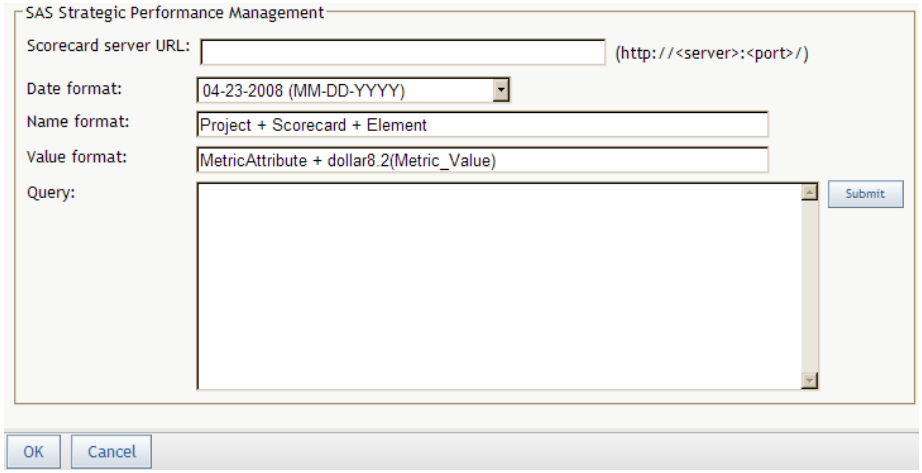
You define a SAS Strategic Performance Management data source when you create or edit a data model, or create or edit an indicator. For more information, see "Create or Edit a Data Model" on page 37 and "Create or Edit an Indicator" on page 59.

To define a SAS Strategic Performance Management data source:

1. In the **Name** field on the New Data Model page or the Data Model Properties page, type the name of the data source that you want to appear in the list of data models.

2. Next to the **Data source** field, click **Select** and select **SAS Strategic Performance Management**.

Several fields appear.



3. In the **Scorecard server URL** field, type the URL to the location of SAS Strategic Performance Management in the form *http://<server>:<port>/*.

4. From the **Date format** drop-down list, select a date format.

When you create the query, all dates must be in this format.

5. In the **Name format** field, type the name to appear above the indicator in a dashboard.

You can type any text. However, keywords supply certain information from SAS Strategic Performance Management. When the query is run, the keywords are replaced

with values from SAS Strategic Performance Management for the cell specified in the query. These are the keywords:

TEMPLATE
is the name of the template on which the scorecard that is associated with the queried cell is based.

PROJECT
is the name of the project in which the scorecard that is associated with the queried cell is located.

SCORECARD
is the name of the scorecard that is associated with the queried cell.

ELEMENTTYPE
is the name of the type of element that is associated with the queried cell.

ELEMENT
is the name of the element that is associated with the queried cell.

METRICATTRIBUTE
is the name of the metric attribute that is associated with the queried cell.

DATE
is the date on which the metric attribute value is based. To specify the current date, type the pound sign (#).

METRIC_VALUE
is the value of the metric attribute that is associated with the queried cell.

The keywords are case-insensitive.

Use a plus (+) between a literal and a keyword and between keywords. For example, if the queried cell is located in the scorecard Shoe Sales in the project East Coast, `SCORECARD + for the + PROJECT + region` produces **Shoe Sales for the East Coast region**.

You can apply a SAS format such as `dollar8.2(METRIC_VALUE)` to any text.

6. In the **Value format** field, type the value to appear below the indicator in a dashboard.

   This field accepts the same text, keywords, and formats as the **Name format** field.

7. In the **Query** field, type the query that specifies a cell within SAS Strategic Performance Management from which to retrieve values, and then click **Submit**.

   Use a vertical bar (|) to separate the parts of the query that specify a cell. Here is the general format to specify a cell:

   template | *project* | *scorecard* | *element_type* | *element* | *metric_attribute* | *date* | *URL*

   URL specifies the hyperlink that appears in the indicator in a dashboard. *URL* is optional.

   If you don't include *URL*, one is automatically generated from SAS Strategic Performance Management. The target of the automatically generated URL is either the directive for the queried cell or the scorecard that contains the queried cell.

   If you do include *URL*, the string is used exactly as you type it.

   Use two vertical bars (||) to separate individual queries as in the following example:

   ```
   tmplt1 | prj1 | score1 | elemtype1 | elem1 | metattr1 | date1 | <url> ||
   tmplt2 | prj2 | score2 | elemtype2 | elem2 | metattr2 | date2
   ```

8. Click **Submit**.

More fields to define a scorecard data source appear.

9. To associate a data point property with data columns in the data source, do the following for each data point property:

   a. From the **Column Name** column, select the check box next to each data point property that you want to include in the display.

   b. From the **Category Label** drop-down list, select a data column in the data source that contains the category label or group variable.

      If the data source contains a Name data column, this data column is selected automatically for all data point properties.

   c. From the **Label** drop-down list, select a data column in the data source that contains the label for the data point property.

      If you need a complicated label, such as one that concatenates data fields and static text, create a data column in the data source to store the concatenation. Then select that data column from the **Property Alias** drop-down list.

   d. From the **Hyperlink** drop-down list, select a data column in the data source that contains the hyperlink for the data point property.

   e. In the **Property Alias** field, type the name to display for the data point property in the column heading in the KPI table display.

      Note: The KPI display ignores this value.

10. To view the first twenty rows of data that are included in the display, click the **Data View** tab.

11. To preview the KPI display or Graph display, click the **KPI Preview** tab or the **Graph Preview** tab.

Chapter 7
Ranges

Manage Ranges **53**

Create or Edit a Range **54**
Start to Create or Edit a Range 54
Define the Range 55

Manage Ranges

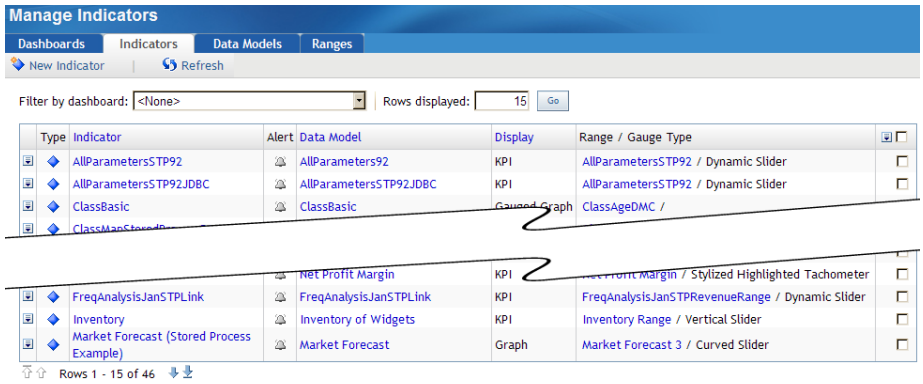
A range defines the measurement intervals by which a metric is evaluated, such as below target, on target, and above target.

To manage ranges:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

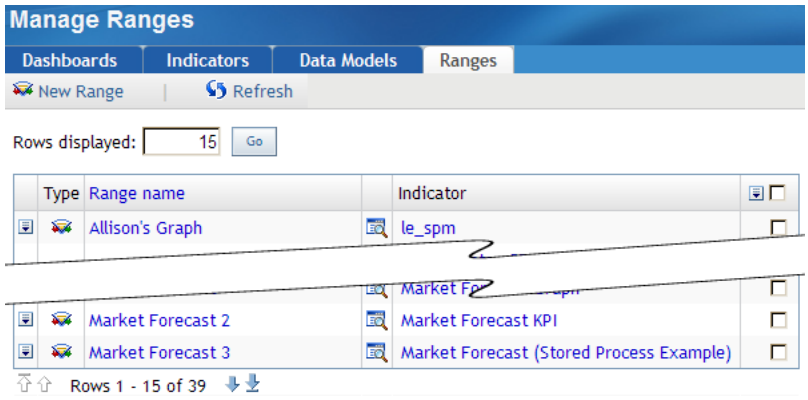
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. Click the **Ranges** tab.

   The Manage Ranges page appears.



3. To specify the number of rows to display on the page, type a number in the **Rows displayed** field, and click **Go**.

   The number of rows displayed on this page is stored during the session. The number reverts to the default the next time you start the SAS BI Dashboard.

4. (Optional) Create or edit a range.

   For more information, see "Create or Edit a Range" on page 54.

5. To change the sort order, click **Range name** in the column heading.

6. Scroll through the list.

   For more information, see "Scroll Through a List" on page 9.

7. To preview a range, click next to the range.

8. (Optional) Delete one or more ranges from the list.

   For more information, see "Delete One or More Items in a List" on page 9.

9. To refresh the list, click **Refresh**.

Create or Edit a Range

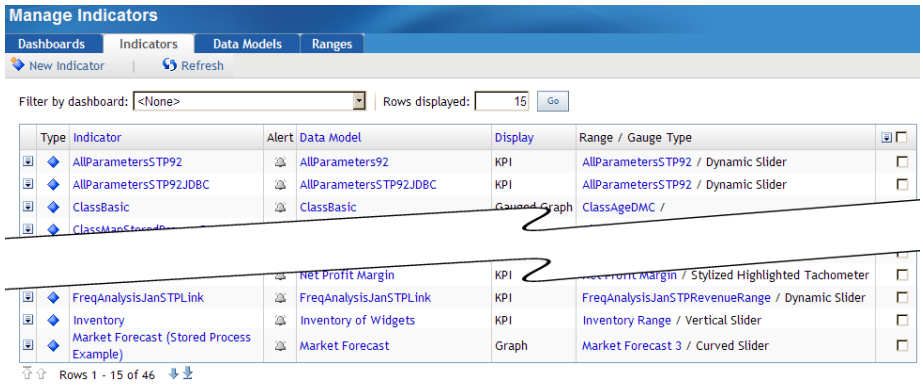
Start to Create or Edit a Range

To create or edit a range from within the SAS BI Dashboard portlet:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

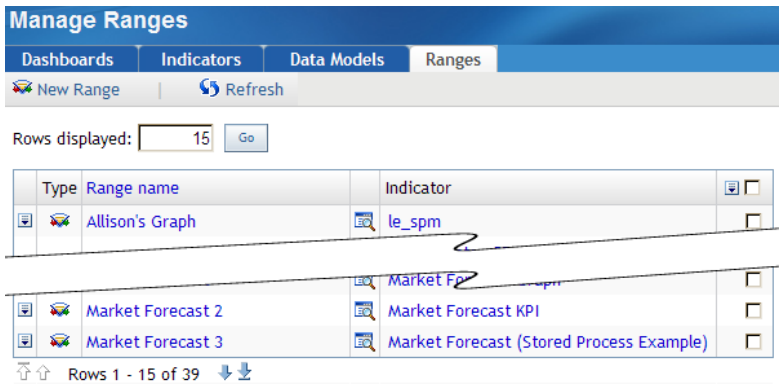
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. Click the **Ranges** tab.

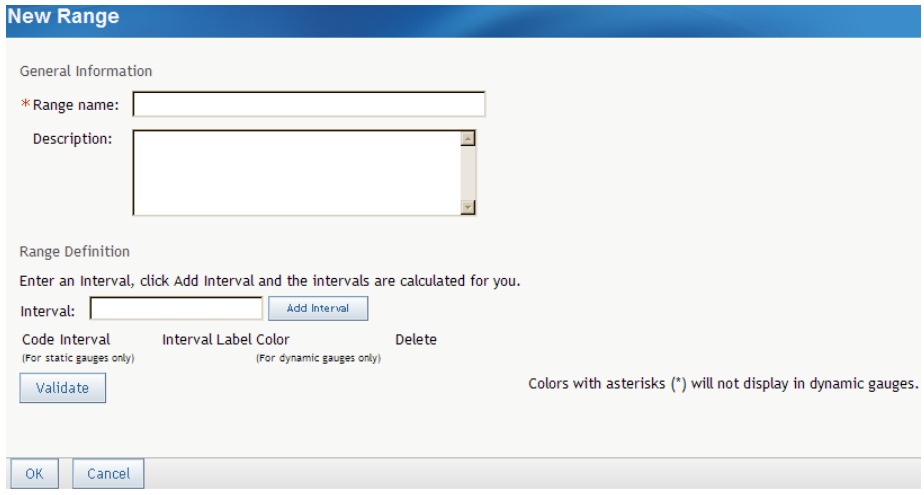
   The Manage Ranges page appears.



3. Do one of the following:

   - To create a range, click **New Range**.

     The New Range page appears.



   - To edit a range, click the name of the range.

Define the Range

To define the range:

1. To specify the name and description, type the name and description in the appropriate fields on the New Range page or the Range Properties page.
2. For each interval in the range, type the interval value in the **Interval** field, and click **Add Interval**.

   The interval is added to the table of intervals. You can add the values in any order; the software orders them correctly in the table.

   Note: Valid input includes a sign, digits, and a locale-dependent decimal separator.
3. To define each interval:

   a. For a static gauge, in the **Code Interval** column, select a code interval from the drop-down list.

      The available intervals depend on the gauge.

   b. In the **Interval** column, select an operator from the drop-down list, and type a value in the adjacent field.

   c. In the **Label** column, type the label.

   d. For a dynamic gauge, in the **Color** column, click and select a color.

   e. To delete an interval, click next to the interval.

   f. To validate that the intervals are in the correct order after deleting an interval, click **Validate**.

You can control which users can use the range. For more information, see the SAS Management Console online Help.

See Also

"Manage Ranges" on page 53

Chapter 8
Indicators

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Manage Indicators **58**

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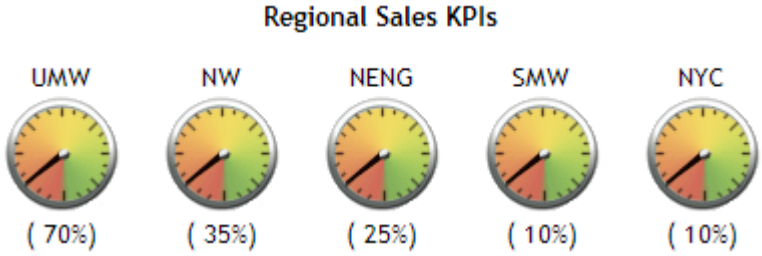
Overview

An indicator includes a title and a display. The display includes one or more data values, a hyperlink (optional), and one or more gauges, a graph, or an image. Here is an example of a KPI indicator:



The indicator title is Regional Sales KPIs. The names of the gauges, such as NW and NYC, are the values of the data column specified by the **Category label** field when the data source was defined. The values, such as 10% and 35%, are the values of the data column specified by the **Label** field. The hyperlink is not shown. For more information about where these items of information appear in each type of display, see "Defining a Data Source" on page 39.

You select the display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59 and "Indicator Displays" on page 64.

Manage Indicators

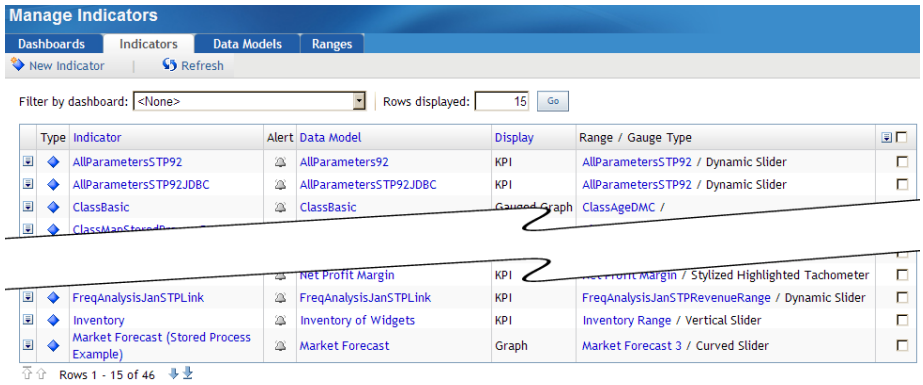
An indicator defines the display settings, image types, and links for all metrics displayed in a dashboard.

To manage the indicators:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. To limit the indicators to those used by a specific dashboard, select a dashboard from the **Filter by dashboard** drop-down list on the Manage Indicators page.

3. To specify the number of rows to display on the page, type a number in the **Rows displayed** field, and click **Go**.

   The number of rows displayed on this page is stored during the session. The number reverts to the default the next time you start the SAS BI Dashboard.

4. (Optional) Create or edit an indicator, manage data models, or manage ranges.

   For more information, see "Create or Edit an Indicator" on page 59, "Manage Data Models" on page 36, or "Manage Ranges" on page 53.

5. To change the sort order, click a column heading.

6. Scroll through the list.

   For more information, see "Scroll Through a List" on page 9.

7. To view a data model, click the name of the data model.

   For more information, see "Define a SAS Data Set Data Source" on page 47, "Define a SAS Information Map Data Source" on page 45 , "Define a Metadata Table Data

Source" on page 48, or "Define a SAS Strategic Performance Management Data Source" on page 50.

8. To view a range, click the name of the range.

   For more information, see "Define the Range" on page 55.

9. (Optional) Create or edit an alert.

   For more information, see "Create or Edit an Indicator Alert" on page 79.

10. (Optional) Delete one or more indicators from the list.

    For more information, see "Delete One or More Items in a List" on page 9.

11. To refresh the list, click **Refresh**.

Create or Edit an Indicator

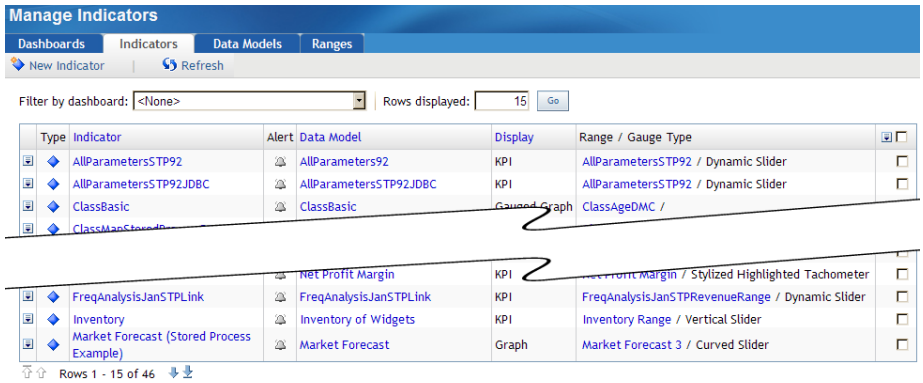
Start to Create or Edit an Indicator

To start to create or edit an indicator from within the SAS BI Dashboard portlet:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

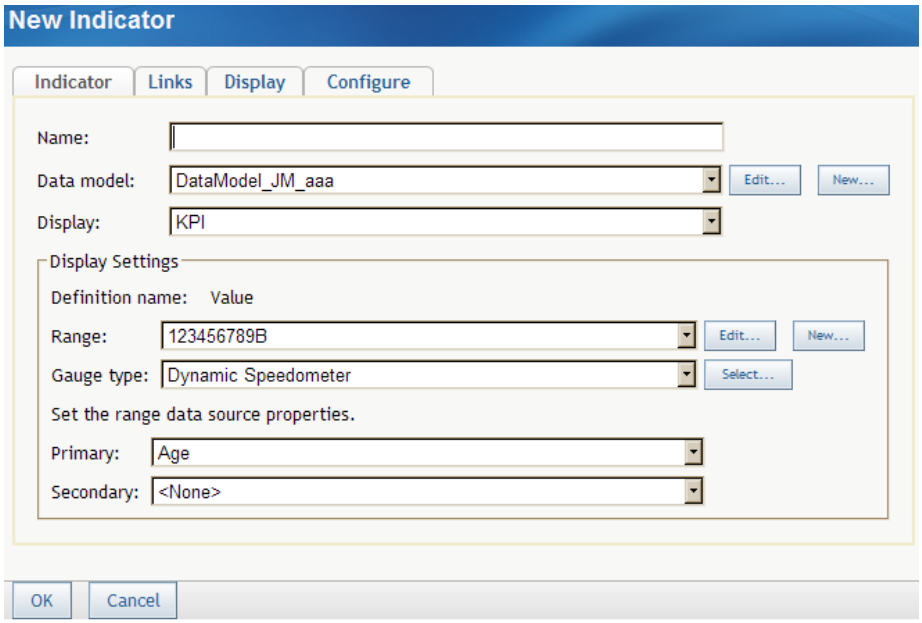
   The Manage Indicators page appears.



2. Do one of the following:

   - To create an indicator, click **New Indicator** on the Manage Indicators page.

     The New Indicator page appears.



- To edit an indicator, click the name of the indicator.

  The Indicator Properties page appears.

There are four remaining steps to create or edit an indicator:

1. Define the indicator.

   For more information, see "Define the Indicator" on page 60.
2. Define the links.

   For more information, see "Define the Links" on page 61.
3. Define the display.

   For more information, see "Define the Display" on page 62.
4. Configure the indicator.

   For more information, see "Configure the Indicator" on page 63.

Define the Indicator

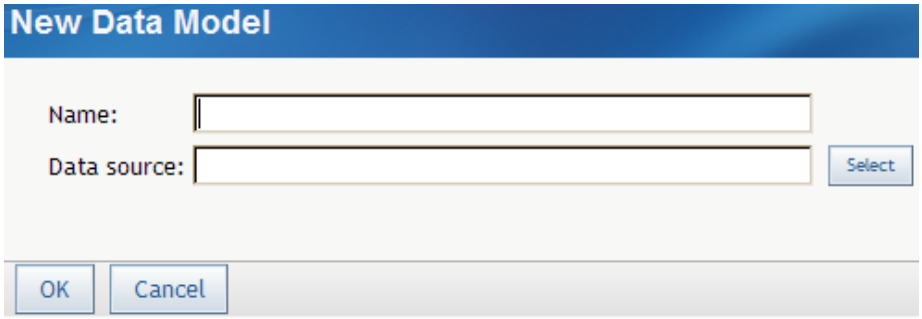
1. To specify the name of the indicator, type the name in the **Name** field.
2. To use an existing data model, select one from the **Data model** drop-down list.
3. To edit the data model, click **Edit**.

   For more information, see one of the following:

   - "Define a SAS Data Set Data Source" on page 47
   - "Define a SAS Information Map Data Source" on page 45
   - "Define a Metadata Table Data Source" on page 48
   - "Define a SAS Strategic Performance Management Data Source" on page 50
4. To create a data model:

   a. Click **New**.

The New Data Model page appears.



b. Define a data source.

For more information, see one of the following:

- "Define a SAS Data Set Data Source" on page 47
- "Define a SAS Information Map Data Source" on page 45
- "Define a Metadata Table Data Source" on page 48
- "Define a SAS Strategic Performance Management Data Source" on page 50

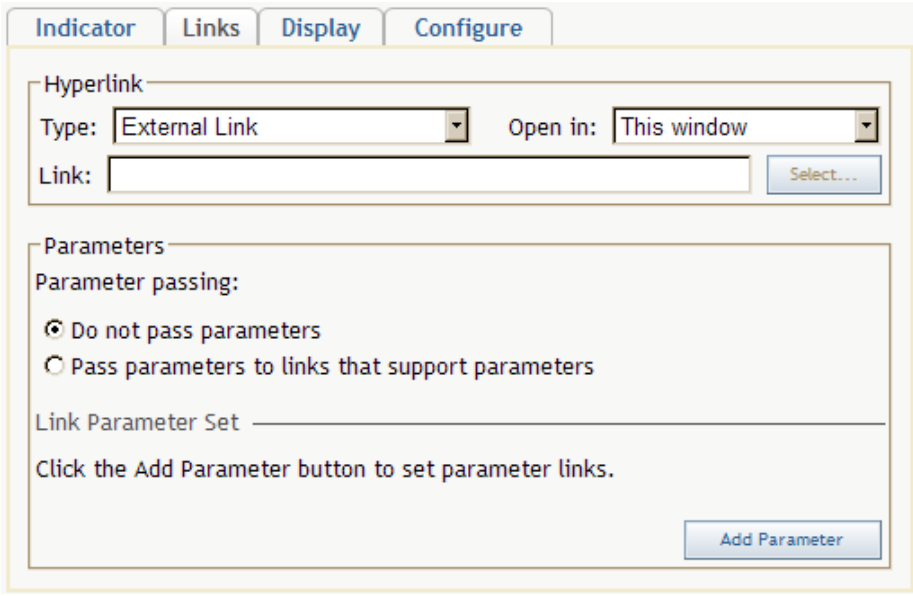
5. Define a display.

For more information, see one of the following:

- "Define a Bar and Trend Display" on page 68
- "Define a Gauged Graph Display" on page 66
- "Define a Graph Display" on page 69
- "Define a KPI Display" on page 64
- "Define a KPI Table Display" on page 72
- "Define a Range Map Display" on page 70
- "Define an Interactive Summary Chart And Detail Chart Display" on page 73
- "Define an Interactive Summary Chart And Detail Plot Display" on page 75

Define the Links

1. Click the **Links** tab.



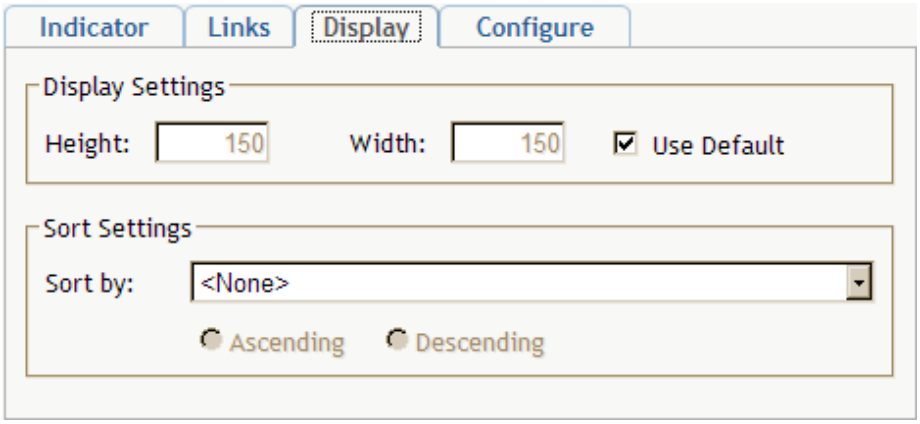
2. From the **Type** drop-down list, select the type of link.
3. From the **Open in** drop-down list, select a window in which to open the link target.
4. If you selected an external link, type the URL of the link in the **Link** field.
5. If you selected a type other than an external link, click **Select** next to the **Link** field and select an item.

   The available choices depend on the type of link.
6. (Optional) To specify the parameters for a URL specified in the **Link** field that supports parameters:
   a. Select **Pass parameters to links that support parameters**.
   b. Click **Add Parameter**.

      The **Name** and **Data point lookup** controls appear.
   c. Type the name of the parameter, and then select the data point lookup associated with the parameter.
   d. Add as many parameters as needed.
   e. To delete a parameter, click ✕ next to the parameter.

Define the Display

1. Click the **Display** tab.

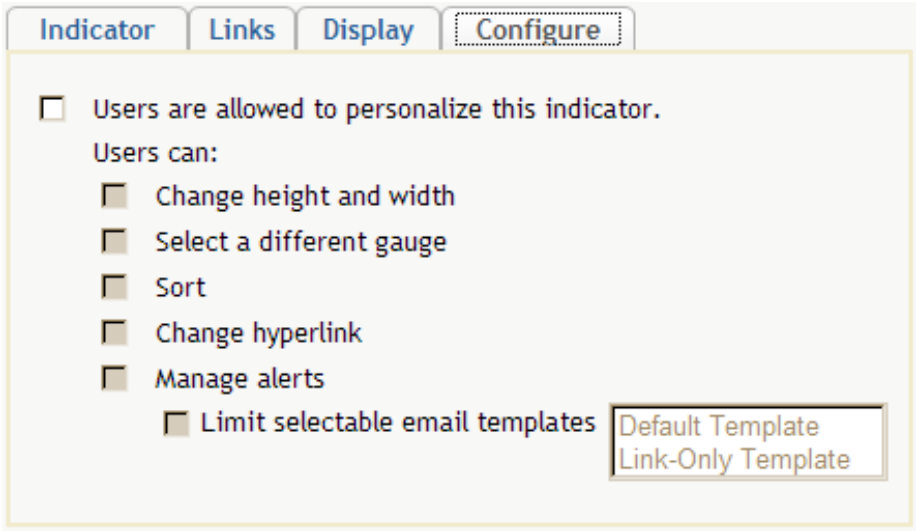


2. To use the default height and width of the indicator, select the **Use Default** check box.
3. To change the height and width of the indicator from the default values, clear the **Use Default** check box, and type the height and width in pixels.

   Note: For an interactive summary chart and detail chart display or an interactive summary chart and detail plot display, the minimum legible dimensions are 380 x 450 pixels.
4. Select the value to sort on and the sort method.

Configure the Indicator

1. Click the **Configure** tab.



2. Choose whether to allow users to personalize the indicator and then which aspects that can be personalized.

See Also

- "Personalize an Indicator" on page 15
- "Manage Indicators" on page 58

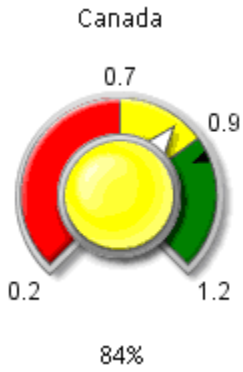
Indicator Displays

KPI Display

Overview

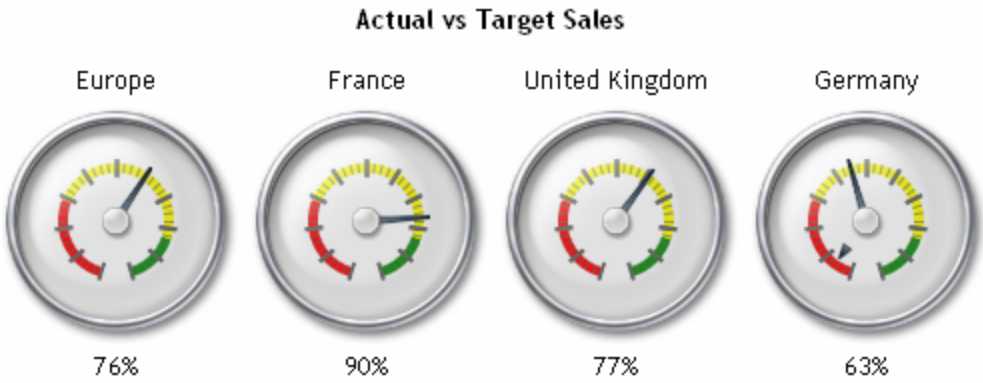
The KPI display shows a single KPI or multiple KPIs. For a single KPI, the display shows the KPI associated with a single data value.

Here is an example of a single KPI display:



For multiple KPIs, the display shows one KPI for each data point that is in scope. For the best results, aggregate related KPIs through a single data model so that a single indicator configuration controls the display of all values.

Here is an example of a multiple KPI display:

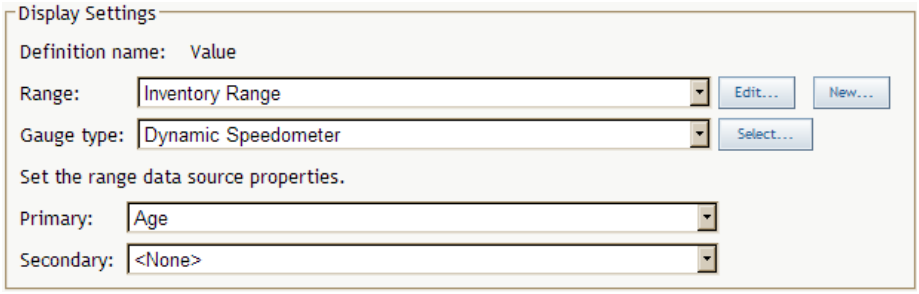


Define a KPI Display

You define a KPI display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **KPI**.

   The controls to define a KPI display appear.



2. To use an existing range, select a range from the **Range** drop-down list.
3. To create or edit a range, click **New** or **Edit**.

   For more information, see "Define the Range" on page 55.
4. From the **Gauge type** drop-down list, select a type of gauge.

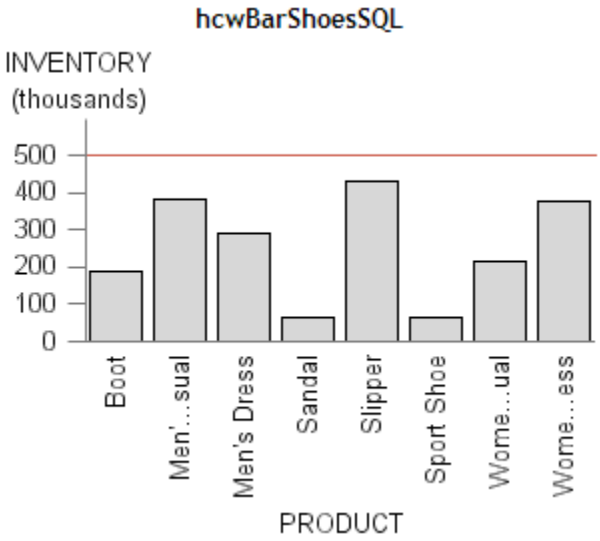
   You can also click **Select** to view the gauges graphically. For more information, see "Select a Gauge for an Indicator" on page 79.
5. Select the primary range data source property.
6. (Optional) Select the secondary range data source property, if the gauge supports it.

Gauged Graph Display

Overview

The gauged graph display applies a range to a standard graph display such as bar graph or line graph. For the best results, the data model should return only one value for each unique value in the **Category label** data column, thereby avoiding aggregation of the data. The category variable is specified by the data column selected for the **Category label** field when the data source was defined.

Here is an example of a gauged graph display:



If the gauged graph display does aggregate data, the gauged graph displays data points at the average interval for each data series. The indexes of the aggregated intervals are averaged to determine the interval to display and the color of the bar.

Here are some guidelines for using the gauged graph display:

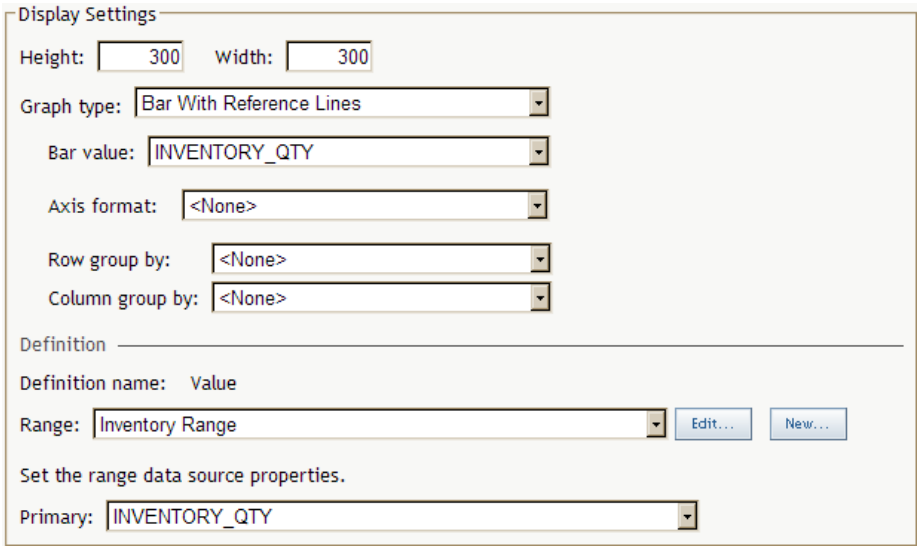
- To display the average interval in a graph, the gauged graph is the easiest method to use.
- The tooltip for each data series indicates that the displayed value is the average interval.
- To prevent aggregation by the gauged graph display, aggregate the data at the data model level.

Define a Gauged Graph Display

You define a gauged graph display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Gauged Graph**.

   The controls to define a gauged graph display appear.



2. Type the height and width of the graph area.
3. From the **Graph type** drop-down list, select a type of graph, and then select values to be represented by the graph.

   The types of values depend on the type of graph.
4. Specify how to display each axis.

   The number of axes depends on the type of graph.
5. Select values for the grouping of the columns and rows.
6. To use an existing range, select a range from the **Range** drop-down list.
7. To create or edit a range, click **New** or **Edit**.

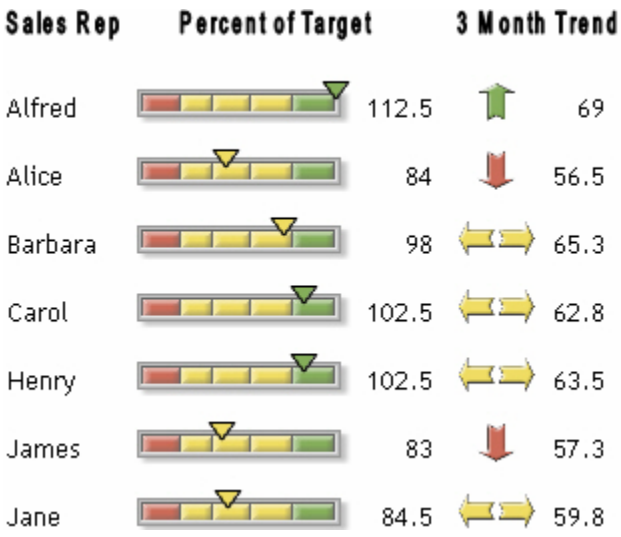
   For more information, see "Define the Range" on page 55.
8. Select the primary range data source property.

Bar and Trend Display

Overview

The bar and trend display shows two sets of gauges and their corresponding values. The first column displays the name of the data field. The second column displays the first gauge (which is based on the primary and secondary values) and its corresponding value. The third column displays the second gauge (which is based on the primary trend) and its corresponding value.

Here is an example of a bar and trend display:



Although you could choose any two data series to represent the value and trend, this display is designed to display a value and a precalculated trend value. To produce the best visual representation possible, follow these guidelines:

- The gauge in the second column is best displayed as a bullet or slider. A bullet or a slider gauge also enables you to specify a secondary value.
- The gauge in the third column is best displayed as a static indicator that does not occupy much space, such as an arrow.
- By default, the range intervals are displayed for a dynamic gauge. If the gauge is too narrow, the text of the range intervals can overlap and become illegible. Clear the option Display range intervals when you select the gauge. For more information, see "Select a Gauge for an Indicator" on page 79.

  Displaying the range interval also displays a common scale above the bar column. For large numbers, this text can also become illegible. Here is an example:

- By default, gray scale ghosting is selected for a dynamic gauge. Gray scale ghosting displays only the color that the primary pointer is pointing to (the active color). Inactive colors appear as shades of gray. To display all colors, clear the option Ghost when you select the gauge.
- By default, the height for both of the gauges is 30 pixels. The width of the bar value is equal to the width of the gauge (the default width is 120 pixels and the height is 30

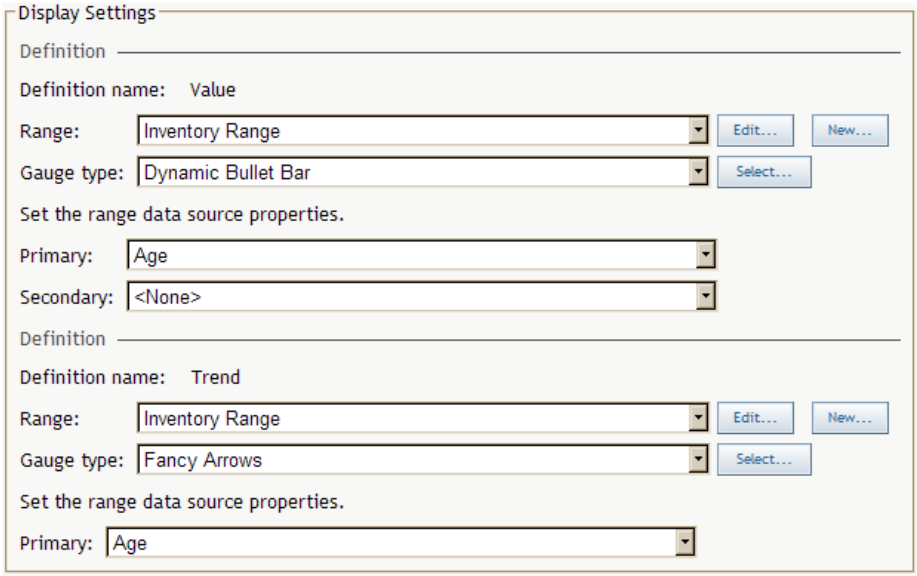
pixels). The trend gauge and value are both set to 40 pixels wide and 30 pixels high, neither of which can be changed.

Define a Bar and Trend Display

You define a bar and trend display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Bar and Trend**.

   The controls to define a bar and trend display appear.



2. Repeat these steps for each definition:

   a. To use an existing range, select a range from the **Range** drop-down list.

   b. To create or edit a range, click **New** or **Edit**.

      For more information, see "Define the Range" on page 55.

   c. From the **Gauge type** drop-down list, select a type of gauge.

   d. Select the primary range data source property.

   e. (Optional) Select the secondary range data source property, if the gauge supports it.

Graph Display

Overview

The graph display presents information from a variety of sources. The visual representation can be presented in a variety of ways such as images and HTML pages. The output of the graph display is specified by an external URL. The visual representation is not derived from the data in the data model.

Stored Processes

You can use a stored process with a graph display to produce a graphical display that is not possible with the SAS BI Dashboard itself. To use a stored process, you must create a stored

process that is appropriate for inclusion in a dashboard and then derive the URL that renders the stored process output.

Use these guidelines to create a stored process:

- The output for the stored process must be set to streaming.
- The output should be small in size, perhaps no more than 300 X 300 pixels.

  Conserving space is a dashboard is important so that dashboard users can get a broad overview of disparate metrics. Although a stored process that renders a graph might look good when it uses most of the window, the graph will displace all other information in the dashboard. If you cannot communicate the data in a small amount of space and users need to see other data in the same dashboard, consider using aggregation or another technique to reduce the amount of data that the stored process renders. Consider modifying the stored process in SAS Enterprise Guide to suppress the title and footnotes, and use the minimal template for output.

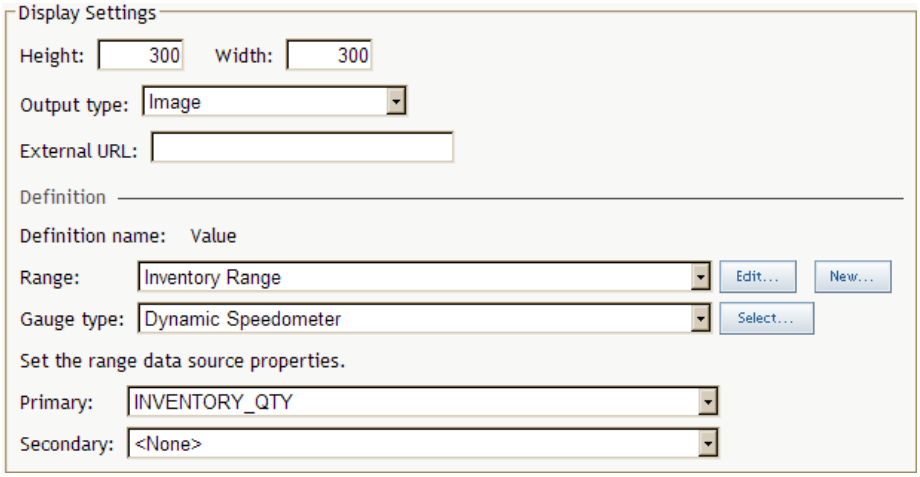
To determine the URL for a stored process, use the SAS Stored Process Web Application.

Define a Graph Display

You define a graph display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Graph**.

   The controls to define a graph display appear.



2. Type the height and width of the graph area.
3. From the **Output type** drop-down list, specify how to represent the indicator.
4. Type the external URL to associate with the indicator.

   This URL can be a Web site (with **HTML** selected for the **Output type**), an image on a Web page (with **Image** selected for the **Output type**), or a stored process (with **HTML** selected for the **Output type**).

   Note: If you are familiar with HTML elements, when the **Output type** is set to **HTML**, the URL can be any value that is valid for the **`src`** attribute of the **`<iframe>`** HTML element. When the **Output type** is set to **Image**, the URL can be any value that is valid for the **`src`** attribute of the **`<img>`** HTML element.

5. Repeat these steps for each definition:

   a. To use an existing range, select a range from the **Range** drop-down list.

b. To create or edit a range, click **New** or **Edit**.

   For more information, see "Define the Range" on page 55.

c. From the **Gauge type** drop-down list, select a type of gauge.

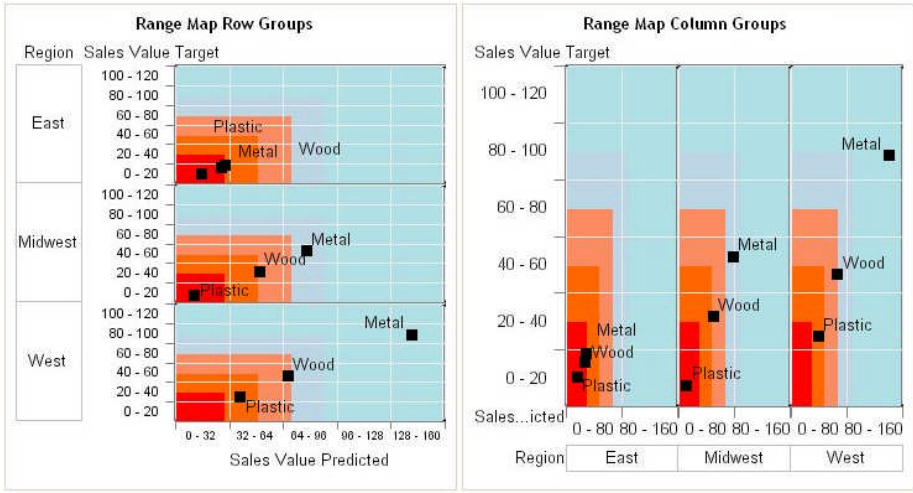
d. Select the primary range data source property.

e. Select the secondary range data source property, if the gauge supports it.

Range Map Display

Overview

The range map display shows graphs with results plotted on color-coded backgrounds that are based on range definitions.



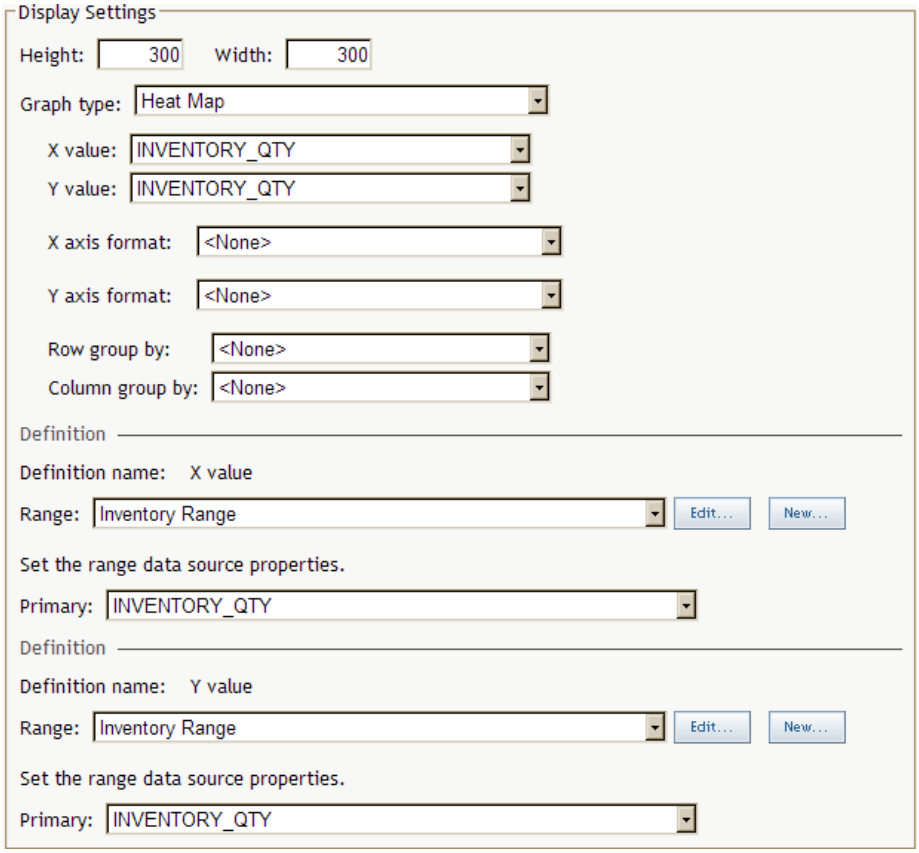
The display on the left is grouped by row. The display on the right is grouped by column.

Define a Range Map Display

You define a range map display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Range Map**.

   The controls to define a range map display appear.



2. Type the height and width of the graph area.
3. From the **Graph type** drop-down list, select a type of graph, and then select values to be represented by the graph.

   The types of values depend on the type of graph.
4. Specify how to display each axis.

   The number of axes depend on the type of graph.
5. Select values for the grouping of the columns and rows.
6. Repeat these steps for each definition:
   a. To use an existing range, select a range from the **Range** drop-down list.
   b. To create or edit a range, click **New** or **Edit**.

      For more information, see "Define the Range" on page 55.
   c. Select the primary range data source property.

KPI Table Display

Overview

The KPI table display shows data points in a table form, with one gauge per table row. The table column headings are the names of the data fields. Here is an example of a KPI table display:

Regional Sales KPIs

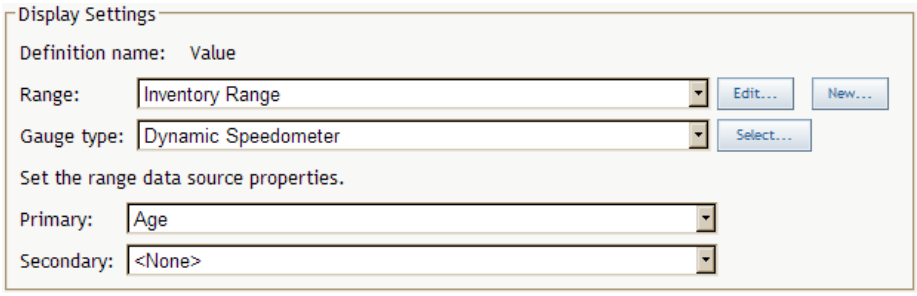
Location	Performance	Actual	Target
Europe	80%	16%	20%
France	90%	18%	20%
United Kingdom	77%	10%	13%
Germany	63%	19%	30%

Define a KPI Table Display

You define a KPI table display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **KPI Table**.

   The controls to define a KPI table display appear.



2. To use an existing range, select a range from the **Range** drop-down list.
3. To create or edit a range, click **New** or **Edit**.

   For more information, see "Define the Range" on page 55.
4. From the **Gauge type** drop-down list, select a type of gauge.

   You can also click **Select** to view the gauges graphically. For more information, see "Select a Gauge for an Indicator" on page 79.
5. Select the primary range data source property.
6. (Optional) Select the secondary range data source property, if the gauge supports it.

Interactive (Adobe Flash-based) Displays

Overview

The interactive displays use Adobe Flash to enable dashboard users to interactively traverse large amounts of detail data by sliding along a summary chart. Detail data can be easily compared using two methods. In the first method, a column by which to group data is selected when the display is defined. In the second method, the user selects different detail slices to compare while viewing the display.

The interactive displays are as follows:

- the interactive summary chart and detail chart display
- the interactive summary chart and detail plot display

Setting up an interactive display is nearly identical to setting up a gauged graph display. However, an interactive display has more options and uses data in a more sophisticated way than the gauged graph display.

For the best results using the interactive displays, the data model must meet these requirements:

- The data model must be suitable for a gauged graph.

  A data model that returns a single row and that is suitable for a KPI display is not suitable for an interactive display.

- The data model must contain one low-cardinality grouping column that is used to summarize the data.

  A low-cardinality grouping column is a column that has a small number of unique values to group by.

- (Optional) To enable an interactive display to express forecasting data to business users, the data model must contain a column for forecasted values, for lower confidence values, and for upper confidence values.

  An interactive bar chart display can summarize either the detail data expressed in the detail charts or can summarize a different field of data.

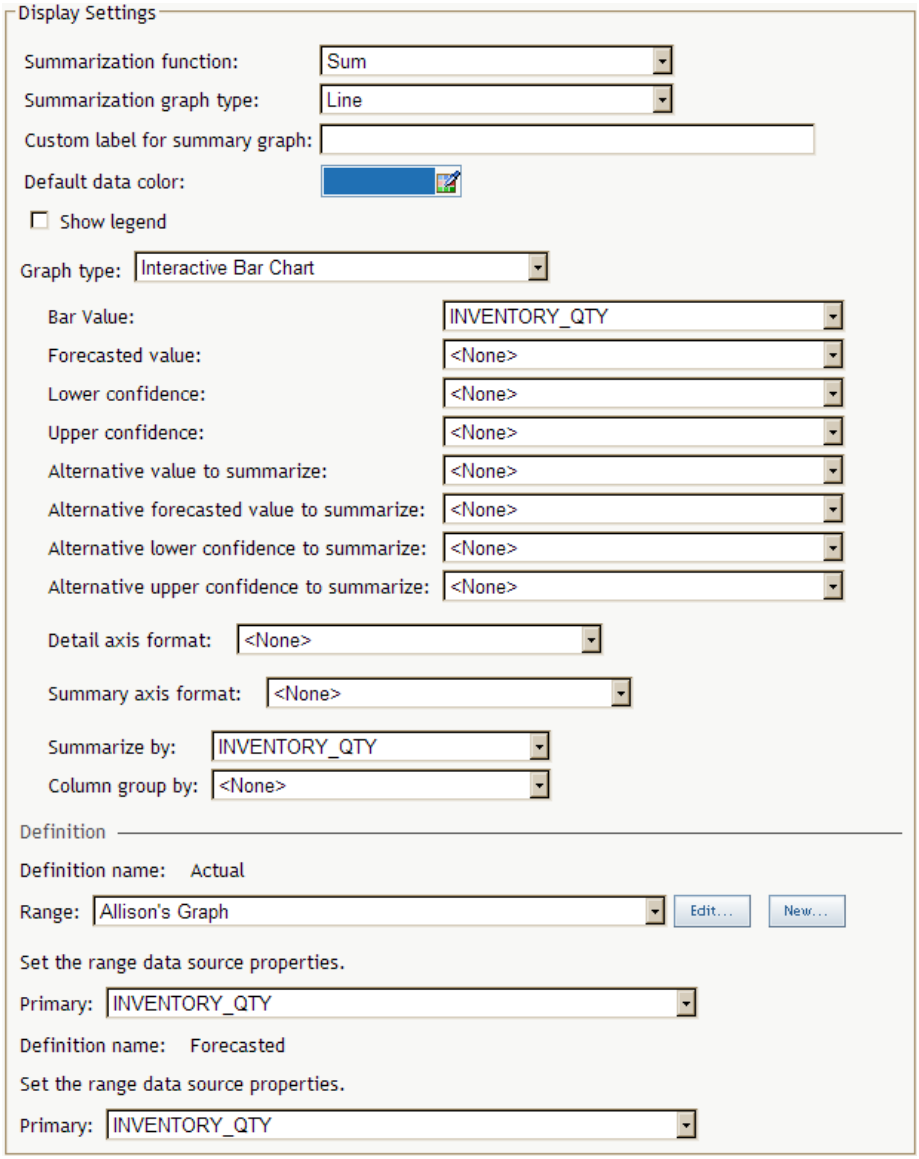
  At the indicator level, the set up of the interactive displays is essentially the same as for other gauged graphs, except that the use of data for the interactive displays is more sophisticated. The only significant difference is that the interactive displays support the concept of dependent ranges. A dependent range takes the value of another range for the range definition. This scheme enables a data set generated by the SAS Forecast Server to be useful to the SAS BI Dashboard and the interactive displays without the need for complicated intermediary data transformations.

Define an Interactive Summary Chart And Detail Chart Display

You define an interactive summary chart and detail chart display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Interactive Summary Chart and Detail Chart**.

   The controls to define an interactive display appear.



2. From the **Summarization function** drop-down list, specify how to summarize the data.
3. From the **Summarization graph type** drop-down list, select a type of graph.
4. From the **Custom label for summary graph** field, type the custom label.
5. Click to select the default color for the data.
6. If you want the graph to display a legend, select the **Show legend** check box.
7. From the **Graph type** drop-down list, select a type of graph.
8. From the **Bar value** drop-down list, select a data column for the bar value.
9. (Optional) Select data columns for the forecasted value, target value (available only when you are creating an interactive targeted bar chart), confidence values, and alternative values to summarize.
10. (Optional) Specify how to display the detail axis and summary axis.
11. (Optional) Select the data columns by which to summarize and group the data.

12. Repeat these steps for each definition:
    a. To use an existing range, select a range from the **Range** drop-down list.
    b. To create or edit a range, click **New** or **Edit**.

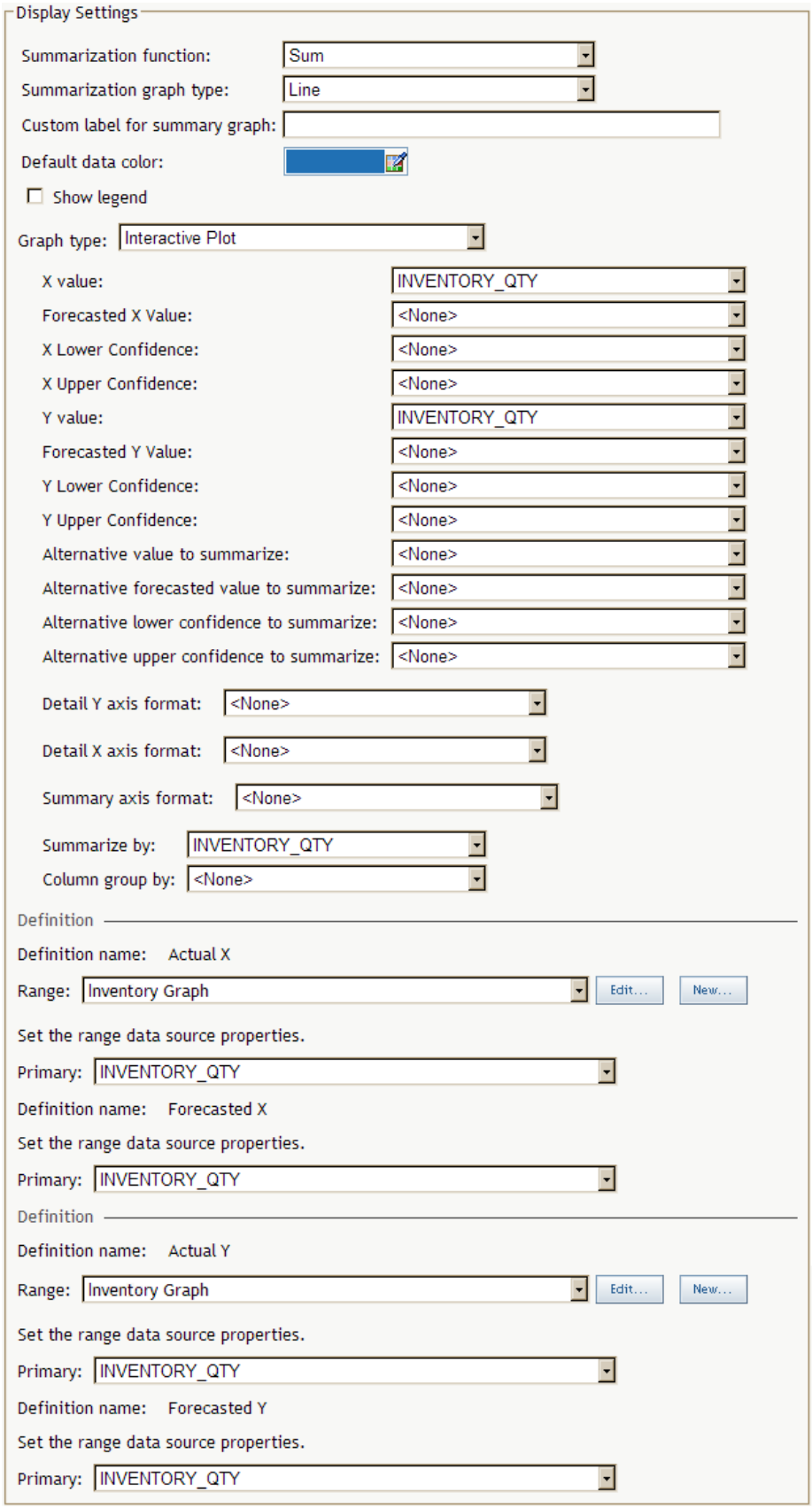
       For more information, see "Define the Range" on page 55.
    c. Select the primary range data source property.

Define an Interactive Summary Chart And Detail Plot Display

You define an interactive summary chart and detail plot display when you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

1. From the **Display** drop-down list on the New Indicator page or the Indicator Properties page, select **Interactive Summary Chart and Detail Plot**.

   The controls to define an interactive summary chart and detail plot display appear.



2. From the **Summarization function** drop-down list, specify how to summarize the data.
3. From the **Summarization graph type** drop-down list, select a type of graph.

4. From the **Custom label for summary graph** field, type the custom label.
5. Click to select the default color for the data.
6. If you want the graph to display a legend, select the **Show legend** check box.
7. From the **Graph type** drop-down list, select a type of graph.
8. From the **X value** drop-down list, select a data column for the X value.
9. (Optional) Select data columns for the forecasted value and confidence values.
10. From the **Y value** drop-down list, select a data column for the Y value.
11. (Optional) Select data columns for the Y forecasted value and Y confidence values.
12. (Optional) Select data columns for the alternative values to summarize.
13. (Optional) Specify how to display the detail axes and summary axis.
14. (Optional) Select the data columns by which to summarize and group the data.
15. Repeat these steps for each definition:
    a. To use an existing range, select a range from the **Range** drop-down list.
    b. To create or edit a range, click **New** or **Edit**.

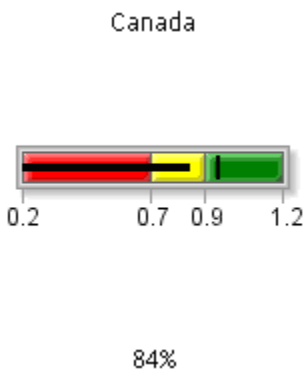
       For more information, see "Define the Range" on page 55.
    c. Select the primary range data source property.

Dynamic Gauges

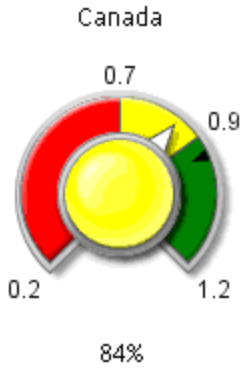
In addition to the static gauges that are displayed in the software, you can choose a gauge that is dynamic. A dynamic gauge is drawn by the software based on the type of gauge and the data values in the gauge.

Here are examples of the dynamic gauges:

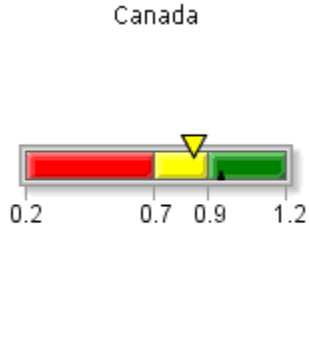
- Dynamic bullet bar



- Dynamic dial meter

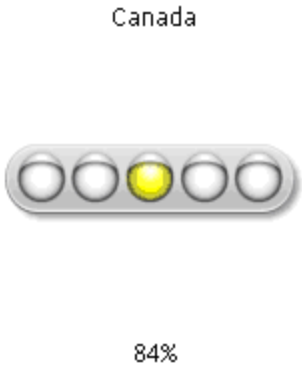


- Dynamic slider



- Dynamic speedometer

- Dynamic stoplight



Select a Gauge for an Indicator

You select a gauge for an indicator when you create or edit an indicator, or personalize an indicator. For more information, see "Create or Edit an Indicator" on page 59 or "Personalize an Indicator" on page 15.

To select a gauge for an indicator:

1. On the Select Gauge page, select a category.
2. If you selected **Dynamic Gauges**, follow these steps:
   a. From the **Type** drop-down list, select a type of dynamic gauge.
   b. To create a three-dimensional effect, select **Enhanced (3D)**.
   c. To display range intervals (tick marks) on the gauge, select **Display range intervals**, and then select the format from the **Format range intervals** drop-down list.
   d. To specify the dimensions of the gauge, type values for the height and width.
   e. Specify how to orient the gauge: **Flip horizontal** (around the vertical axis) or **Flip vertical** (around the horizontal axis).
   f. To change the colors in the image to create a ghost effect, select **Ghost** and a method.

      These are the methods:

      Grayscale
      The selected interval is a darker gray than the other intervals.

      Inactive color

      The areas that are not pointed to are a specific color. To select the color, click

      Auto ghost
      The software determines how to best create the ghost colors for the intervals.

      To limit how far away from gray or a neutral color of equal intensity the image varies, type a value in the **Decrease saturation by (%)** field.

      To brighten the image, type a value in the **Brighten by (%)** field.
3. If you selected something other than **Dynamic Gauges**, click the name of the image that you want to use for the gauge from the **Gauge** table.

Indicator Alerts

Create or Edit an Indicator Alert

You create or edit an indicator alert after you create or edit an indicator. For more information, see "Create or Edit an Indicator" on page 59.

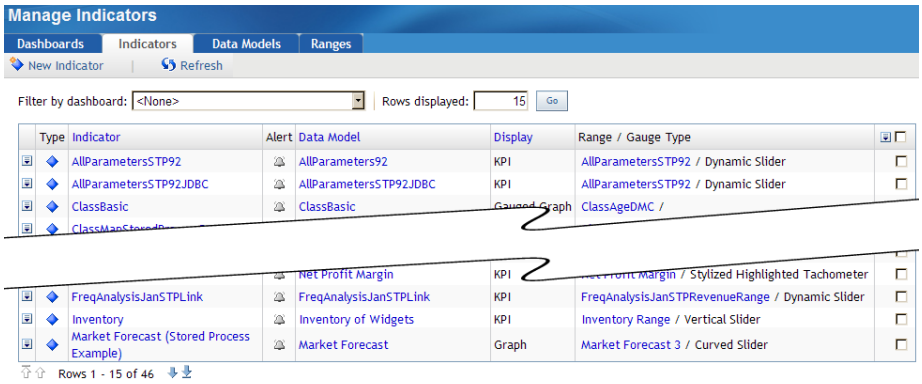
Note: E-mail alerts for the two interactive display types usually do not properly show the image of the display in e-mail clients.

To create an indicator alert:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

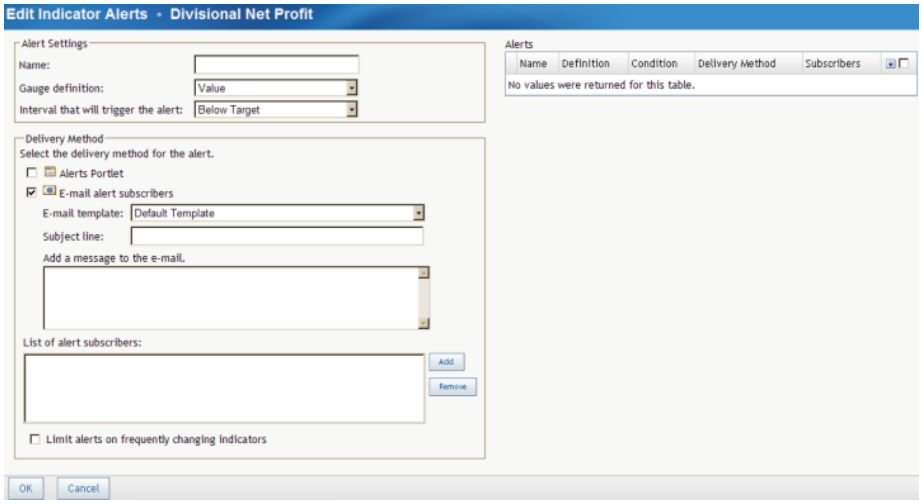
   The Manage Indicators page appears.



2. Click next to the name of an indicator.

   If the icon is gray, there are no alerts for the indicator. If the icon is yellow, there are alerts for the indicator.

   The Edit Indicator Alerts page appears.



3. Type the name of the alert.
4. From the **Gauge definition** and **Interval that will trigger the alert** drop-down lists, select the gauge definition and the interval to trigger the alert.
5. Select the delivery method for the alert: **Alerts Portlet** or **E-mail alert subscribers**.
6. (Optional) If you selected **E-mail alert subscribers**:
   a. From the **E-mail template** drop-down list, select the e-mail template to use to format the e-mail.
   b. Type the subject line and additional message to include in the e-mail.
   c. Click **Add** next to the list of alert subscribers, and then select users and user groups.

      For more information, see "Add Users and User Groups" on page 81.

   d. To remove a subscriber, select one from the list, and click **Remove**.

7. To limit the number of alerts, select the **Limit alerts on frequently changing indicators** check box, type a value, and then select a time interval.

To edit an indicator alert:

1. From the **Alerts** table, click the action menu next to an alert and select **Edit**.

   The properties of the alert appear on the left side of the window.

2. Edit the properties.

Add Users and User Groups

To add users and user groups:

1. Type the text to search for in the **Search** field.

   Partial text is valid. Wildcards are not supported.

2. Select the category (or both categories) to search.

3. Click **Search**.

   A table appears with all entries that match the search criteria.

4. From the table, select the check box next to each entry that you want to add.

   You can select the check box in the column heading to select all entries.

Chapter 9
Dashboards

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Manage Dashboards

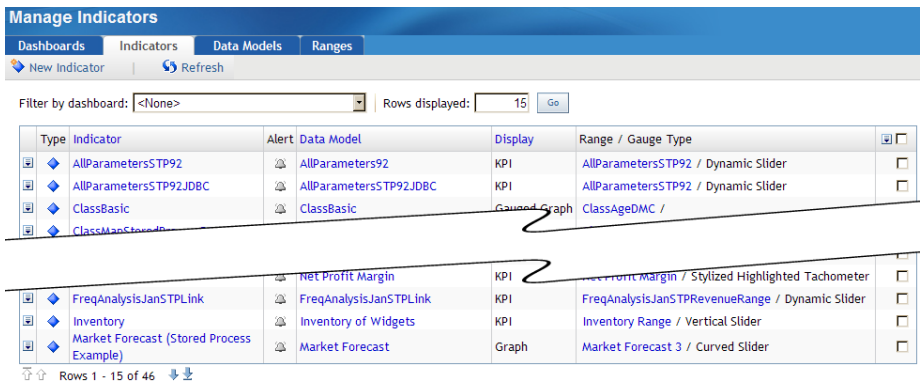
A dashboard is a container that has a collection of one or more indicators. A dashboard is displayed in a portlet, which is displayed on a page within the SAS Information Delivery Portal.

To manage the dashboards:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

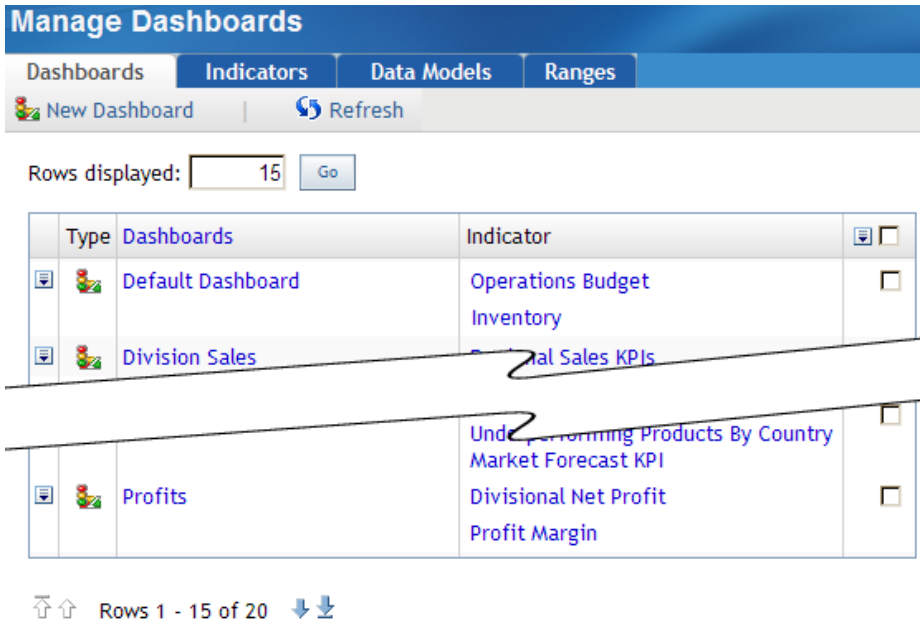
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. Click the **Dashboards** tab.

   The Manage Dashboards page appears.



3. To specify the number of rows to display on the page, type a number in the **Rows displayed** field, and click **Go**.

   The number of rows displayed on this page is stored during the session. The number reverts to the default the next time you start the SAS BI Dashboard.

4. (Optional) Create or edit a dashboard.

   For information, see "Create or Edit a Dashboard" on page 84.

5. Scroll through the list.

   For information, see "Scroll Through a List" on page 9.

6. To change the sort order, click **Dashboards** in the column heading.

7. (Optional) Delete one or more dashboards from the list.

   For information, see "Delete One or More Items in a List" on page 9.

8. To refresh the list, click **Refresh**.

Create or Edit a Dashboard

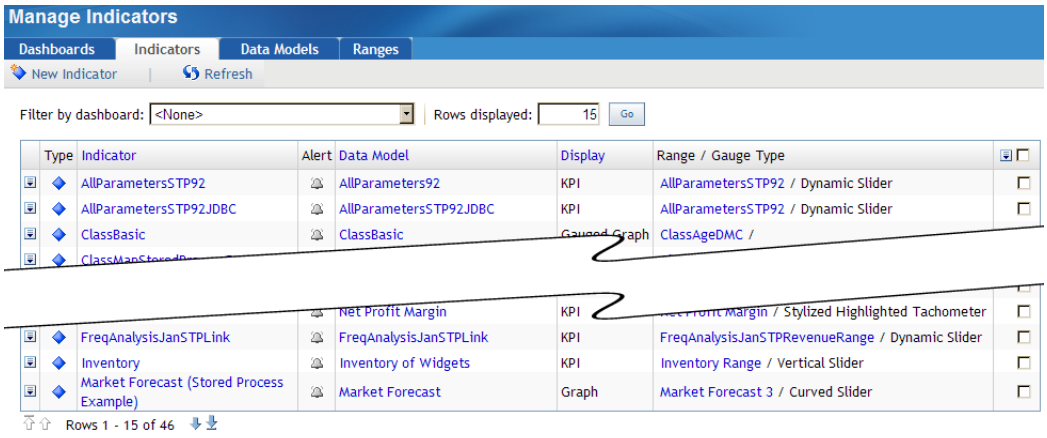
When you edit a dashboard you change it for all users.

To create or edit a dashboard:

1. In a collection portlet, click the item that starts the SAS BI Dashboard.

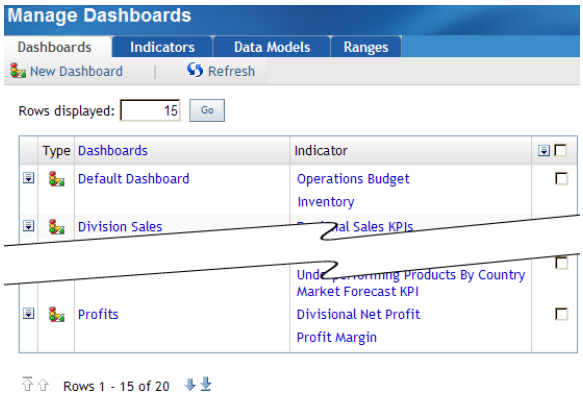
   For more information, see "Starting the SAS BI Dashboard from the SAS Information Delivery Portal" on page 21.

   The Manage Indicators page appears.



2. Click the **Dashboards** tab.

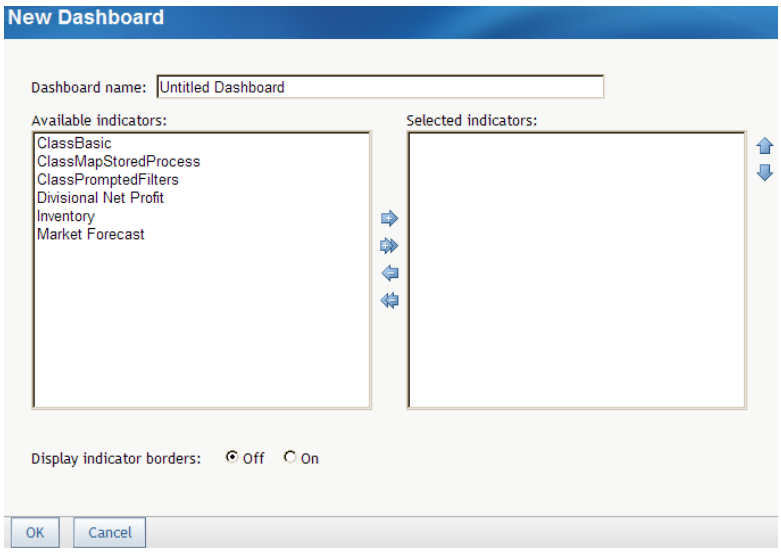
   The Manage Dashboards page appears.



3. Do one of the following:

   - To create a dashboard, click **New Dashboard**.

     The New Dashboard page appears.



   - To edit a dashboard, click the name of the dashboard.

     The Dashboard Properties page appears.

4. To specify the name of the dashboard, type the name in the **Dashboard name** field.
5. Move indicators between the **Available indicators** list and the **Selected indicators** list by selecting one or more indicators and clicking the arrows between the lists.
6. To change the order of the indicators in the SAS BI Dashboard portlet, select one or more indicators in the **Selected indicators** list, and click the up and down arrows that are next to the list.
7. To specify whether borders appear around the indicators, select **Off** or **On** next to **Display indicator borders**.

See Also

- "Personalize a Dashboard" on page 13
- "Manage Dashboards" on page 83

Controlling the Appearance of a Dashboard

When the SAS BI Dashboard draws the indicators within a dashboard, the indicators are wrapped into rows based on the width specified for the individual indicators. For example, if a dashboard has ten indicators with a width of 180 pixels each, the total required width for the dashboard portlet is 1800 pixels. If the dashboard portlet is only 1000 pixels wide, then two rows of indicators appear. If the first indicator is 900 pixels wide, then three rows of indicators appear.

The dashboard portlet width is specified when you personalize a dashboard. For more information, see "Personalize a Dashboard" on page 13.

The indicator width is specified when you define the display for an indicator. For more information, see "Define the Display" on page 62.

There are two more sizing factors that affect the display of a dashboard. All of these factors interact in different ways to determine how a dashboard is laid out. All of the factors are described in this table:

Factor	Where to Specify the Values	Purpose	Is It Ignored?
Dashboard portlet dimensions	The dimensions are specified when you personalize a dashboard. For more information, see "Personalize a Dashboard" on page 13.	This factor specifies the dimensions of the dashboard portlet.	Never ignored. If the content is larger than the portlet's dimensions, scroll bars appear.

Factor	Where to Specify the Values	Purpose	Is It Ignored?
Indicator dimensions	The dimensions are specified when you define the display for an indicator. For more information, see "Define the Display" on page 62.	This factor specifies the preferred dimensions of the indicator.	The width is ignored when a graph display type specifies the Output type as Image or a gauge width is larger. For example, if a KPI display contains more than one gauge, the gauges are wrapped into rows according to the width of the indicator. The height is ignored.
Graph display, gauged graph display, and range map display dimensions	The dimensions are specified when you define the indicator display. For more information, see "Define a Gauged Graph Display" on page 66, "Define a Graph Display" on page 69, and "Define a Range Map Display" on page 70.	This factor specifies the dimensions of a graph inside of an indicator.	Never ignored. If a graph display type specifies the Output type as HTML and there is more content than the dimensions allow, scrollbars appear.
Dynamic gauge dimensions	The dimensions are specified when you select a gauge for an indicator. For more information, see "Select a Gauge for an Indicator" on page 79.	This factor specifies the dimensions of a dynamic gauge. A dynamic gauge grows to fill the space as long as the gauge image scaling remains 1:1. The gauge is always centered in the available space. For example, a dynamic gauge that is 100x200 does not grow, and white space is added around the gauge until the dimensions are at least 200x400.	Never ignored.

Based on these factors and how they control the appearance of a dashboard, here are some guidelines that are important to good dashboard layout:

- With a dynamic gauge, you can use disproportionate dimensions to create extra white space around a gauge.
- A single KPI display that contains multiple gauges will manage the horizontal alignment correctly. But if there are several different indicators, each with just one dynamic gauge, then you might need to manipulate the heights of the various dynamic gauges to correctly align the indicators.

This problem often occurs when the title of one indicator has two lines of text and the adjacent indicators have only one line of text. The extra line of text causes the indicator to be positioned farther down the page than the rest of the indicators in the row. By setting the height for that one indicator to less than the heights of the others, you can get the whole dashboard properly aligned.

- An indicator width that is less than the dynamic gauge width or graph width causes scroll bars to appear in the dashboard portlet. If you want everything to wrap nicely, ensure that the indicator width is larger than the dynamic gauge width or the graph width.
- Use the width of an indicator to create extra white space to the left and the right of a graph.

  For example, a graph 400 pixels wide within an indicator 500 pixels wide provides 50 pixels to the left and right of the graph.
- To vertically align several graphs, specify the same width for all of the indicators in the column.

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