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SAS[®] Visual Analytics 6.1

Getting Started with Exploration and Reporting

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SAS® Visual Analytics 6.1: Getting Started with Exploration and Reporting

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Using This Book

Audience

This book covers the basics of how to explore data and build reports using SAS Visual Analytics. The emphasis is on introductory instructions, how-to hints, and quick reference information.

Requirements

Prerequisites

If you choose to perform the tasks in this book, you need the following software, information, and privileges:

- a link to a working deployment of SAS Visual Analytics 6.1
- a supported web browser (for example, Firefox 3.6 or Internet Explorer 9)
- a supported version of the Adobe Flash Player (11.1 or newer)
- an account that can log on to the working deployment
- the ReadMetadata and Read permissions for at least one LASR table (without the necessary permissions, you cannot select a data source or access data)
- data exploration and reporting capabilities (without the necessary capabilities, you cannot see certain user interface elements)

System Requirements

Detailed system requirements, including support for additional web browsers, are available on the [SAS support site](#).

Accessibility

Accessibility Features of SAS Visual Analytics

For information about the accessibility of SAS Visual Analytics, see the *SAS Visual Analytics: User's Guide*.

Please contact accessibility@sas.com if you need this document in an alternative digital format.

Introduction

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About Exploration

Data exploration involves getting to know a data source and then using it to inform your decisions. In exploration, the emphasis is on discovery and ad hoc visualization. Exploration is driven by predefined questions, curiosity, logic, intuition, creativity, and experimentation.

The SAS Visual Analytics Explorer (the explorer) is well suited to the task.

- The explorer provides fast, highly visual responses so that you can use an iterative approach to exploring the data.
- The explorer's clean interface and natural interactions minimize distractions so that you can keep your concentration on the data.
- The explorer supports a range of visualization and discovery activities so that you can adapt your tactics as insights emerge.
- The explorer includes advanced analytical tools (such as forecasting, correlations, and fit lines) to further guide and refine the exploration process.

About Reporting

In reporting, the emphasis is on clear, compelling, and widespread communication. Reporting encompasses design, data selection, interactions by viewers (such as brushing and filtering), and viewing (in web and native mobile device formats).

Like the explorer, the reporting interfaces are intuitive and responsive, even for extremely large data sources. Here are the interfaces that you use for reporting:

- The SAS Visual Analytics Designer (the designer) is for creating and enhancing reports and dashboards.
- The SAS Visual Analytics Viewer (the web viewer) is for viewing and interacting with reports in a web browser.
- SAS Mobile BI is for viewing and interacting with reports on mobile devices.

2

Basic Tasks

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Introduction

This chapter provides step-by-step instructions to guide you through basic tasks. The purpose is to provide a brief, hands-on orientation to a few of the many possible workflows for exploration and reporting.

Explore a Data Source

To explore a data source:

- 1 In a web browser, open the SAS Visual Analytics home page (at your equivalent of <http://server01.abc.com:8080/SASVisualAnalyticsHub>).
- 2 In the **Create Content** area, click **Explore Data**.

- 3 In the SAS Visual Analytics Explorer window, click **Select a Data Source**.

TIP Each data exploration is saved in its own project, which is called an exploration.

- 4 In the Open Data Source window, select a data source. Click **Open**.
- 5 Drag any data item from the left pane onto the center of the screen. The explorer assigns the data item to a role and displays an initial chart as the new exploration's first visualization.

TIP Each exploration consists of one or more visualizations.

- 6 Extend, enhance, and refine the exploration (as little or as much as you like). For ideas, see [“Cheat Sheet for Explorations” on page 10](#).

TIP In exploration and reporting, access to data is always Read-Only, so feel free to experiment—you will not break anything.

- 7 To save the exploration, select **File ► Save** from the main menu. In the Save As window, select **My Folder**, and enter a name. Click **Save**.
- 8 In the upper left corner of the explorer, click **Home**.
- 9 On the home page, notice that the new exploration is in the **Recent** list in the **My Content** area.

Share an Exploration

Although the primary purpose of exploration is ad hoc visualization, you might want to share your findings. For that reason, exploration is never a dead end.

One way to share the contents of an exploration is to export some or all of its visualizations as a report.

To export an exploration as a report:


- 1 On the SAS Visual Analytics home page, double-click an exploration to open it.
- 2 Select **File ► Export ► Exploration as Report** from the explorer's main menu.
- 3 In the Export as Report window, clear the check box of any visualization that you do not want to export. Click **OK**.

TIP A few types of content (animated bubble plot, treemap that displays additional levels, and correlation data from a scatter plot or heat map) cannot be exported. To share such content, export it as a PDF or save it as an image.

- 4 In the Save As window, select **My Folder**, and accept the default name. Click **Save**.
- 5 In the upper left corner of the explorer, click **Home**.
- 6 In the **My Content** area of the home page, notice that the new report is not in the **Recent** list. Only objects that you create or open are in the **Recent** list. If you want to navigate to the new report, click **Browse**.


The preceding steps export content to SAS metadata as a report. Here are some other ways to share the contents of an exploration:

Table 2.1 Additional Methods for Sharing Exploration Content

Task	How to Initiate
E-mail as a link	From the explorer's main menu, select File ► E-mail .
Export as a PDF	From the explorer's main menu, select File ► Export ► Exploration as PDF .
Save as an image	In a visualization's toolbar, click  , and select Export Image .

Create a Report

- 1 On the SAS Visual Analytics home page, click **Create Report**. The designer opens with a new, empty report.
- 2 Drag a **Bar Chart** from the left pane onto the center of the screen.
- 3 To add data:

- a On the **Data** tab (in the lower left pane), click **Select a data source**. In the Add Data Source window, select a data source, and click **Add**.
- b Drag a category  from the **Data** tab onto the **Category** label (at the bottom of the bar chart).

TIP A category has alphanumeric values that can be used as discrete groupings (for example, the values in a product category might include shoes and belts).

- c Drag a measure  from the **Data** tab onto the bar chart.

TIP A measure has numeric values that can be used as numbers (for example, the values in a sales measure might specify the quantity of units sold).

- 4 Extend, enhance, and refine the report (as little or as much as you like). For ideas, see [“Cheat Sheet for Reports” on page 12](#).

TIP If your session times out due to inactivity, any unsaved changes are lost. It is a good idea to save your work frequently.

- 5 To save the report, select **File** ► **Save** from the main menu. In the Save As window, select **My Folder**, and enter a name. Click **Save**.

- 6 In the upper left corner of the designer, click **Home**.
- 7 On the home page, notice that the new report is in the **My Content** area.

View a Report

To open a report in the web viewer, right-click on the report on the home page, and then click **View** in the pop-up window.

To open a report in a mobile viewer, launch a SAS Mobile BI app, connect to a server, navigate to the report, and open it. Instructions vary by device. See Chapter 39, “Viewing Reports on a Mobile Device,” in *SAS Visual Analytics: User’s Guide*, and videos on the [SAS support site](#).

TIP The SAS Mobile BI app for iPad is available in the iTunes App Store. The Android app is available from Google play.

3

Specific Tasks

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Introduction


This chapter highlights core functionality in the explorer and designer. The idea is that once you know what is possible, it is usually not difficult to find a particular action in the interface.

For most tasks, there are multiple ways to begin. Here, one way to initiate each task is documented. If you ever get stuck or have questions, some of the text right inside the interface might help.








TIP For comprehensive instructions, access the *SAS Visual Analytics: User's Guide* from the **Help** menu or the [SAS support site](#).


Cheat Sheet for Explorations







Task	How to Initiate in the Explorer
Add variables to a visualization.	Drag the data items onto the visualization in the center of the screen (from the Data pane on the left).
Switch to a different visualization type.	From the main menu, select Visualization ► <i>type</i> .
Subset data for the entire exploration.	Right-click on a data item, and select Add as Global Filter .
Subset data for one visualization.	Select the visualization, right-click on a data item, and select Add as Local Filter .
Subset data in a chart by inclusion or exclusion.	Select a data value (for example, a bar in a bar chart), right-click, and select either Include Only Selection or Exclude Selection . (For a line chart, Show markers must be selected on the Properties tab.)
Sort elements within a chart or table.	Right-click on a data item in a chart axis or table, and select Sort .
View a visualization's data.	Right-click on the visualization, and select Show Table View .
Use a different aggregation method.	Right-click on a measure in a chart axis or table, and select Aggregation .
Use a distinct count as a measure.	In the Data pane, right-click on a category (or date), and select Derive Distinct Count .
Apply a correlation and fit line.	Right-click on a scatter plot or heat map, and select Fit Line ► <i>type</i> . (For a scatter plot, there must be at least two measures and no grouping categories. For a heat map, both the X and Y axes must be measures.)

Task	How to Initiate in the Explorer
Predict future values.	In a line chart where a date or time data item is assigned to the category role (and no other category roles are used), right-click, and select Show Forecast .
Find the correlation between a group of measures.	From the main menu, select Analysis ► Correlate Measures .
Create multiple visualizations.	From the main menu, select Visualization ► New .
Organize your visualizations.	From the main menu, select View ► Manage Visualizations .
See how selected data in one visualization corresponds to other visualizations.	From the main menu, select View ► Data Brushing . (Not all visualizations support cross-visualization highlighting.)
Create a column from an expression.	From the main menu, select Data ► New Calculated Item . (Calculations use unaggregated data.)
Set up drill-down functionality.	From the main menu, select Data ► New Hierarchy .
Display a geographic map with a bubble plot overlay.	Drag a geographic data item  onto an empty visualization.
Set up a geographic data item.	In the Data pane, right-click on a data item that contains geographic information, select Geography , and assign a geographic role.
Delete an exploration.	Click Home , and then click Manage (next to My Content or Other Content).
Open a different data source.	From the main menu, select File ► New Exploration .
Add or view exploration-level comments.	From the main menu, select File ► Exploration Comments .
Add or view comments for the selected visualization.	From the main menu, select Visualization ► Comment . The Comments tab is in the right pane.

Cheat Sheet for Reports

Data Task	How to Initiate in the Designer
Add another data source.	On the Data tab, click  .
Insert a data display object (such as a table, graph, or gauge).	Drag the object (from the Objects tab) onto the report in the center of the screen.
Use a distinct count as a measure.	On the Data tab, right-click on a category (or date) data item, and select Derive Distinct Count .
Change a measure's format.	On the Data tab, select the measure, and then click the triangle at the end of the Format row (below the list of data items).
Create a column from an expression.	On the Data tab, click  , and select New Calculated Item . (Calculations use unaggregated data.)
Set up drill-down functionality.	On the Data tab, click  , and select New Hierarchy .
Exclude a data item.	On the Data tab, click  , and select Show or Hide Items .
Exclude a subset of data.	Right-click on a data item, and select New Data Item Filter .
Incorporate a stored process.	From the main menu, select Insert ► Other ► Stored Process .
Get basic statistics about all measures.	On the Data tab, click  , and select Measure Details .
Get additional statistics about a measure.	On the Data tab, click  , select Measure Details , and select the measure (in the Measure Details window).
Replace a data source with an identically structured data source.	On the Data tab, click  , and select Change Data Source .

Data Task	How to Initiate in the Designer
Show multiple aggregations (or multiple formats) for a data item.	Right-click on the data item, select Duplicate Data Item , and then change the aggregation (or format) of the new data item.
Reuse an existing visualization or report object.	In the upper left pane, select the Imports tab.
Display a geographic map with a bubble plot overlay.	From the Other list on the Objects tab, drag Geo Map onto a report in the center of the screen. From the Data tab, drag a geographic data item  onto the report.
Set up a geographic data item.	On the Data tab, right-click on an item that contains geographic information, select Geography , and assign measures that contain location information. (For example, you might assign Region_Lat and Region_Long as the respective measures for a Region category.)
Delete a report.	Click Home , and then click Manage (next to My Content or Other Content).
Presentation Task	How to Initiate in the Designer
Edit a report's description.	At the top of the Properties tab, select the report from the drop-down list.
Format a chart's title.	Select the chart, and then make changes in the General section on its Properties tab.
Add a trend line to a table.	In a table, right-click on a column, and select Add Sparkline . (The data source must include a date data item.)
Change a bar chart's orientation.	Select the bar chart, and then make changes on its Properties tab.
Change a chart's colors or styles.	Select the chart, and then make changes on its Styles tab.

Presentation Task	How to Initiate in the Designer
Set up report-level conditional highlighting.	On the Display Rules tab, select the report.
Set up section-level (or object-level) conditional highlighting.	On the Display Rules tab, select a section (or report object).
Create a reusable pattern of gauge intervals and colors.	On the Shared Rules tab (in the lower left pane), click  .
Apply a shared display rule to a new gauge.	From the Shared Rules tab (in the lower left pane), drag the rule onto the gauge.
Add a new section (tab) to a report.	At the top of the report, click  .
Create a scrollable area.	From the main menu, select Insert ► Other ► Vertical Container (or Horizontal Container).
Use a different canvas size.	In the toolbar, click  ,  , or  .
Change your default canvas size.	From the main menu, select File ► Preferences .
Overlap one report object on top of another.	On a section's Properties tab, select Precision from the Layout drop-down list.
Set up view-time filters (prompts).	From the Objects tab, drag a control object onto the drop zone at the top of a report or section.
Set up view-time interactions (where an action on one object affects other objects).	On the upper right edge of the report, click  to switch to the interaction view. (Not all objects support interactions.)
Add or view comments.	From the main menu, select View ► Comments . The Comments tab is in the right pane. (Only report-level comments are supported.)

TIP In general, data-related tasks are initiated from the leftmost panes, and presentation-related tasks are initiated from the rightmost pane.

About the Availability of Actions

The following factors affect the availability of actions:

- Your capabilities (for example, if you do not have export capabilities, the export options in the explorer's **File** menu are not available to you).
- The interface that you are using (for example, text styling properties are available only in the designer).
- The currently selected object (for example, list tables do not have ranges).
- Whether data has been defined (for example, you must add a data source before you can define filters).
- Whether a data item is already in use (for example, you cannot change a data item's role while it is incorporated in a bar chart as a category).

4

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Gallery

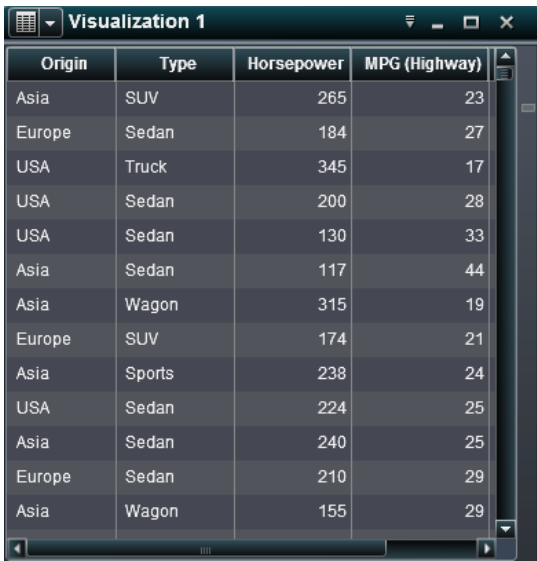
This is an illustrated guide to displaying data and results. Many of the features are available in two contexts:

- as visualizations (the building blocks of explorations) in the explorer
- as report objects (the building blocks of reports) in the designer and viewers

Any differences in availability are driven by the purpose of each interface. Explorations emphasize discovery. Reports and dashboards emphasize presentation.

TIP Use the following images for orientation. Actual appearance and functionality are affected by the underlying data, any styles that you apply, and the interface that you are using. (Some of the following images are from the explorer, others are from the designer).

Table 4.1 *Displaying Data and Results*



The screenshot shows a window titled "Visualization 1" containing a table. The table has four columns: "Origin", "Type", "Horsepower", and "MPG (Highway)". The data is as follows:

Origin	Type	Horsepower	MPG (Highway)
Asia	SUV	265	23
Europe	Sedan	184	27
USA	Truck	345	17
USA	Sedan	200	28
USA	Sedan	130	33
Asia	Sedan	117	44
Asia	Wagon	315	19
Europe	SUV	174	21
Asia	Sports	238	24
USA	Sedan	224	25
Asia	Sedan	240	25
Europe	Sedan	210	29
Asia	Wagon	155	29

A table (also known as a list table) is a two-dimensional representation of data. Values are arranged in unlabeled rows and labeled columns. A table cannot use a hierarchy.

In the designer, tables contain aggregated data. You can add sparklines to a column (if the data source contains a date data item). In the explorer, tables contain raw data.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.



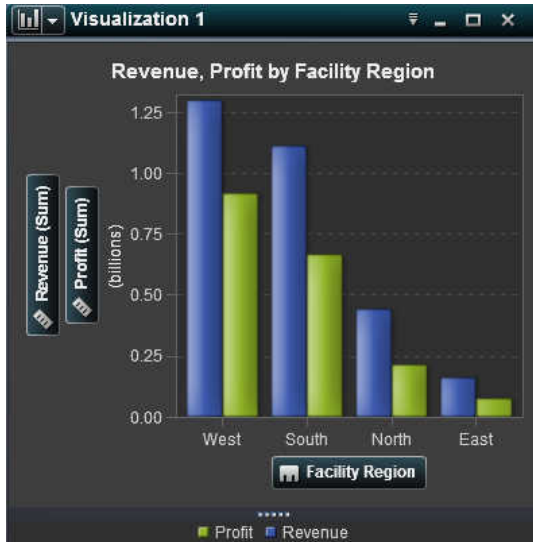
The screenshot shows a window titled "Visualization 1" containing a crosstab. The crosstab has "Type" and "DriveTrain" as row categories, and "Horsepower" and "MPG (Highway)" as column categories, grouped by "Origin" (Asia and Europe). The data is as follows:

Origin		Asia		Europe
Type	DriveTrain	Horsepower	MPG (Highway)	Horsepower
Hybrid	Front	92	56	
SUV	All	218	22	26
	Front	208	22	
Sedan	All	192	27	24
	Front	171	31	20
	Rear	273	24	26
Sports	All	264	26	26
	Front	209	28	31
	Rear	226	26	32
Truck	All	209	20	
	Rear	158	25	
Wagon	All	200	26	25
	Front			

A crosstab (also known as a crosstabulation table) shows an aggregate metric for the intersections of two or more categories. In a crosstab, categories are typically displayed in both the columns and the rows. Each cell value represents the aggregated measure from the intersection of the categories in the cell's row and column. A crosstab uses less space than a traditional table and is easier to read because data is grouped both horizontally and vertically. A crosstab can use a hierarchy. Frequency is displayed only when there are no measures in the crosstab.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.

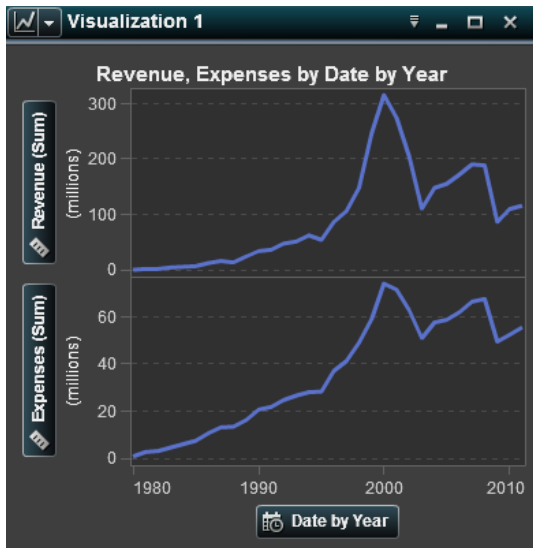


A bar chart consists of vertical or horizontal bars that represent quantitative data. Use bar charts to compare data that is aggregated by the distinct values of a category.

You can apply grouping and create lattices.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.

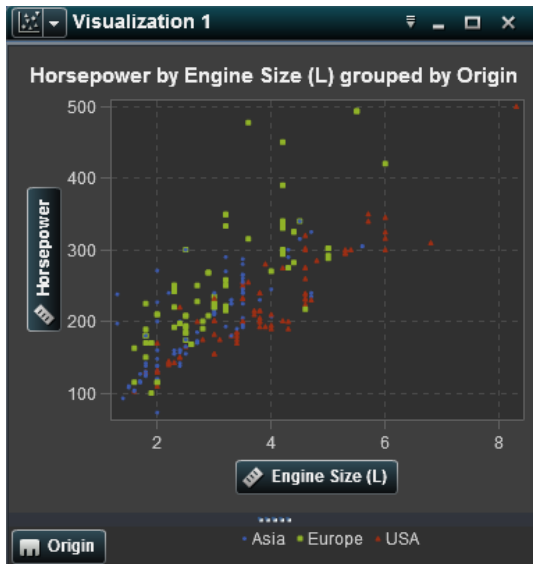


A line chart shows the relationship of one variable to another, often as movements or trends in the data over a period of time. Line charts summarize source data, and typically are used to show how values change over time. You can apply grouping and create lattices.

In the explorer, line charts support time series. From a time series, you can generate a forecast analysis that enables you to predict future values for the series and visualize the probability range for those values.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.

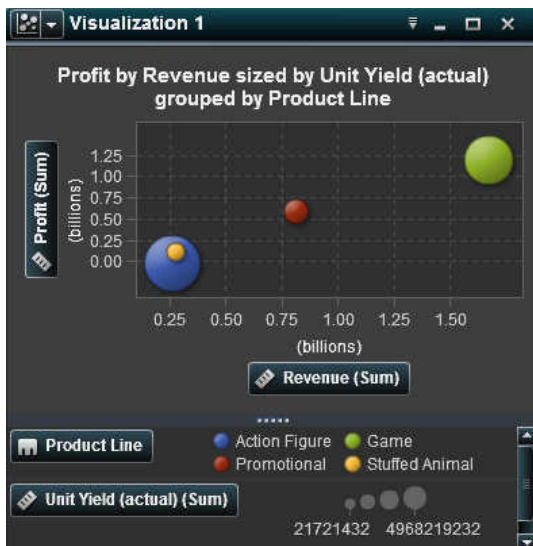


A scatter plot is a two-dimensional plot that shows the joint variation of two data items. Each marker (represented by symbols such as dots, squares, or plus signs) represents an observation. The marker position indicates the value for each observation. Use a scatter plot to examine the relationship between numeric data items. You can apply grouping. (In the designer, grouping is called "color.")

In the explorer, you can apply statistical analysis with correlation and fit lines. When you apply more than two measures to a scatter plot, a scatter plot matrix compares each pairing of measures.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.

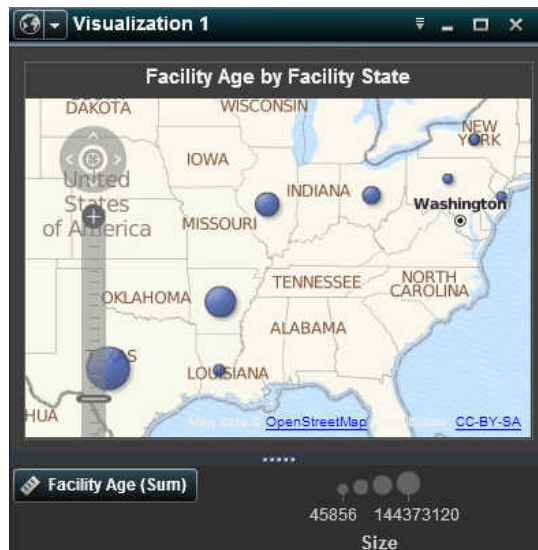


A bubble plot displays the relationships among at least three measures. Two measures are represented by the plot axes, and the third measure is represented by the size of the plot markers. Each bubble represents an observation. A bubble plot is useful for data sets with dozens to hundreds of values. You can apply grouping and create lattices.

In the explorer, you can use color to represent an additional measure and animate the bubbles to display changes in the data over time.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.

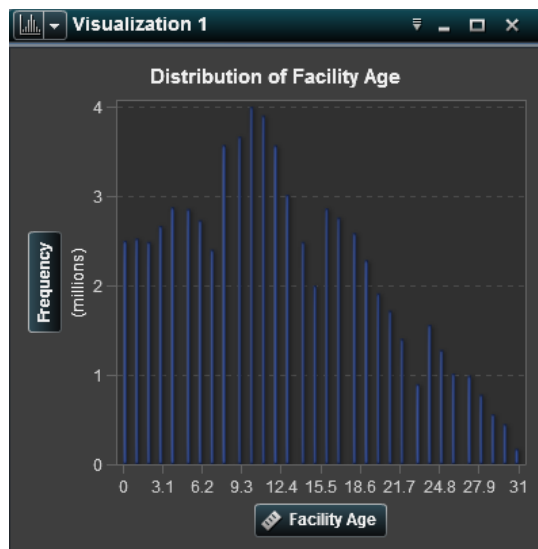


A geo map is a bubble plot that is overlaid on a geographic map. Each bubble is located at a geographic location or at the center of a geographical region. A geo map requires a data item that contains geographical information and is assigned to a geography role.

If you create a geo map in the designer, you must assign measures for longitude and latitude. Automatic mapping of columns (such as country or state) is available only in the explorer. Certain exported geo maps (for example, geo maps that use custom roles or data sets that have centroids) cannot be fully modified in the designer.

Availability:

- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.



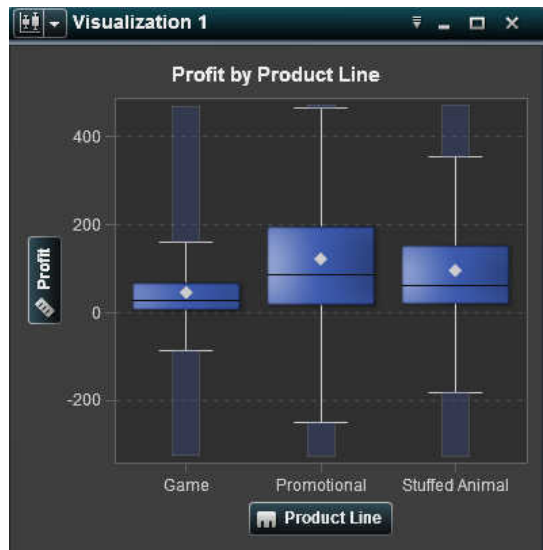
A histogram displays the distribution of values for a single measure.

In the explorer, you can select the bar orientation. You can select whether the values are displayed as a percentage or as a count.

To add a histogram to a report, create it in the explorer, and export it as a report object.

Availability:

- ✓ Supported in the explorer.
- ⦿ Limited support in the designer and viewers.



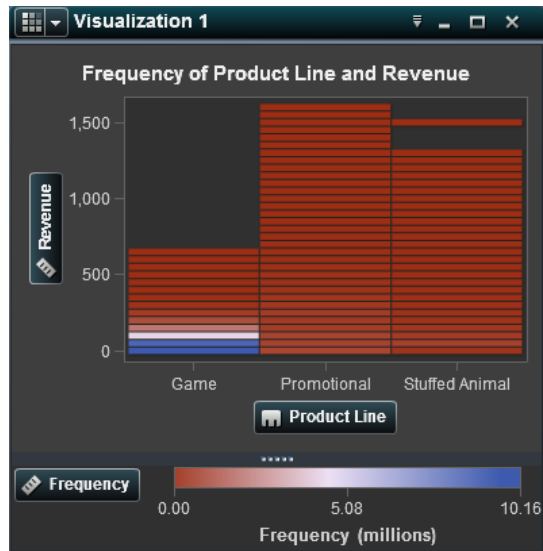
A box plot displays the distribution of values for a single measure using a box and whiskers. The size and location of the box indicate the range of values that are between the 25th and 75th percentile. Additional statistical information is represented by other visual features.

In the explorer, you can create lattices and specify whether the average (mean) value and outliers are displayed for each box.

To add a box plot to a report, create it in the explorer, and export it as a report object.

Availability:

- ✓ Supported in the explorer.
- ⊖ Limited support in the designer and viewers.

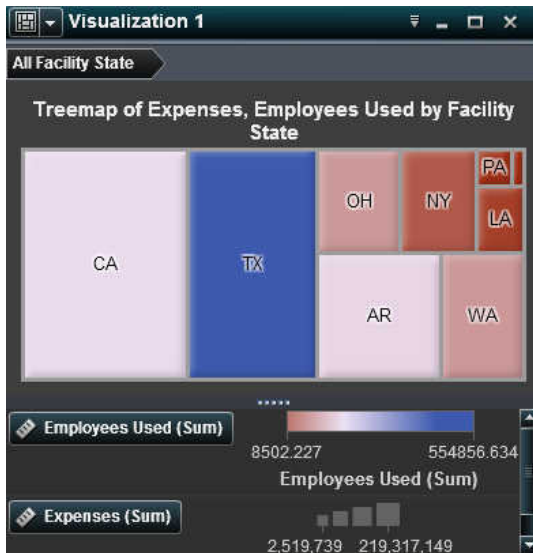


A heat map displays the distribution of values for two data items using a table with colored cells. If you do not assign a measure to the color data role, then a cell's color represents the frequency of each intersection of values. If you assign a measure to the color data role, then a cell's color represents the measure value of each intersection of values.

To add a heat map to a report, create it in the explorer, and export it as a report object.

Availability:

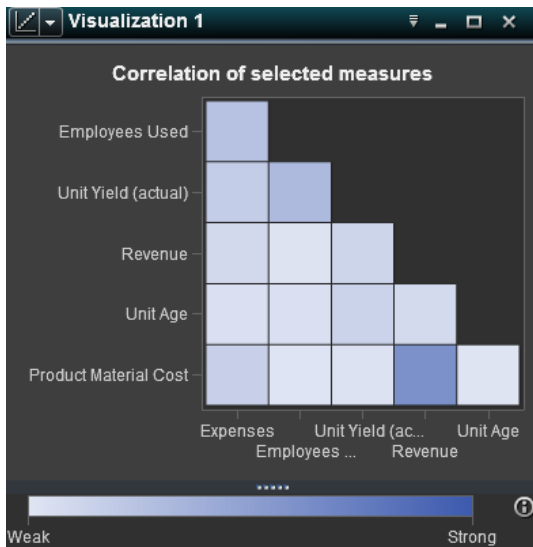
- ✓ Supported in the explorer.
- ⊖ Limited support in the designer and viewers.



A treemap displays your data as a set of rectangles (called tiles). Each tile represents a category or a hierarchy node. The color of each tile represents the value of the first measure. The size of each tile represents the value of the second measure. For example, a sales data treemap might have tile sizes that represent the number of orders and tile colors that are derived from color gradients that represent sales.

Availability:

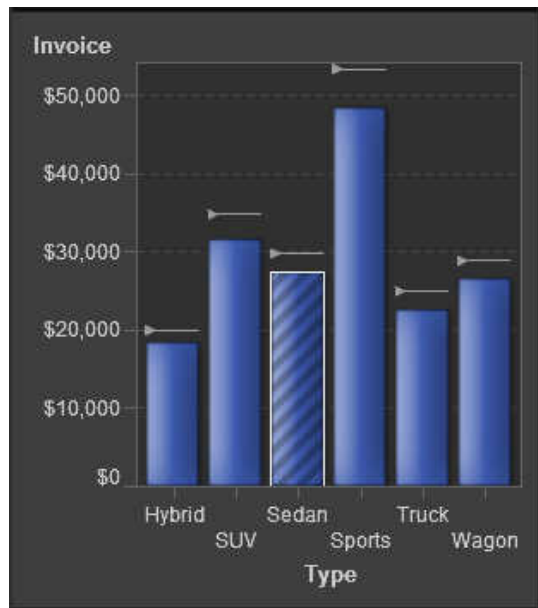
- ✓ Supported in the explorer.
- ✓ Supported in the designer and viewers.



A correlation matrix displays the degree of correlation between measures as a series of colored rectangles. The color of each rectangle indicates the strength of the correlation.

Availability:

- ✓ Supported in the explorer.
- Not supported in the designer or viewers.



A targeted bar chart is a bar chart that has pointers to target values. In this example, the pointers appear above each bar.

Availability:

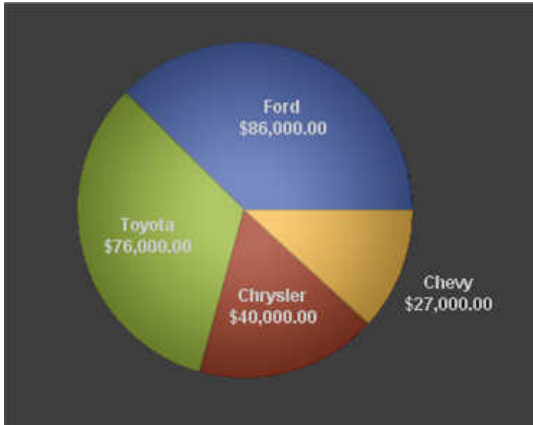
- ☐ Not supported in the explorer.
- ☒ Supported in the designer and viewers.



A waterfall chart (also known as a progressive bar chart) shows how the initial value of a measure increases or decreases during a series of operations or transactions. The first bar begins at the initial value, and each subsequent bar begins where the previous bar ends. The length and direction of a bar indicate the magnitude and type (positive or negative, for example) of the operation or transaction. The resulting chart is a stepped cascade that shows how the operations or transactions lead to the final value of the measure.

Availability:

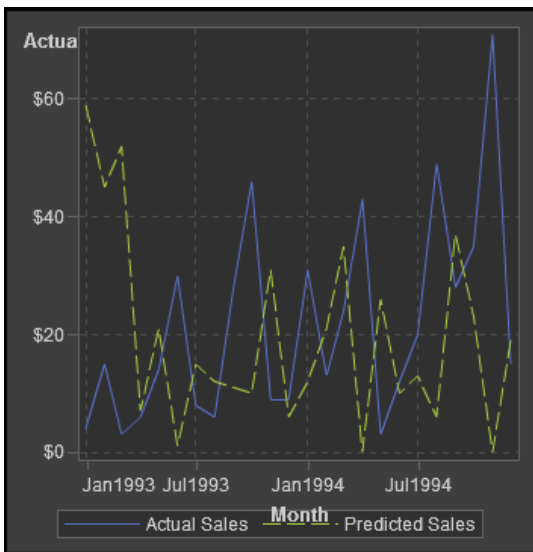
- ☐ Not supported in the explorer.
- ☒ Supported in the designer and viewers.



A pie chart is a circular chart that is divided into slices by radial lines. Each slice represents the relative contribution of each part to the whole.

Availability:

- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A time series plot shows an ordered sequence of values that are observed at equally spaced time intervals. A time series plot requires a date or date time category data item that is continuous.

Availability:

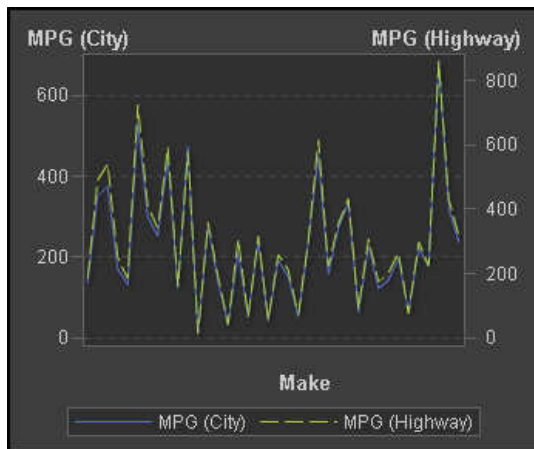
- ✓ Supported in the explorer as a line chart.
- ✓ Supported in the designer and viewers.



A dual axis bar chart is a variation of the bar chart that has two measures. A measure is on each axis.

Availability:

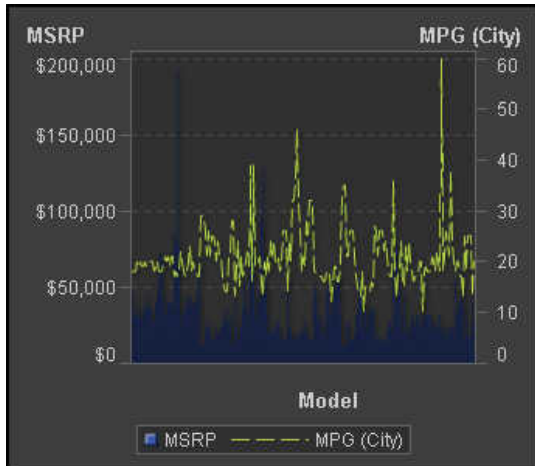
- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A dual axis line chart is a variation of the line chart that has two measures. A measure is on each axis.

Availability:

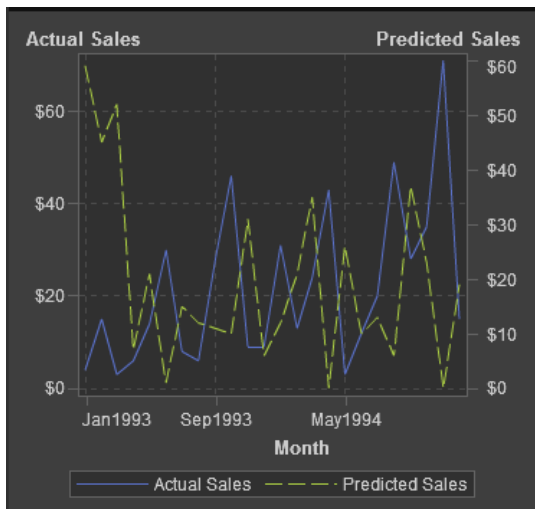
- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A dual axis bar-line chart is a variation of the bar chart that has two measures. A measure is on each axis, and the bar chart is overlaid by a line chart.

Availability:

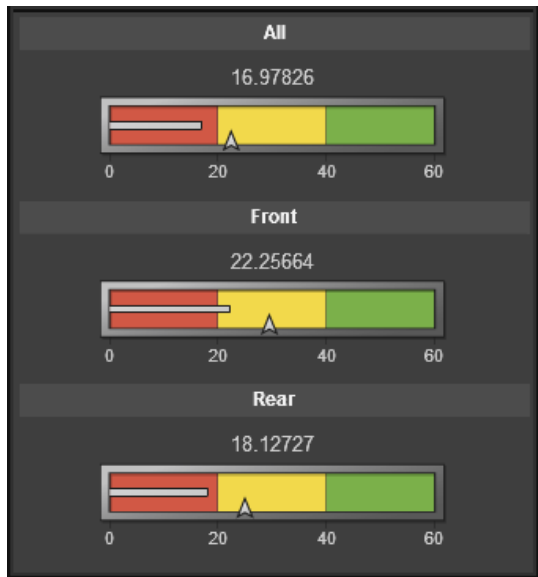
- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A dual axis time series plot is a variation of the time series plot that has two measures. A measure is on each axis.

Availability:

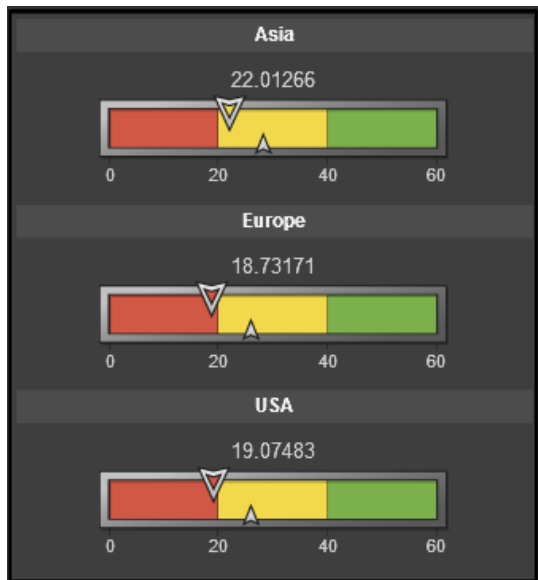
- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A bullet gauge is a horizontal dashboard indicator (also known as a KPI chart) that compares an actual value to a target value and compares them in intervals. This example displays three bullet gauges. The actual value is indicated by an inset horizontal bar.

Availability:

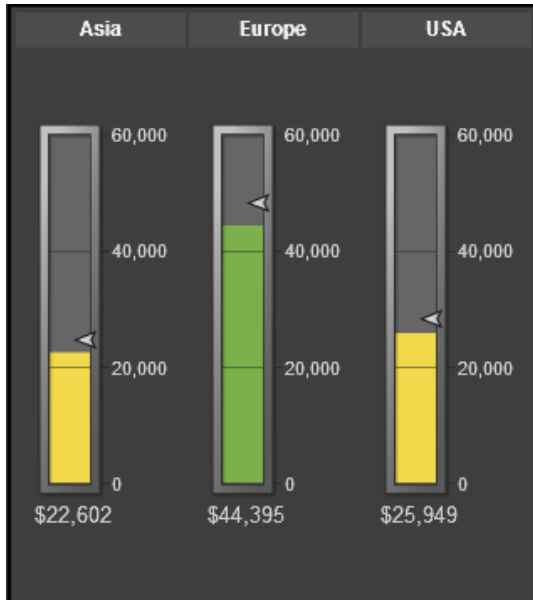
- Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A slider gauge is a horizontal dashboard indicator (also known as a KPI chart) that compares an actual value to a target value and compares them in intervals. This example displays three slider gauges. The actual value is indicated by a downward-facing arrow.

Availability:

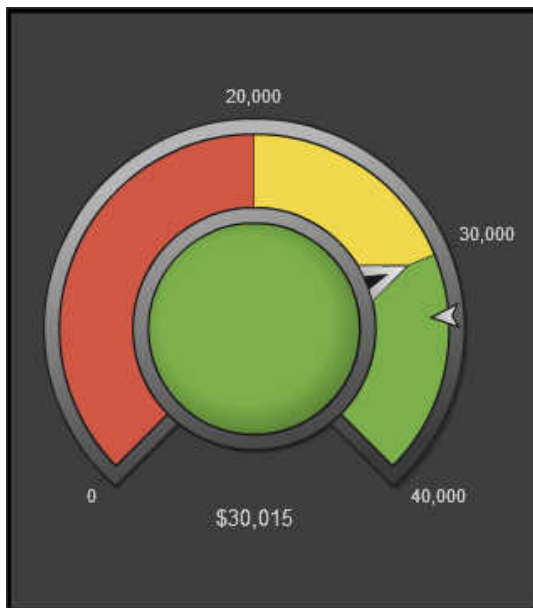
- Not supported in the explorer.
- ✓ Supported in the designer and viewers.



A thermometer gauge is a vertical dashboard indicator (also known as a KPI chart) that compares an actual value to a target value and compares them in intervals. This example displays three thermometer gauges. The actual value is indicated by a vertical bar.

Availability:

- ☐ Not supported in the explorer.
- ☒ Supported in the designer and viewers.



A dial gauge is an arc-shaped dashboard indicator (also known as a KPI chart) that compares an actual value to a target value and compares them in intervals. The actual value is indicated by an arrow that points outward from the inner circle.

Availability:

- ☐ Not supported in the explorer.
- ☒ Supported in the designer and viewers.



A speedometer gauge is a circular dashboard indicator (also known as a KPI chart) that compares an actual value to a target value and compares them in intervals. The actual value is indicated by the larger pointer.

Availability:

- ☐ Not supported in the explorer.
- ✓ Supported in the designer and viewers.

Data Sources

Each exploration can have only one data source.

Each report (and each section within a report) can have multiple data sources.

Data that is used for explorations and reports must be loaded into memory on the SAS LASR Analytic Server. In addition to loading SAS data sets, an administrator can load other data that is accessible to a SAS/ACCESS engine and import local Excel or delimited (CSV) files.

TIP An administrator can perform ETL and aggregation functions before loading data. For more information, see the data preparation chapters in the *SAS Visual Analytics: User's Guide*.

Anatomy of a Report

A report's content can include the following types of objects:

- Objects that display data or results, including tables, graphs, geo maps, gauges, and stored processes.
- Objects that provide static content, including images (for example, a logo) and text (for example, a link to a web page).
- Objects that enable viewers to interact with a report (these objects are called controls).

A report's structure is provided by sections and containers:

- Sections separate content onto different tabs or pages. Designers and viewers can see the contents of only one section at a time.
- Vertical and horizontal containers group objects within a section. A container has a scrollable space, enabling the container to hold more content than what fits on the screen. Designers and viewers can scroll in the report to see additional content.

The Home Page



- 1 The menu bar offers common tasks and search functionality.
- 2 The **Create Content** area has icons for creating new explorations and reports.
- 3 The **My Content** area provides several ways to navigate to certain types of content.
- 4 The **Other Content** area displays predefined lists of content.
- 5 The **Common Actions** pane is an alternate initiation point for certain actions.
- 6 The **Links** pane lists an introductory video and any pages that you have bookmarked.
- 7 The **SAS Resources** pane has links to the SAS website and social media.

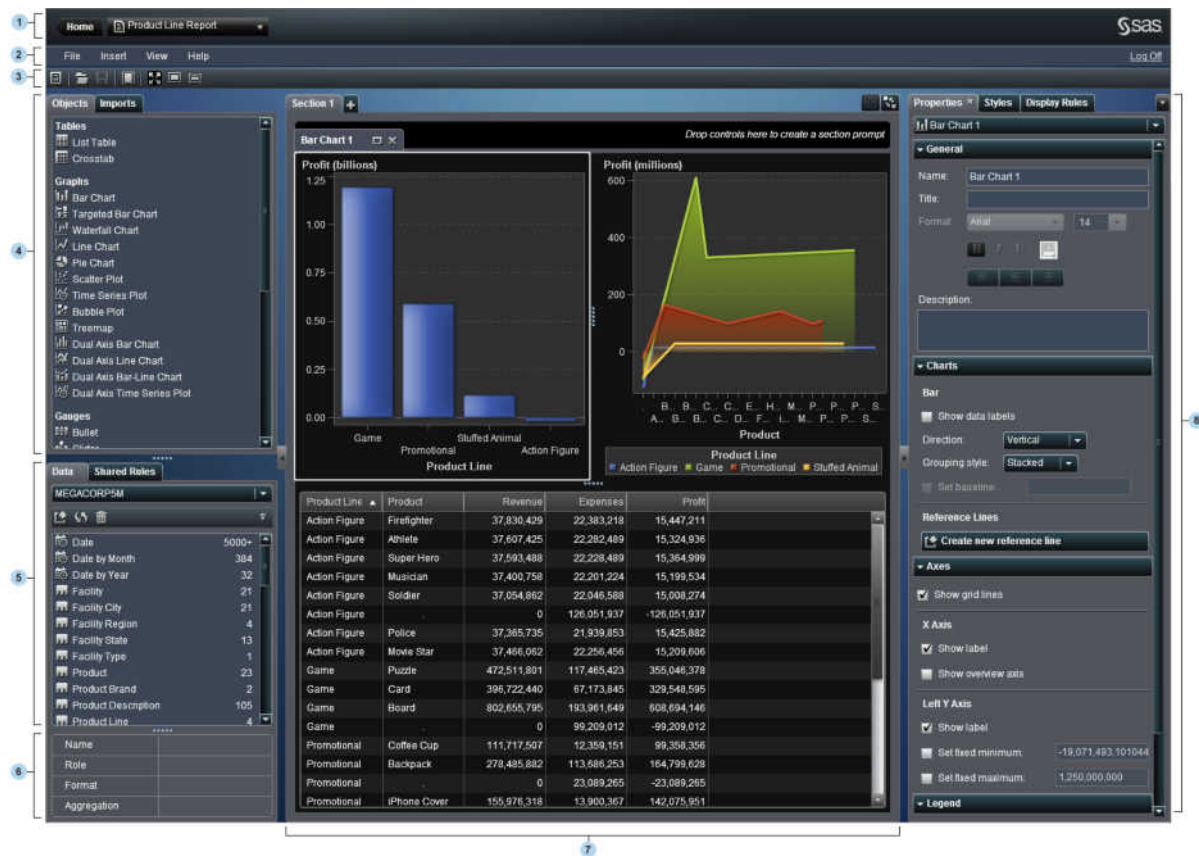
The Explorer



- 1 The application bar provides access to the home page and recent explorations.
- 2 The menu bar offers common tasks, such as creating a new exploration.
- 3 The toolbar enables you to manage your explorations and visualizations.
- 4 The data pane enables you to manage the data that is used in your visualizations.
- 5 The data properties table enables you to set data item properties.
- 6 The workspace displays one or more visualizations.

- 7 The right pane's tabs enable you to set properties and data roles, subset data, and use comments.
- 8 The dock contains any minimized visualizations.

The Designer



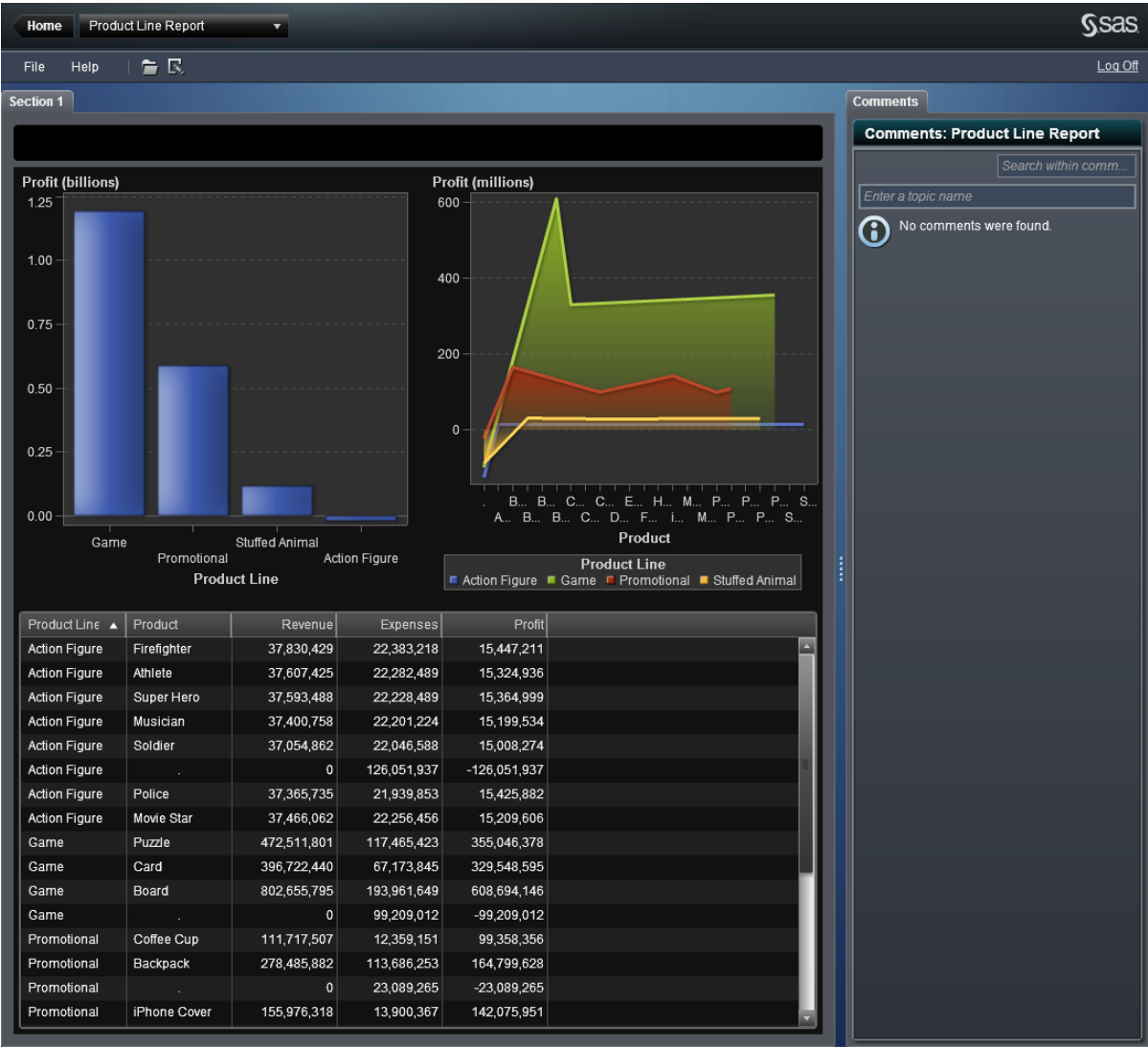
- 1 The application bar provides access to the home page and recent objects.
- 2 The menu bar offers common tasks for the current report or section.
- 3 The toolbar enables you to expand the workspace and change a report's canvas size.

- 4 The **Objects** tab enables you to add new report objects. The **Imports** tab enables you to import and reuse content from other reports.
- 5 The **Data** tab enables you to select data. You can add, refresh, or remove a data source using the icons above the list of data items. Using the local menu (☰), you can change the data source, define a hierarchy, define a calculated item, or show or hide data items. You can also access the details for the measures in the data set.

The **Shared Rules** tab enables you to create and manage display rules that are used by multiple gauges (for example, a display rule can designate range intervals and colors).
- 6 The data item table provides information about a selected data item, including the name, role, format, and aggregation. If you modify any of these data item properties, all report objects that use that data item are affected.
- 7 The canvas is the workspace for building a report. There is an area at the top of the canvas where you can drop filter controls and then categories to create section prompts.
- 8 The right pane's tabs enable you to work with details about a report and its report objects. To access additional tabs or to display icons instead of tab names, click ▼ after the last tab name.

The Viewers

Here is an example of a report in the web viewer:



The mobile viewers are native to each device. For example, here is a screen capture from the SAS Mobile BI app for iPad:



Where to Find Additional Documentation

The most current technical resources for SAS Visual Analytics are available on the [SAS support site](#).

Your experience with SAS software should be as smooth as possible. Please submit your [feedback](#).

