SAS® Visual Analytics 7.5: Designing Reports

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About Reports in SAS Visual Analytics

Using SAS Visual Analytics, you can drag and drop table, graph, control, analytic, container, and content objects to create a well-designed *report* (or dashboard). You can add text, images, and page controls to reports. A report can have one or more pages. Each page can have a different layout and contain different objects. For more information about specific objects, see "About Objects" in *SAS Visual Analytics: Working with Report Content*.

Whether you work with text, tables, or linear regressions, all objects are added to a page in a report. Modeling objects are available if SAS Visual Statistics add-on is licensed at your site. For more information about models, see "Modeling Information" in *SAS Visual Analytics: Working with SAS Visual Statistics*.

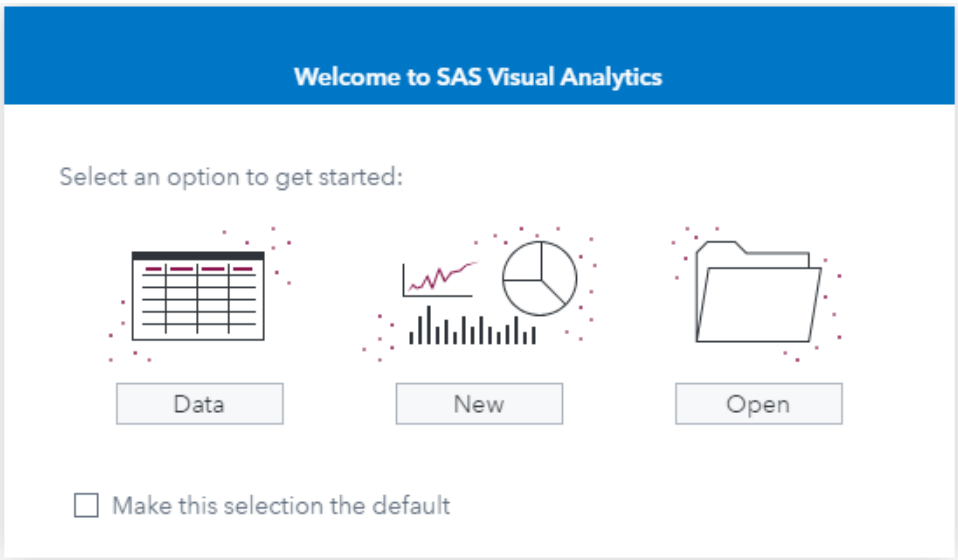
When you design a report, keep in mind that it might look slightly different on a mobile device or in the SAS Visual Analytics Viewer (the report viewer). For example, the layout of the tiles in the treemap is dependent on the size of the display area. This means that the same treemap might appear slightly different in SAS Visual Analytics than it does in the report viewer or on a mobile device. For information about using the report viewer, see *SAS Visual Analytics: Viewer Documentation*. For information about the mobile app, see documentation and videos on the SAS support site.

Understanding the SAS Visual Analytics Interface

About the Welcome Window

After you log on to SAS Visual Analytics, the Welcome to SAS Visual Analytics window is displayed. You can choose to start working with data, a new report, or an existing report.

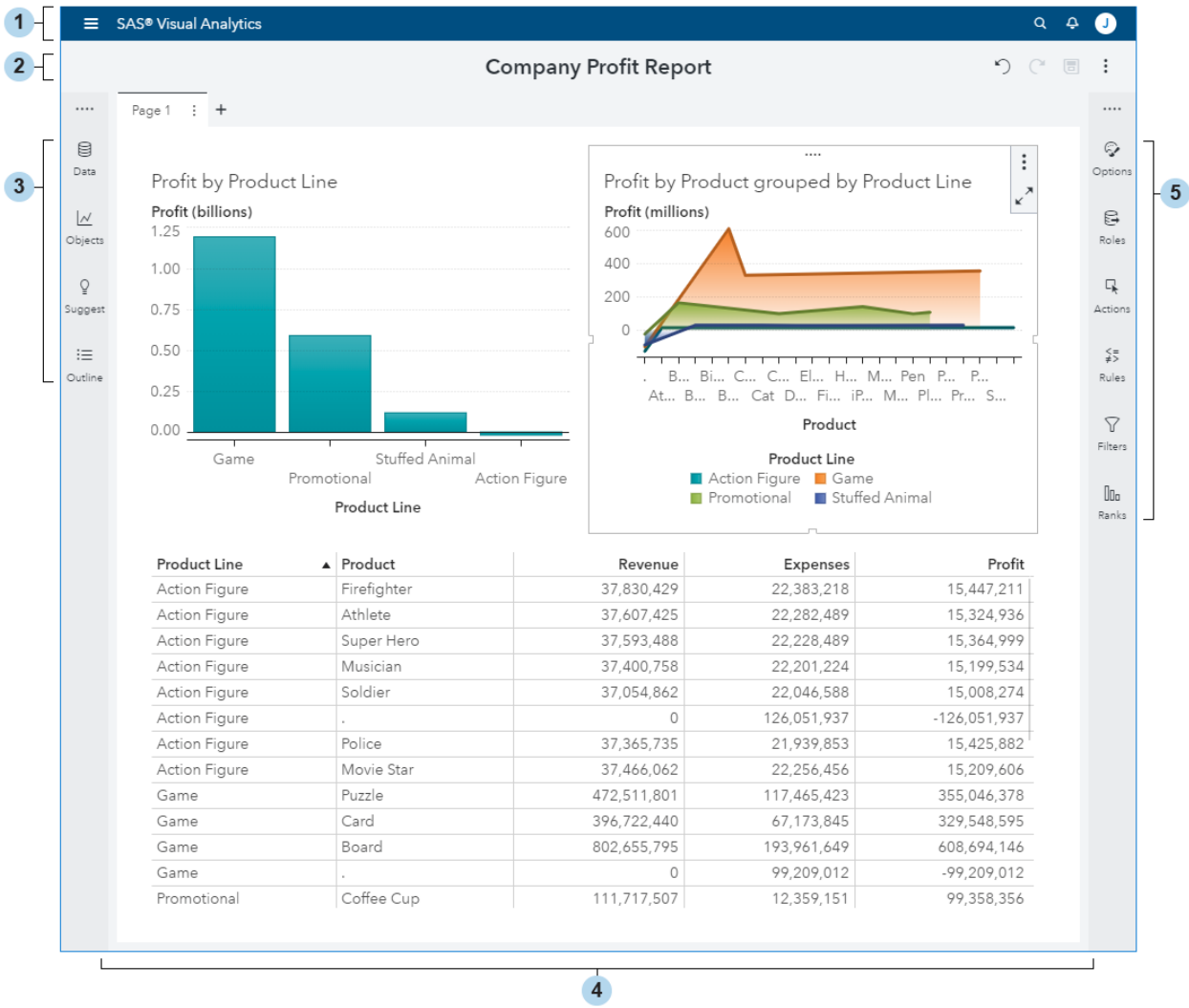
Some users prefer to start working with data, and others want to start with designing the report. If your site already has lots of reports, you might want to start with an existing report. The Welcome to SAS Visual Analytics window gives you the flexibility to work the way that is best for you.



Your First Look at the Interface

There is one interface in which you design reports, explore data, and run interactive, predictive models in SAS Visual Analytics. Note that the models require a separate license for SAS Visual Statistics, which is an add-on to SAS Visual Analytics.

Here are the features of the interface:



Product Line	Product	Revenue	Expenses	Profit
Action Figure	Firefighter	37,830,429	22,383,218	15,447,211
Action Figure	Athlete	37,607,425	22,282,489	15,324,936
Action Figure	Super Hero	37,593,488	22,228,489	15,364,999
Action Figure	Musician	37,400,758	22,201,224	15,199,534
Action Figure	Soldier	37,054,862	22,046,588	15,008,274
Action Figure	.	0	126,051,937	-126,051,937
Action Figure	Police	37,365,735	21,939,853	15,425,882
Action Figure	Movie Star	37,466,062	22,256,456	15,209,606
Game	Puzzle	472,511,801	117,465,423	355,046,378
Game	Card	396,722,440	67,173,845	329,548,595
Game	Board	802,655,795	193,961,649	608,694,146
Game	.	0	99,209,012	-99,209,012
Promotional	Coffee Cup	111,717,507	12,359,151	99,358,356

1 The application bar at the top enables you to access other SAS applications. You can search for items, access help, update your settings, and sign out of SAS Visual Analytics. For more information about application-specific settings, see "Modify SAS Visual Analytics Settings" on page 34. For more information about search and global settings, see *SAS 9.4 Web Applications: General Usage Help*.

2 The menu bar displays the report name; enables you to undo, redo, and save; and access other menu options.

3 The left pane enables you to work with data, add objects, view and add suggested objects, and use the report outline to organize your content.

4 The canvas is the workspace for building a report. The appearance of the canvas is affected by the report theme. A report can have multiple pages.

5 The right pane enables you to work with details about the report, its pages, and its objects.

About the Canvas

The canvas is the workspace for building a report. It enables you to work with pages and objects in your report.

Above the canvas, there are tabs for pages. For more information, see “Adding Pages” on page 14.

The following icons are available to help you manage report content on the canvas:

Icon	Description
↺	undo changes to your report.
↻	redo changes to your report.
💾	saves your report.
⋮	create a new report, open an existing report, save, view a report in SAS Visual Analytics Viewer (the report viewer), print, distribute, share, localize, and reopen a report. This menu lets you enable or disable auto-refresh, object overlays, and layout guides. This menu also enables you to expand or collapse report controls and page controls, view the Actions Diagram, and open the Keyboard Shortcuts window.

About the Side Panes

In general, data-related tasks are initiated from the left pane and presentation-related tasks are initiated from the right pane.

The side panes can be pinned or unpinned. When unpinned, the pane opens automatically when you select it and it closes when you finish using it. When pinned, the pane can be collapsed and expanded, but remains displayed while you use it. By default, the left pane is unpinned, and the right pane is pinned.

Here are some key points about the side panes:

- You can move side panes to a different location on the canvas by clicking and dragging the ···· indicator to move the pane. (This indicator is visible when the pane is unpinned or pinned and collapsed.)
- Click 📌 to keep a pane displayed while you work on your report. A box around the pin indicates that the pane is pinned.
- You can use the **Restore pane location** setting to return the side panes to their default locations. For more information, see “Modify SAS Visual Analytics Settings” on page 34.

The following table lists the panes for data-related tasks:

Name	Icon	Description
Data	🛢	enables you to select a data source (or data sources) and the data items for your report. You can add, import, remove, change, or refresh a data source using the icon beside the data source name field. This icon enables you to apply data source filters, set a unique row identifier, and view measure details. In addition to using the data items in the data source that you selected, you can use the **New data item** menu to

Name	Icon	Description
		create new data items. For example, you can define a hierarchy, create a custom category, define a calculated item, add a geography item, or add a parameter. If SAS Visual Statistics is licensed at your site, then additional data items are available. For example, you can define interaction effects. For more information, see "About the Data Pane" in *SAS Visual Analytics: Working with Report Data*.
Objects		provides a list of the tables, graphs, controls, containers, and other objects that can be used in a report or dashboard. The modeling objects, which are at the bottom of the **Objects** pane, are available if you have licensed SAS Visual Statistics. For more information about objects, see the following: ■ "Gallery of Objects" in *SAS Visual Analytics: Reference* ■ "About Objects" in *SAS Visual Analytics: Working with Report Content* ■ "Modeling Information" in *SAS Visual Analytics: Working with SAS Visual Statistics*
Suggestions		provides you with suggested objects based on the data that you have selected. For more information, see "About the Suggestions Pane" on page 7.
Outline		enables you to work with pages and objects in your report in an outline format. For more information, see "Use the Outline Pane" on page 9.

The following table lists the panes for presentation-related tasks:

Name	Icon	Description
Options		lists the options for the currently selected report, page, or object. This pane enables you to specify styles for a selected object. The options available depend on the selected object. When the report options are displayed, the report theme can be modified. For more information, see "About SAS Report Themes" on page 12. Here are some key points about the **Options** pane: ■ If an object is not selected on the canvas, then the options are for the page or report. ■ When a page is selected, its name is listed, as well as other page options, such as style and layout. ■ When an object is selected, its name, title, and description are listed. Information that is specific to the object type, such as the axes and legend, is listed. For more information, see "Using the Options Pane" in *SAS Visual Analytics: Working with Report Content*.

Name	Icon	Description
Roles		enables you to add or update data role assignments in a selected object that uses a data source. For more information, see "Working with Data Role Assignments" in *SAS Visual Analytics: Working with Report Data*.
Actions		enables you to create links, which can be filters or linked selections. You can define object, page, report, and URL links. You can access the Actions Diagram by clicking **View Diagram** in the **Actions** pane. For more information, see "Working with Report Actions and Links" in *SAS Visual Analytics: Working with Report Data*.
Display Rules		enables you to create rules to highlight results based on specified values. There are report-level display rules and object-level display rules. You can create alert notifications for a display rule. For more information, see "Working with Display Rules" in *SAS Visual Analytics: Working with Report Data*.
Filters		enables you to add one or more filters to the selected object. For more information, see "Working with Report Filters" in *SAS Visual Analytics: Working with Report Data*.
Ranks		enables you to add rankings to objects. For example, you might want to see the top 10 products that sold last year. For more information, see "Ranking Values in Reports" in *SAS Visual Analytics: Working with Report Data*.

About the Suggestions Pane

The **Suggestions** pane provides you with suggested objects after you have selected a data source. This feature generates objects to help you consider new options for your data. It might help you consider aspects of your data that you might not have thought of before.

You can drag suggested objects and drop them onto the canvas like data items. When you drop a suggested object onto the canvas, it is removed from the list in the **Suggestions** pane, and the data items that were used will not be used again by new suggested objects. When possible, a new suggested object of the same type is added to the **Suggestions** pane. If you use the last suggested object with the lowest cardinality suggestion, another suggested object will not be generated.

Suggested objects are generated in the following ways:

Correlated measures
: A correlation query runs against the current data source. The suggested object that is generated has the lowest cardinality data item and the two most correlated measures. The generated objects are:

- Butterfly chart
- Dual axis bar chart
- Dual axis bar-line chart

Lowest cardinality
: The lowest cardinality data item in the current data source is used to create a suggested object using frequency. The lowest cardinality data item is a category data item with a cardinality of at least six. The generated objects are:

- Bar chart
- Dot plot
- Line chart or needle plot
- Pie chart
- Treemap
- Word cloud

Custom data item
: Custom data items are detected in this order: hierarchies, custom groups, and then calculated items. Suggested objects are generated for each custom data item. For example, when the selected data source has two hierarchies, then suggested objects for each hierarchy are generated. The generated objects are the same as the ones listed for lowest cardinality.

For a random generated object, a category and a measure are selected from the current data source. The generated objects are the same as the ones listed for lowest cardinality.

If there is a date or time data item in the current data source, the suggested object, usually a time series plot, is generated using a random measure.

A histogram or a key value object is generated with a single measure column.

Here are some key points about the **Suggestions** pane:

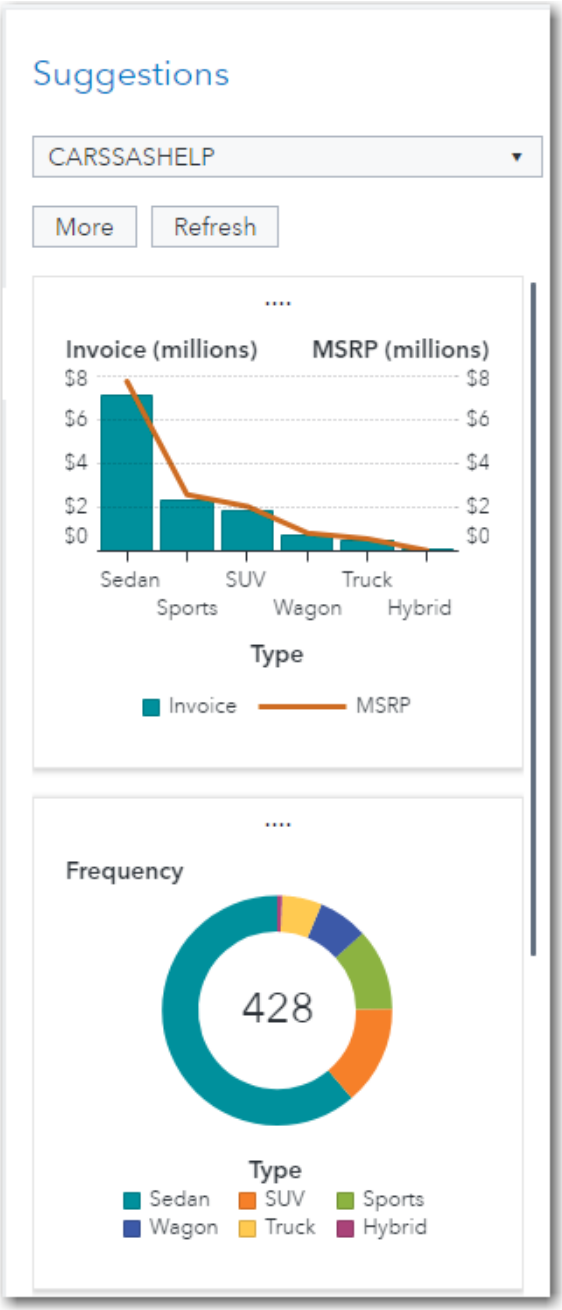
- Clicking **More** generates more suggested objects and appends them to the current list.
- Clicking **Refresh** generates new suggested objects. The current list is replaced by a new list.
- The following data items are not included in the list of suggestions: derived data items, partitions, identifiers, and aggregated measure data items.
- The **Suggestions** pane is not available if the **Bypass retrieving cardinality values for the Data pane** or **Bypass retrieving correlation values for the Data pane** settings are selected. For more information, see "Modify SAS Visual Analytics Settings" on page 34.

To add a suggested object to the canvas:

1. If the **Suggestions** pane is not already displayed, click .
2. Right-click the suggested object, and select either **Add to current page** or **Add to new page**. If there is a container in the report, then you can select **Add to container**. Alternatively, you can drag and drop the suggested object onto an existing page or a new page.

   Once the suggested object is on the canvas, it behaves like any other object.

Here is an example of the **Suggestions** pane:



Use the Outline Pane

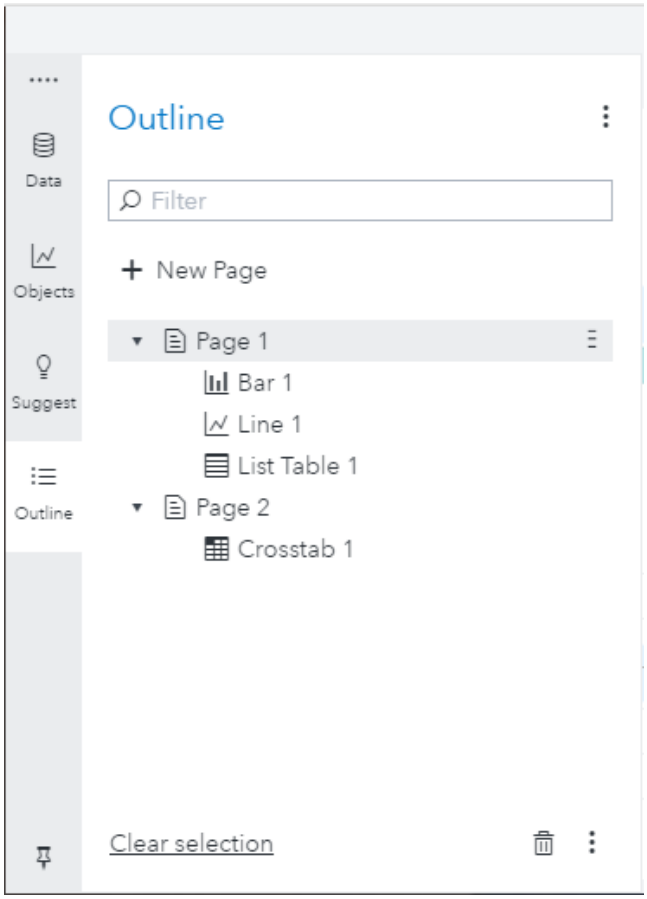
The **Outline** pane enables you to work with pages and objects in your report. You can add, rename, and hide or unhide a page. You can move objects from one page to another. When you right-click an object in the **Outline** pane, you can add a title; maximize, delete, duplicate, and move the object; or add a link. You can save an image, export data, change object types, and print and share an object.

Here are some key points about the **Outline** pane:

- The ⋮ enables you to click and drag the selected page or object to a new location in the report.
- You can double-click a page name or object name in the **Outline** pane to rename it.

- You cannot access report prompts or page prompts using the **Outline** pane.

Here is an example of the **Outline** pane:



About the Report Layout

The default report layout enables you to place objects directly next to other objects. The objects cannot overlap. All objects on the page are sized to fit on the user's screen. If you adjust the size of an object, then the other objects automatically resize to ensure that all objects continue to fill the entire screen.

If you use container objects in your report, they have additional layout options. By default, when you resize an object, the borders automatically move based on a grid. The grid is 4 x 8 for standard layout and 10 x 10 for precision layout. While resizing an object, pressing and holding the Ctrl key increases the resolution of the grid. To disable the grid (layout guide), select **Disable layout guides** from the main menu. For more information, see "Working with Containers" in *SAS Visual Analytics: Working with Report Content*.

TIP The following SAS Global Forum paper is a useful resource for learning about report layouts: Tips and Techniques for Designing the Perfect Layout with SAS® Visual Analytics.

This paper pertains to the 8.2 release, but the concepts are applicable to later releases.

About SAS Application Themes

An *application theme* defines the overall look and feel of a SAS application. It is the collection of colors, graphics, and fonts that appear in the application. You can use an application theme to customize SAS Visual Analytics so that it conforms to the rest of your company's software environment.

You can specify the application theme in the global settings. In the application bar, click the user name button, and then click **Settings**. Expand the **Global** item in the side menu, and then select **Use the default theme (Illuminate)**. Alternatively, you can select **Choose a theme**, and then select another application theme from the drop-down list. For more information about global settings, see *SAS 9.4 Web Applications: General Usage Help*.

SAS provides the following application themes:

High Contrast
Presents a dark background with high-contrast foreground elements to meet the needs of users with low vision.

Ignite
Presents an all-dark color palette, dark-blue background, and white text.

Illuminate
Presents a clean and uncomplicated color palette that is easy to use.

Inspire
Presents vibrant and cohesive colors that shift the emphasis from the application to the content.

The default application theme is set by an administrator. Any of these application themes can be used as a basis to create an additional custom theme using SAS Theme Designer.

Note: If you have special requirements for your application theme, then contact your administrator about using SAS Theme Designer to create custom application themes. For more information, see *SAS Theme Designer: User's Guide*.

An application theme is different from a report theme, which contains settings that control the color selections for different elements of a SAS report. For more information, see "About SAS Report Themes".

About SAS Report Themes

A *report theme* applies a consistent look and feel to SAS reports. A report theme provides consistent colors for the objects in your report.

You can use the **Options** pane to change the report theme. Select the report name in the drop-down list at the top of the **Options** pane. Expand the **Style** heading, and then select a **Report theme** from the drop-down list. For more information, see "Specify Options for a Report" in *SAS Visual Analytics: Working with Report Content*.

SAS Visual Analytics provides the following report themes:

Aqua
Presents a white background with a vibrant color palette and subtle gradient on graphical elements.

High Contrast
Presents a dark background with high-contrast foreground elements to meet the needs of users with low vision.

Marine
Presents a white background with teal, orange, and green foreground elements.

Midnight
Presents a dark-blue background with a bright color palette and strong outlines that make the graphical elements glow.

Opal
Presents a white background with a bright color palette and strong outlines that make the graphical elements glow.

Here are some key points about report themes:

- Starting in the 7.5 release, **Marine** is the default report theme for new reports. If you want older reports to use this report theme, you can change the report theme using the **Options** pane.
- An administrator can change the default report theme.
- Legacy report themes (**SAS Snow**, **SAS Light**, or **SAS Dark**) cannot be edited.

  CAUTION
  Once you change a legacy report theme to another report theme, you cannot revert to the legacy report theme. If your report with a legacy report theme has been promoted from an earlier 7.x release, it will continue to use that legacy report theme. However, if you change to another report theme (like **Marine**), you cannot go back to the legacy report theme.

- Your site might have custom report themes. Custom report themes are created in SAS Theme Designer. For more information, see *SAS Theme Designer: User's Guide*.

To change the report theme for a single report:

1. If the **Options** pane is not already displayed, click .
2. Click ▾ to select the report name. The report options are displayed.
3. Expand the **Style** heading, and use the **Report theme** drop-down list to select a new report theme.

4 (Optional) Change other report style options. For more information, see "Specify Options for a Report" in *SAS Visual Analytics: Working with Report Content*.

Alternatively, you can use SAS Visual Analytics settings to specify which report theme you want to use for all of your new reports. For more information, see "Modify SAS Visual Analytics Settings" on page 34.

Create a New Report

There is no single process for creating a new report in SAS Visual Analytics. For example, some users select their data source (or data sources) before they add the objects, and other users add objects to the canvas and then select their data source (or data sources). Some users choose to update the options for their reports. And, some users choose to view the detail data for their objects using maximize mode. The following list of steps is one way that you can create a new report.

Note: These steps assume that data is in SAS LASR Analytic Server and is available. For information about importing your own data, see *SAS Visual Data Builder: Preparing Data*.

1 In the Welcome to SAS Visual Analytics window, click **Data**.

   Using the Open Data Source window, select a data source. You can select additional data sources using the **Data** pane. For more information about data and reports, see *SAS Visual Data Builder: Accessing Data*.

2 Click to open the **Objects** pane. Add objects by dragging and dropping them onto the canvas. Alternatively, you can create an automatic chart by selecting data items in the **Data** pane, and dragging and dropping them onto the canvas. (An automatic chart can be modified.)

3 Add data items to objects by dragging data items from the **Data** pane and dropping them onto the object.

   For a definition and picture of each object, see "Gallery of Objects" in *SAS Visual Analytics: Reference*.

4 (Optional) Modify the report.

   - Modify data role assignments. For more information, see "Add Data Role Assignments to an Object" in *SAS Visual Analytics: Working with Report Data*.
   - Add more objects. For more information about objects, see *SAS Visual Analytics: Working with Report Content*.
   - Update the options for the objects using the **Options** pane. For more information, see "Using the Options Pane" in *SAS Visual Analytics: Working with Report Content*.
   - Create or modify advanced data items (for example, hierarchies or geographic data items). For more information, see "Working with Data Items in a Report" in *SAS Visual Analytics: Working with Report Data*.
   - Create or modify display rules for objects. For more information, see "Working with Display Rules" in *SAS Visual Analytics: Working with Report Data*.
   - Add filters to the report. For more information, see "Working with Report Filters" in *SAS Visual Analytics: Working with Report Data*.

- Add actions between the objects on a page. For more information, see "Working with Report Actions and Links" in *SAS Visual Analytics: Working with Report Data*.
- Switch to maximize mode to view detail data or compare objects. For more information, see "Maximizing Objects" in *SAS Visual Analytics: Working with Report Content*.
- Add a rank to an object. For more information, see "Ranking Values in Reports" in *SAS Visual Analytics: Working with Report Data*.

Note: If you add a graph to your report, and there is not enough space for both the graph and the legend to display, then the legend is collapsed or hidden.

5 (Optional) Add a new page (or pages) to the report. For more information, see "Adding Pages" on page 14.

6 (Optional) View or change the report options using the **Options** pane.

7 Save the report. For more information, see "Save a Report" on page 18.

8 (Optional) View your report in the SAS Visual Analytics Viewer (the report viewer) by clicking ⋮, and then selecting **View report**.

> **TIP** To return to designing your report, click ⋮ in the report viewer, and then select **Edit report**.

9 (Optional) Print your report. For more information, see "Printing Reports and Objects" on page 20.

10 (Optional) Email your report. For more information, see "Email a Report" on page 29.

Adding Pages

Overview of Pages

Any report in SAS Visual Analytics can have multiple pages. Multiple pages can be used to present different views of the data. Each page can have one or more data sources. You can have one or more objects on a page. There is no limit to the number of pages in a report.

A page is not required to contain any objects. For example, you might have a report that you use only as a template to create other reports if you want all reports to have a similar appearance. A template-like report might contain data sources, calculated items, global data filters, and display rules, but it might not contain objects.

You can add a link from an object to a specific page in the current report. For more information, see "Create a Manual Link to a Page, Another Report, or a URL" in *SAS Visual Analytics: Working with Report Data*.

Page prompts are controls that are placed in the special row area above the objects on the canvas. A page prompt enables the user to select a value to filter data on that page. For more information, see "Use a Control to Create a Page Prompt" in *SAS Visual Analytics: Working with Report Content*.

A report can have one or more hidden pages, which are visible only to the report designer in SAS Visual Analytics and report viewers via a link. A hidden page is identified by a shaded background on the page tab. Hidden pages can have one or more objects. You must provide a link to a hidden page from an existing object to display a hidden page in a new window in the report viewer.

When a report has a hidden page, you can provide additional information to the user who is viewing the report. For example, you might want a list table to provide additional information for a bar chart, or you might want to provide additional text about what is displayed in the data for a particular object. In the SAS Visual Analytics Viewer (the report viewer), a user double-clicks the data (for example, a bar, a bubble, a pie slice, a table row, and so on) in an object that is linked to a hidden window, and then the additional information is displayed in a new window in the report viewer.

TIP

A hidden page that is not linked to from another part of the report is available only to users with the Analysis capability (which lets them create reports in SAS Visual Analytics). This enables a report designer to use the hidden page for personal notes or other miscellaneous documentation about the report.

Add a Page to a Report

To add a new page to a report, click + to the right of the first page tab (or the last page tab that was added) in the report. The new page appears to the right of the existing page (or pages).

Alternatively, you can click **New Page** in the **Outline** pane or drag an object and drop it onto + to add a new page to your report.

You can specify options for a new page. For example, you can specify the **Padding** and **Avoid scrollbars** options. For more information, see "Specify Options for a Page" in *SAS Visual Analytics: Working with Report Content*.

Add a Hidden Page to a Report

To add a new hidden page:

1. Click + to the right of the first page tab (or the last page that was added) in the report. The new page appears to the right of the existing page (or pages).
2. Click the ⋮ on the page tab, and then select **Hide page**. The background of the page tab is shaded to indicate that the page is hidden.

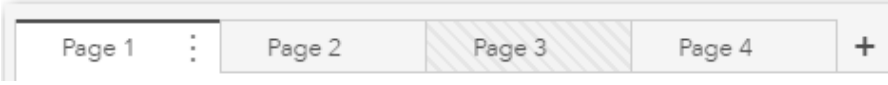
Alternatively, you can change an existing page to a hidden page. Do one of the following:

- In the **Options** pane, expand the **General** heading, and then select the **Hide and link to page as pop-up window** check box. For more information, see "Specify Options for a Page" in *SAS Visual Analytics: Working with Report Content*.
- In the **Outline** pane, right-click the page name, and select **Hide page**.

Note:

Only URL links on a hidden page are supported. If an existing page with page links or report links is changed to a hidden page, then those links are removed.

Here is an example of four page tabs where the third page is hidden.



Specify the Size of a Hidden Page

For hidden pages, you can specify the size of the window that is displayed in the report viewer.

1. If the **Options** pane is not already displayed, click .
2. Click ▾ to select the page name. The page options are displayed.
3. Expand the **General** heading, and then select the **Hide and link to page as pop-up window** check box.
4. (Optional) Specify the **Window width (percentage)** and **Window height (percentage)**.

Change a Hidden Page to a Regular Page

To change a hidden page to unhidden, do one of the following:

- Click the ⋮ on the page tab, and then click **Unhide page**.
- In the **Options** pane, expand the **General** heading, and then clear the **Hide and link to page as pop-up** check box.
- In the **Outline** pane, right-click the page name, and select **Unhide page**.

Reorder Pages

To change the order in which pages are displayed, you can drag the page tab to a new position in the list of tabs.

Alternatively, you can use the **Outline** pane to change the order of pages. Use the ☰ to click and drag the selected page to a new location.

Rename a Page

To rename a page, do one of the following:

- Click ⋮ on the page tab, and then select **Rename page**. Edit the name when the field is displayed.
- Right-click the page tab, and then select **Rename page**.
- Double-click the page name on the tab. Edit the name when the field is displayed.
- In the **Options** pane, expand the **General** heading, and then edit the **Name** field.
- In the **Outline** pane, double-click the page name, and then edit the name.

Duplicate a Page

To duplicate a page, click ⋮ on the page tab, and then select **Duplicate page**. All of the objects on the page are also duplicated.

Move an Object to Another Page

To move an object from one page in a report to another page, do one of the following:

- In the **Outline** pane, select the object that you want to move, and then click and drag the ⋮ indicator to move the object to a different page in the outline.
- On the canvas, select the object that you want to move. Click and drag the ···· indicator, and drop the object onto an existing page tab in the report.

  To add the object to a new page, on the canvas, select the object that you want to move. Click and drag the ···· indicator, and drop the object onto + to the right of the last page tab that was added.
- You can click ⋮ on the object's toolbar, and select **Move to**. Then, select an existing page or **New page**. If there is only one page in your report, then only **New page** is available.

  When you have multiple objects on the page, you can click ⋮ on the object's toolbar, select **Move to**, and then select **Beginning of the page** `page-number` or **End of the page** `page-number`. Only one of these options might be available if the object is already at the end or beginning of the page.
- On the canvas, click ⋮ on the object's toolbar, press the Alt key, and then select **Duplicate on new page**.

For more information, see "Duplicate an Object" in *SAS Visual Analytics: Working with Report Content*.

Delete a Page

To delete a page from a report, click ⋮ on the page tab, and then select **Delete page**.

Alternatively, you can delete a page using the **Outline** pane. Select the page that you want to delete, and then press the Delete key.

Save a Report

The default location for the first save of a report is `My Folder`. After that, the default save location is the most recently accessed folder.

Here are some key points about report names:

- Report names are limited to 60 characters and cannot include these characters: / \
- Report names cannot have leading or trailing spaces.

Reports in SAS Visual Analytics are saved when you click the 🖫 on the menu bar, or click ⋮, and then select either **Save** or **Save As**. A saved report contains at least one page. Typically, a page uses data items from a data source to perform queries. The page displays the results with one or more objects (for example, a table, a graph, a control, and so on). For more information about pages, see "Adding Pages" on page 14.

Note: When you use the **Save as** option to save a copy of a report, any existing report distributions are not saved with the copy. If the original report has alert notifications for display rules, the alert conditions are copied, but the recipients are not. For more information about alert notifications and display rules, see "Working with Display Rules" in *SAS Visual Analytics: Working with Report Data*.

Open a Report

To open a report in SAS Visual Analytics:

1. Choose one of the following:
   - In the Welcome to SAS Visual Analytics window, click **Open**. The Open window is displayed.
   - If the SAS Visual Analytics canvas is displayed, click ⋮, and then select **Open**. The Open window is displayed.
2. Select a report name, and then click **Open**.

Note: When you open a saved report that has multiple data sources, SAS Visual Analytics displays the data source that was displayed in the **Data** pane when the report was saved. And, if there are multiple pages, the first page of the report is displayed.

Alternatively, you can open a report using SAS Home.

You can use the menu bar in SAS Visual Analytics to open a report that you have recently edited or viewed. Click ⋮ on the menu bar. Select **Recent items**, and then select the name of a report.

Viewing a Report

Overview of Viewing Reports

You can view SAS Visual Analytics reports using either the SAS Visual Analytics Viewer (the report viewer) or the SAS Visual Analytics Apps. Here are some ways to view a report:

- To view a report that you are currently editing, click ⋮, and then select **View report**. Your report is displayed in the report viewer. For more information about the report viewer, see *SAS Visual Analytics: Viewer Documentation*.
- To open a report from SAS Home, click ⓘ in the Recent tile to open the object inspector, and then click **View**.
- To open a report on a mobile device, launch the SAS Visual Analytics App, connect to a server, navigate to the report, and open it. Instructions vary by device. See the SAS Visual Analytics Apps documentation and videos on SAS support site.

  Note: The SAS Visual Analytics Apps are available from Apple App store and Google Play.

Accessibility for Viewing Reports

SAS provides the following report viewers:

- SAS Visual Analytics Viewer (a browser-based version of the report viewer)
- SAS Visual Analytics App for Android
- SAS Visual Analytics App for iOS

The type of accessibility support that is provided by each report viewer varies. Each report viewer has particular strengths. Depending on the type of support that you require, you might prefer one report viewer over the others.

For more information about the accessibility feature of the report viewers, see the following:

- *SAS Visual Analytics: Viewer Accessibility Features*
- *SAS Visual Analytics App for iOS: Accessibility Features*

- *SAS Visual Analytics App for Android: Accessibility Features*

TIP In these documents, a **Version** list is located above the title. Select the version of the software that you have installed.

Printing Reports and Objects

Overview of Printing

You can create a PDF for a report, a page in a report, or an object. The PDF can then be printed. By default, an appendix is included in the PDF if the report, page, or object has descriptions, filters, warnings, errors, or display rule legends.

Here are some considerations for printing:

- Web content objects are not included in the PDF.
- Hidden pages, report prompts, page prompts, and prompt containers are not included in the PDF. However, any filters that are applied to an object are displayed in an appendix.
- By default, containers print only the currently selected object.
- If a list table or a crosstab has scroll bars, then some of the scrolled content might not be printed. However, more columns or rows might be printed than are visible in SAS Visual Analytics. The print feature attempts to fill the space available on the page in the PDF.
- A list table or crosstab that is printed from SAS Visual Analytics might show more rows than when it is printed after the report has been distributed. This happens because the state of the report is taken into consideration when it is printed. The print feature attempts to match what the user sees in SAS Visual Analytics. When you print a report that has been distributed, there is no report state for the print feature to match.
- If an object has a high-cardinality filter, and the **Include appendix information** option is selected, then the filter description might be truncated in the printed appendix.
- A crosstab with more than 5,000 selected cells cannot be printed.
- There can be differences in the fonts in a printed report if the fonts that are used to create a report do not match the fonts that are available on the server that generates the PDF.
- If you want to print from SAS Visual Analytics using Mozilla Firefox, you must have Firefox configured to open a link in a new tab instead of in a new window. Instructions for making this change might vary between Firefox releases, so refer to the Firefox documentation. As an alternative, you can use a different supported browser, such as Google Chrome.
- Depending on your locale, a PDF might not render correctly in Microsoft Edge. Try using Adobe Reader as the PDF viewer.
- A URL-based image cannot be printed.

Here are some key points about printing output from a stored process or a stored process report:

- Output from a stored process starts on a new page.

- The stored process must use the %STPBEGIN and %STPEND macros. These macros provide standardized functionality for generating and delivering output from a stored process. For more information, see “Using the %STPBEGIN and %STPEND Macros” in *SAS Stored Processes: Developer’s Guide*.
- The stored process report must be configured to produce PDF output. In the stored process that is referenced by the stored process report, set the _ODSDEST variable to `PDF`. Or, define a stored process parameter for the _ODSDEST variable and configure it with a value of `PDF` for the stored process report. It is recommended that you also set the _ODSOPTIONS variable to `notoc` to save processing time and to reduce the size of the PDF produced by the stored process and the final PDF for the stored process report. For more information about ODS options, see “Using the %STPBEGIN and %STPEND Macros” in *SAS Stored Processes: Developer’s Guide*.

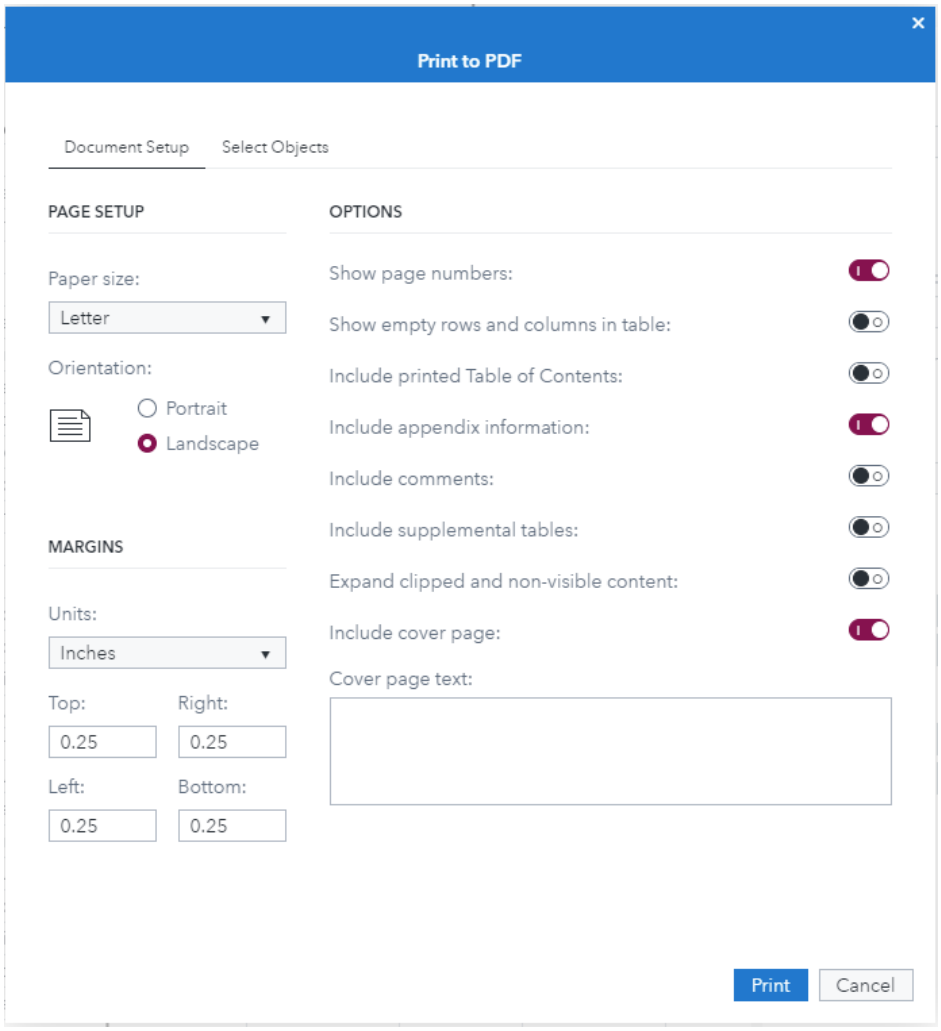
Print a Report, a Report Page, or an Object

1 With the report open on the canvas, click ⋮ on the menu bar, and then select **Print**. The Print to PDF window is displayed.

> **TIP** To print a page, click ⋮ on the page tab, and then select **Print page**.

> **TIP** To print an object, click ⋮ on the object toolbar, and then select **Print object**. This option is not available for objects in the report prompt control area, in the page prompt control area, or in a container.

2 In the Print to PDF window, specify the options that you want for **Document Setup**.

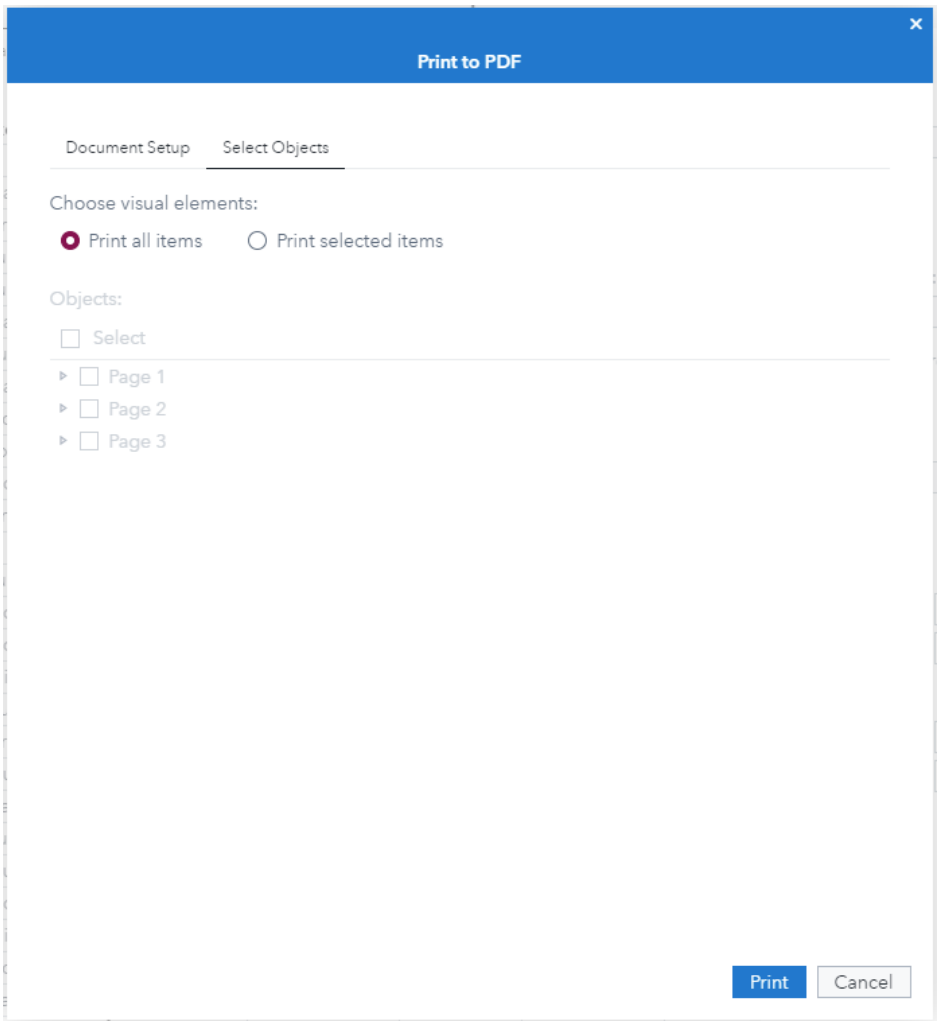


Here are some details about the setup options:

- **Show empty rows and columns in table** applies to both list tables and crosstabs.
- **Include appendix information** is selected by default if the report, page, or object has parameters, descriptions, filters, warnings, errors, or display rule legends.

  When the **Include appendix information** option is specified, and the report, page, or object has parameters, descriptions, filters, warnings, errors, or display rule legends, then an appendix is created. Each object that is selected to be included in the PDF is automatically assigned a value so that you can reference that object in the appendix. For example, suppose that you select two objects on the **Select Objects** tab. The first object is assigned the value `A1.1`, and the second object is assigned the value `A1.2`. Suppose that the first object has a description and the second object has a filter that has been applied. The first object's description is displayed in the appendix under the `A1.1` heading. The second object's filter is displayed in the appendix under the `A1.2` heading.
- **Include supplemental tables** adds a section at the end of the PDF that includes the details tables for all of the objects in the report.
- **Expand clipped and non-visible content** enables you to see all of the content for tables, crosstabs, gauges, and containers. This includes content that is only partially available in the layout of the page. Each object is displayed on a separate page at the end of the report.
- If you select **Include cover page**, then the cover page prints the name of the report (or the label if the report has not been saved), the date of the print request, the user name, and the number of pages. Use the **Cover page text** field to add text to the cover page.

3 (Optional) For reports and pages, you can specify which objects you want to print by using the **Select Objects** tab. You can select report pages, objects, or both.



4 Click **Print**. The PDF is displayed in a browser.

Distributing Reports

Overview of Distributing Reports

If you have the Distribute Reports capability, then you can distribute reports using SAS Visual Analytics. Distributing reports automates the process of delivering updated content to report users. You can distribute reports once or at recurring intervals, such as daily, multiple times daily, weekly, monthly, or yearly. In addition, distributing reports gives you the ability to generate reports during non-peak hours. In order to distribute reports, you must have both the Distribute Reports capability and the Build Data capability.

CAUTION
Use only SAS Visual Analytics to schedule and distribute SAS Visual Analytics reports. If you use the Schedule Manager plug-in to SAS Management Console and set an option that is not available in SAS Visual Analytics, the report job might be incompatible with SAS Visual Analytics.

Recipients receive an email message with a link to one or more reports.

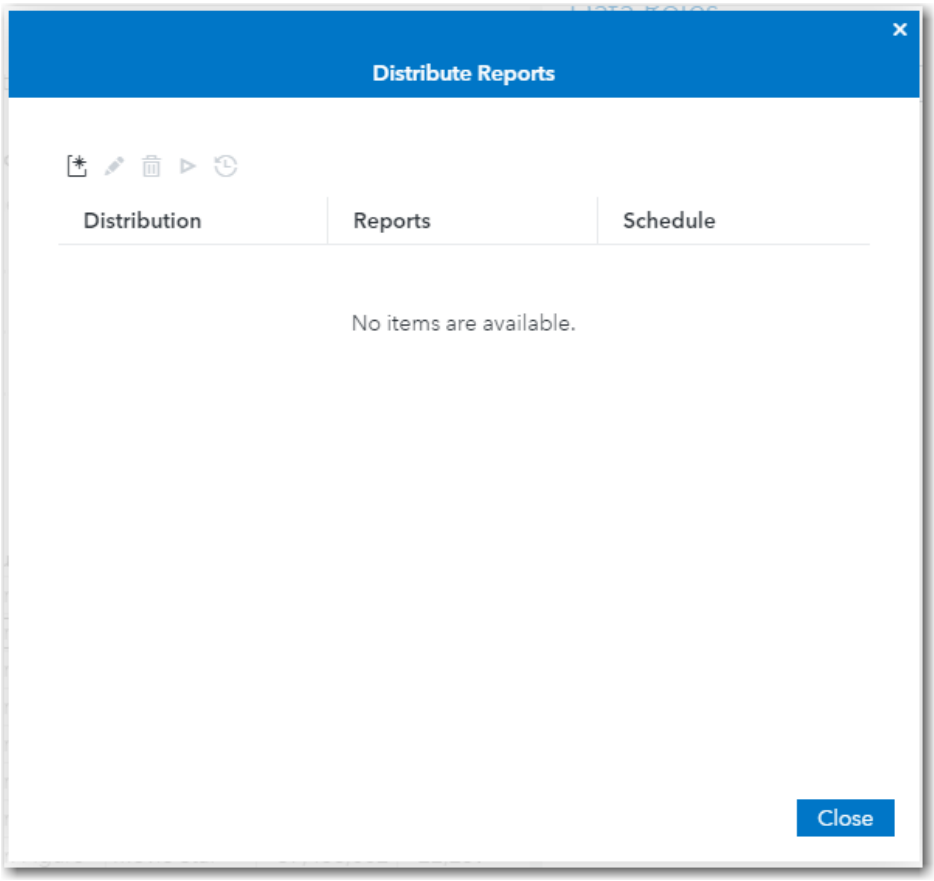
Here are some key points about distributing reports:

- When you distribute a report, you are considered the distribution owner.
- You do not have to have a report open to set up its distribution. If you do have the report open and you start to create a new distribution, then the Distribute Reports window is populated with information about that report. For example, the email subject line is set to the name of the currently open report.
- The print options that you save with a report are used when you distribute the report to other users.
- You can choose to distribute a report to a set of users.
- By default, the email message for a distributed report contains a link to the report.
- The distributed report is the last saved copy of the report.
- If you save a copy of a report with a report distribution, the report distribution is not saved with the copy.
- If you distribute reports to multiple locales or if you receive distributed reports, then you can specify your **User locale** setting in the global SAS settings. For more information about global settings, see *SAS 9.4 Web Applications: General Usage Help*.

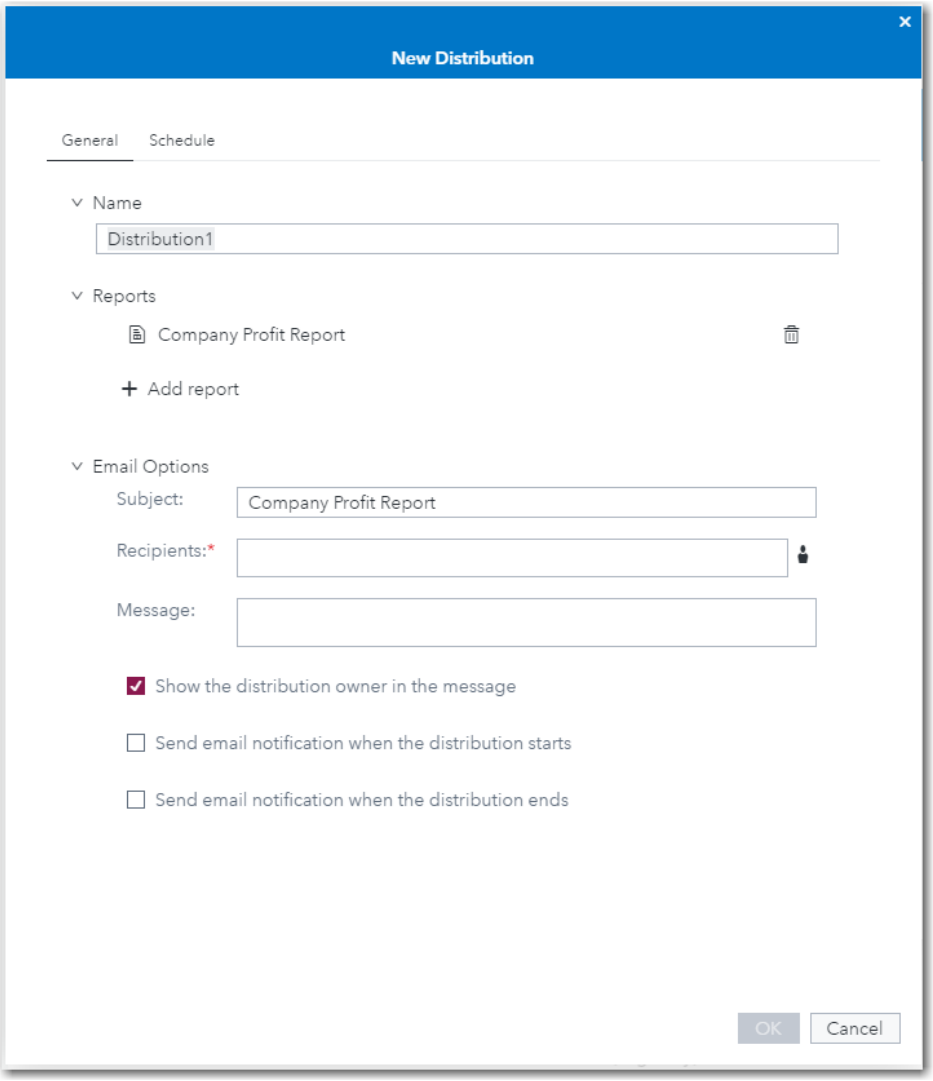
The Distribute Reports window enables you to schedule, unschedule, run now, and delete the distributions that you are authorized to view.

Schedule a New Report Distribution

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.



2 Click ✳. The New Distribution window is displayed.



- Using the **General** tab, specify a **Name**. The default name is `Distribution` followed by a number. The first distribution name is `Distribution1`. The number at the end is incremented until it is unique.

  The distribution name cannot contain blanks, white space, or these characters: `!"$%&'()*+,-/:;<=>?@][\^`|~`

  Note: Distributions cannot be renamed.

- Add a report to the distribution. You can add multiple reports to a distribution.
- Enter a **Subject**. If you have a saved report open, the subject line uses the name of the open report. If the current report is not saved, the subject defaults to `Report`.
- Click beside the **Recipients** field. The Choose Members window is displayed. Specify **Selected members**, and then click **OK**.

  Note: A user's email address must be stored in metadata to be displayed in theChoose Members window.

- (Optional) Enter a **Message** for the recipients.

- (Optional) Select or clear the following check boxes:
  - **Show the distribution owner in the message**
  - **Send email notification when the distribution starts**
  - **Send email notification when the distribution ends**

3 (Optional) Use the **Schedule** tab to specify the **Frequency** of the distribution. The following options are available: **None** (default), **Once**, **Hourly**, **Daily**, **Weekly**, **Monthly**, or **Yearly**.

Note: If you accept the default value of **None** for **Frequency**, you can still run the report distribution on demand later without scheduling the report.

Depending on the frequency you select, you can specify additional options. For example, if you select **Monthly**, then you can also specify **Interval**, **Time event duration**, **Occurrence**, **Day**, **Start time**, **Start date**, **End**, and **End date**.

Note: The **Time event duration** option is ignored if set for report distributions in SAS Visual Analytics.

4 Click **OK**. The report distribution is displayed in the table in the Distribute Reports window.

5 Click **Close**.

Run Report Distributions Immediately

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.

2 Select the name of the distribution that you want to activate.

3 Click ▷ in the Distribute Reports window to distribute all of the reports in the distribution immediately.

4 Click **Close** in the message window that is displayed.

Edit a Report Distribution

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.

2 Select the name of the report distribution that you want to edit in the table.

3 Click ✎. The Edit Distribution window is displayed.

4 Make changes to the report distribution.

5 Click **OK** to save your changes.

Unschedule a Report Distribution

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.

2 Select the name of the distribution that you want to unschedule.

3 Click ✎. The Edit Distribution window is displayed.

4 Select the **Schedule** tab. Select **None** for **Frequency**.

5 Click **OK** to save your changes.

View the History of a Report Distribution

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.

2 Select the name of the distribution.

3 Click ⏲. The History (Distribution-Name) window is displayed.

4 Click **Close**.

Delete a Report Distribution

1 Click ⋮ on the menu bar, and then select **Distribute reports**. The Distribute Reports window is displayed.

2 Select the name of the distribution that you want to delete in the table.

3 Click 🗑. Then, click **Yes** in the confirmation message that is displayed.

4 Click **Close**.

Sharing Reports and Objects with Other Users

Overview of Sharing

Sharing enables you to make report content available to other users. In SAS Visual Analytics, you can share reports via email and links. You can share links to an object in a report.

Email a Report

You can email a link to a report using SAS Visual Analytics. Here are some key points about what happens when a recipient clicks the link to a report:

- If the recipient has already signed in to SAS, the report is displayed when the report link is clicked.
- If the recipient is not signed in to SAS and guest access is enabled, they are prompted for a user ID and password. Recipients can sign in as a guest by clicking **Guest** on the standard sign-in window for SAS applications.
- If the recipient opens the email message on an iOS or Android mobile device, and then clicks the link, the report is displayed using the SAS Visual Analytics App if the recipient has it installed. If the recipient opens the email message on a Windows mobile device, and then clicks the link, the report is displayed in SAS Visual Analytics Viewer (the report viewer).

> **TIP** Recipients who use SAS Home can use the **Application Shortcuts** setting to specify which application opens the report when they click an email link. For more information, see "Modify SAS Home Settings" in *SAS Home Documentation*.

To email a report:

1. Save the report.
2. Click ⋮ in the menu bar, and then select **Share report** ⇨ **Email**. The new email message opens in your email application.

   Note: Only locally installed email clients are supported. If your default email application is web-based (for example, Gmail), you cannot email a report.

   SAS Visual Analytics automatically adds a subject line with the report name. The URL for the report is automatically generated and appears in the email message.
3. Add recipients.

4 (Optional) Revise the subject line.

5 (Optional) Revise the email message.

6 Send the email message.

Generate a Link to a Report

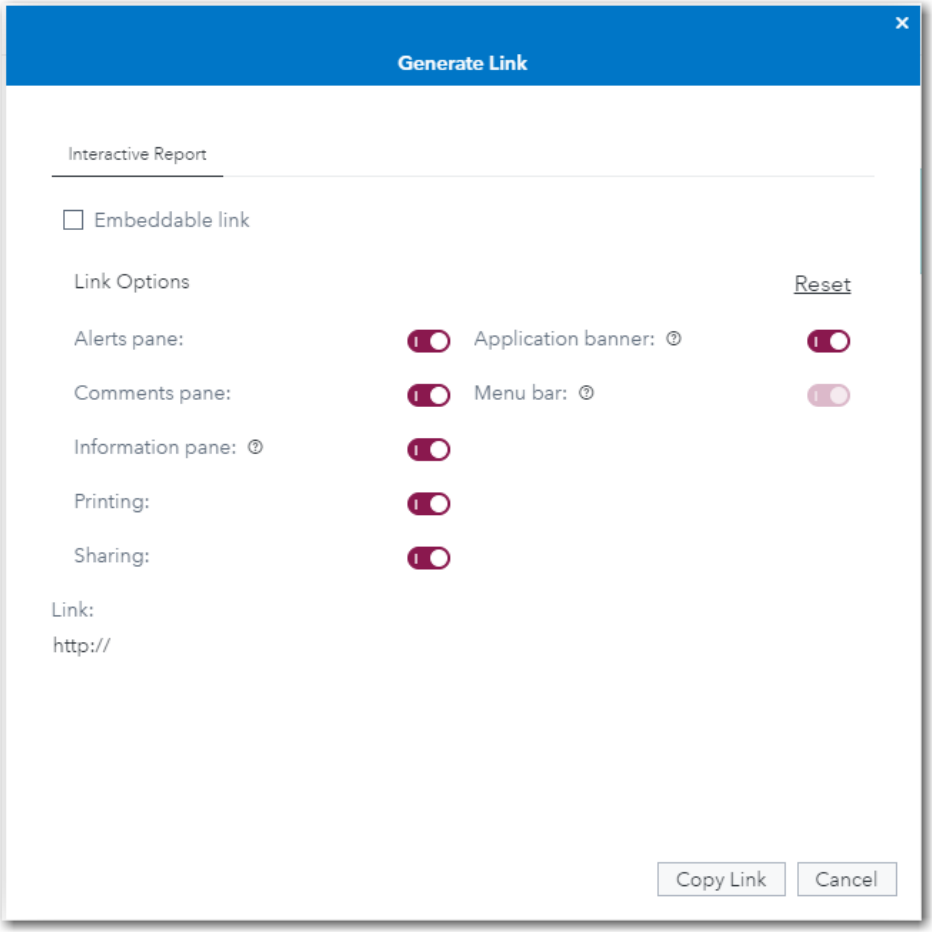
You can generate a link to a report that is displayed in the report viewer. You can generate a link that can be embedded in an iFrame. In addition, you can generate a link to an SVG image of a report. Once the link is generated, you can share it with other users. A generated image of a report can be viewed directly. Or, it can be added as the source of an image tag that is embedded on an external HTML page.

Note:

SAS Visual Analytics provides other linking features. It enables you to add a link from an object to another report, to a specific page in the current report, or to an external URL. For more information about these features, see "Creating Links" in *SAS Visual Analytics: Working with Report Data*.

To generate a link to a report:

1 Click ⋮ in the application bar, and then select **Share report** ⇨ **Link**. The Generate Link window is displayed.



2 Select or clear any of the following options for the report link:

Embeddable link
wraps the link in HTML tags so that the report link can be displayed inline on a web page.

Note: To display an embedded report, your SAS Web Server must be configured to allow SAS Visual Analyticscontent to be displayed in an inline frame. For more information, see "Post-Deployment Tasks for SAS Web Server" in *SAS Visual Analytics: Installation and Configuration Guide (Distributed SAS LASR)*.

Alerts pane
Hides the **Alerts** pane in the report viewer.

Comments pane
Hides the **Comments** pane in the report viewer so that the user cannot add comments to the report.

Information pane
Hides the **Information** pane, which prevents users from seeing report metadata, including display rules.

Printing
Disables the user's ability to print the report.

Sharing
Disables the user's ability to share the report with other users.

Application banner
Hides the banner at the top of the report in the report viewer. When the banner is hidden, users cannot navigate to other SAS applications, search for content, view notifications, or adjust user settings.

Menu bar
Hides the menu bar at the top of the report in the report viewer. When the menu bar is hidden, users cannot access other reports.

3 Click **Copy Link**. Then, paste the link wherever you need it.

4 Click **Cancel** to close the Generate Link window.

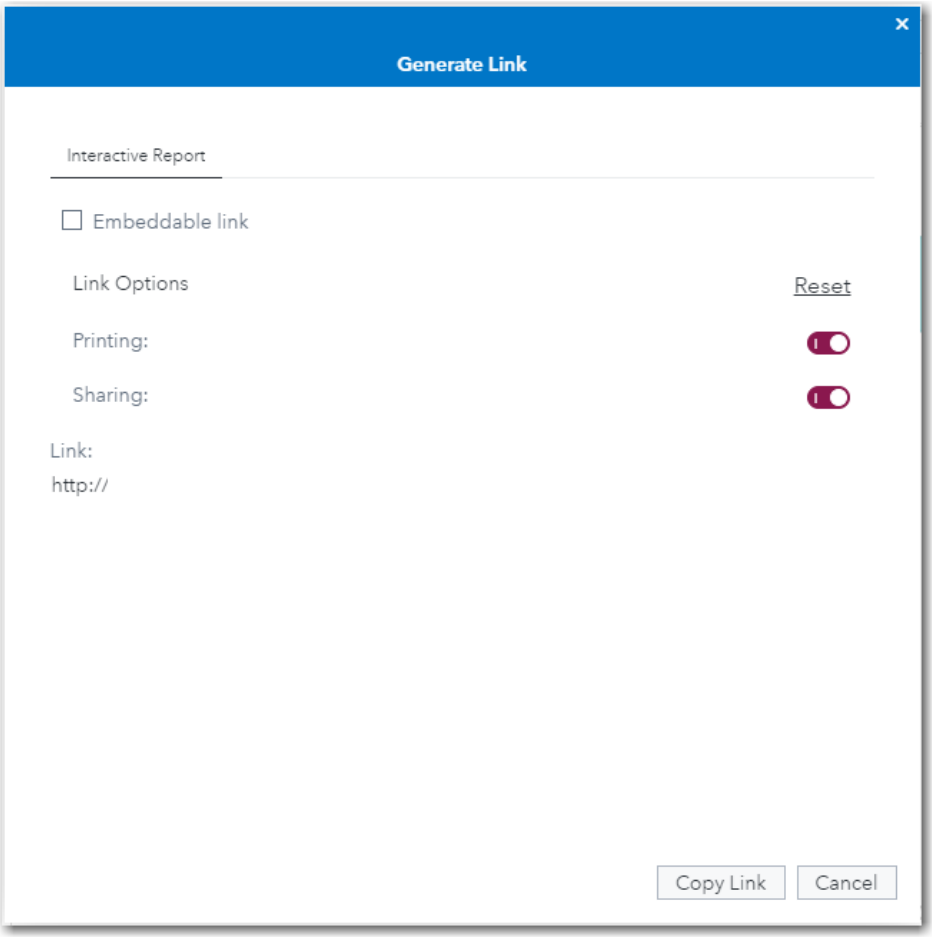
Generate a Link to an Object

You can generate a link to an object that is displayed in the report viewer. You can generate a link that can be embedded in an iFrame. In addition, you can generate a link to an SVG image of an object. Once the link is generated, you can share it with other users. A generated image of an object can be viewed directly. Or, it can be added as the source of an image tag that is embedded in an external HTML page.

You can specify options for the object link that control whether the object can be printed or shared.

To generate a link to an object:

1 Click ⋮ on the object toolbar, and then select **Share object**. The Generate Link window is displayed.



2 (Optional) Using the **Interactive Report** tab, select the **Embeddable link** check box to generate a link that can be embedded in an iFrame. The URL that is generated in the **Link** field can be used in an iFrame.

3 Select or clear any of the following options for the object link:

Printing
Disables the user's ability to print the object.

Sharing
Disables the user's ability to share the object with other users.

4 Click **Copy Link**. Then, paste the link wherever you need it.

5 Click **Cancel** to close the Generate Link window.

To generate a link to an SVG image of an object and share it, follow these steps:

1 Click ⋮ on the object toolbar, and then select **Share object**. The Generate Link window is displayed.

2 Click **Copy Link**. Then, paste the link wherever you need it.

3 Click **Cancel** to close the Generate Link window.

Delete a Report

1 Click ⋮ on the menu bar, and then select **Open**. The Open window is displayed.

2 Select the report that you want to delete, and then click 🗑. Click **Delete** in the confirmation window.

Note: You cannot delete a report that is open in SAS Visual Analytics.

3 Click **Cancel** to close the Open window.

Localize Reports

SAS Visual Analytics enables you to localize (or translate) the labels, tooltips, and other descriptive text that is part of your report. You can export localizable text from your report so that you can apply one or more translations. You can translate your report into a new language without removing the text from SAS Visual Analytics.

There is no limit to the number of translations that you can add to the report.

To localize report text:

1 Save a copy of the report before you start localizing the text. This enables you to have a backup copy of your report.

2 With the report open on the canvas, click ⋮ on the menu bar, and then select **Localize report**. The Localize Report Text window is displayed. The **Original Language** for the report text (for example, the page numbers) is displayed in the table.

3 Using the **Translation** drop-down list, select the language that you want to localize the report text to.

4 Enter the translated (or localized) text in the**Translation** column in the table.

5 Click **Apply**.

Modify SAS Visual Analytics Settings

There are local settings that are specific to SAS Visual Analytics, whereas global settings apply to all SAS web applications. For more information about global settings, see *SAS 9.4 Web Applications: General Usage Help*.

Settings for SAS Visual Analytics are saved on a per-user basis. All of your settings persist between sessions.

> **TIP** When you click **Reset**, the settings revert to their original SAS Visual Analytics configuration.

1. In the application bar, click the user name button, and then click **Settings**.
2. Expand the **SAS Visual Analytics** item in the side menu, and select **General**. Specify any of the following settings:

   Default start screen
   Specify your **Default start screen**. The available options are **Show the welcome window**, **Start with data**, **Start with a blank document**, or **Choose an existing report**.

   Report theme for new reports
   Select your preferred report theme. The available options are:

   - **Use the default theme**, which is set by your system administrator.
   - **Choose a theme**, which enables you to select **Marine**, **High Contrast**, **Midnight**, **Aqua**, or **Opal**. Your site might also have custom themes. For more information, see "About SAS Report Themes" on page 12.

     Note: This setting does not affect existing reports.

   Expand report controls by default
   expands the report prompt area by default.

   Expand page controls by default
   expands the page prompt area by default.

   Restore pane location
   restores any pane that you have moved to its default location in SAS Visual Analytics.

   Bypass retrieving cardinality values for the Data pane
   specifies that you do not want cardinality values to be displayed beside data items in the **Data** pane. If you specify this setting after the cardinality values are already displayed in the **Data** pane, SAS Visual Analytics will not retrieve the values in the future. If you close and reopen the report, then the cardinality values will not be displayed.

   Specifying the **Bypass retrieving cardinality values for the Data pane** setting can improve performance. However, the **Suggestions** pane cannot be displayed if this setting is specified.

   Bypass retrieving correlation values for the Data pane
   specifies that you do not want correlation values to be displayed in the **Data** pane. If you specify this setting, then you cannot select measures that are correlated with a selected measure.

   Specifying the **Bypass retrieving correlation values for the Data pane** setting can improve performance. However, the **Suggestions** pane cannot be displayed if this setting is specified.

   Alert notifications
   specifies your preference for new alert notifications. The options are **Use the system default for alert notifications**, **Send email messages**, or **Send text messages**.

   The **Use the system default for alert notifications** option specifies that you want to use the system default that is set by your system administrator. When you select either **Send email messages** or **Send text messages**, you override the system default.

> **TIP** If you select the **Send text messages** preference, but do not receive alerts via text messages, contact your system administrator. Your mobile number must be set up correctly as an **SMS** type in SAS Management Console.

Note: If your preference for alert notifications is set to email when you add an alert, you will always receive notifications for that alert via email. If you decide later that your preference for alert notifications is text messages, then after you change your preference to **Send text messages**, you have to delete your existing alerts and create new ones.

Default object title settings

Specify your preference for object titles for new reports. When you select **Automatic title**, SAS Visual Analytics uses the data items that you add to the object to generate a title for the object. The title can change as you add or remove data items from the object. (Some data items do not affect the automatic title.) When you select **Custom title**, the title that you specify for the object is used. For more information, see "Work with an Object's Title" in *SAS Visual Analytics: Working with Report Content*.

Note: This setting does not affect existing objects in a report.

The available title options are:

Tables

For tables, the available options are **No title** (the default) or **Custom title**.

Graphs

For graphs, the available options are **Automatic title** (the default), **Custom title**, or **No title**.

Controls

For controls, the available options are **No title** (the default), **Custom title**, or **Automatic title**.

Content

For other objects, the available options are **No title** (the default) or **Custom title**.

Analytics

For analytics objects, the available options are **No title** (the default), **Custom title**, or **Automatic title**.

3 Expand the **SAS Visual Analytics** item in the side menu. Specify any of the following settings:

Geographic Mapping

Specify the **Default geographic map provider** mode for geographic maps. The map provider creates the background map for geo maps and for network analysis objects that are displayed on a map. OpenStreetMap is selected by default.

Note: If your site has more than one map provider, you can change the map provider for an individual object by editing the **Map service** option.

Network Analysis

Specify the **Default node label for hierarchical networks**.

Visual Statistics

If SAS Visual Statistics is licensed at your site, you can specify the following settings:

- **Fit summary p-value precision**, which determines the minimum number of decimal places used when displaying p-values.
- **Sort categorical response levels in descending order**, which specifies your preference for sorting categorical response levels. This setting is selected by default.
- **Default statistic for Model Comparison**, which specifies your preference for **Category Response** and **Measure Response**.

  For more information, see "Specifying Settings for SAS Visual Statistics" in *SAS Visual Analytics: Working with SAS Visual Statistics*.

4 Click **Close** to apply your changes.

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