## Keyboard Shortcuts for SAS Visual Analytics

The following table contains the keyboard shortcuts for SAS Visual Analytics.

### Keyboard Shortcuts

<table>
<thead>
<tr>
<th>Action</th>
<th>Keyboard Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open the Landmarks window.</td>
<td>Ctrl+F6</td>
</tr>
<tr>
<td>Zoom in.</td>
<td>Ctrl+numeric keypad plus sign</td>
</tr>
<tr>
<td>Zoom out.</td>
<td>Ctrl+numeric keypad minus sign</td>
</tr>
<tr>
<td>Reset the zoom state.</td>
<td>Ctrl+numeric keypad zero (0) key</td>
</tr>
<tr>
<td>Invert or revert application colors.</td>
<td>Ctrl+`</td>
</tr>
<tr>
<td>Save the current report.</td>
<td>Ctrl+S</td>
</tr>
<tr>
<td>Open another report.</td>
<td>Ctrl+O</td>
</tr>
</tbody>
</table>

* You can also use the Invert application colors accessibility setting to change application colors. For more information about accessibility settings, see General Usage Help for SAS Viya Web Applications.
Gallery of Report Objects

Tables

Crosstab

A crosstab (also known as a crosstabulation table) shows an aggregate metric for the intersections of two or more categories. Crosstabs often have two or more categories assigned to both the rows and columns, forming a matrix. Crosstabs can be easier to read than list tables because they often use less space, and they always collapse repeating values for outer category data items into one unique value, which is known as grouping. A crosstab can use a hierarchy.

```
<table>
<thead>
<tr>
<th>Product Brand</th>
<th>Product Line</th>
<th>Product</th>
<th>Expenses</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novelty</td>
<td>Toy</td>
<td>Action Figure</td>
<td>223,822,374</td>
<td>813,699,290</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Athlete</td>
<td>126,051,937</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Firefighter</td>
<td>22,282,489</td>
<td>37,607,425</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Movie Star</td>
<td>22,363,218</td>
<td>37,830,429</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Musician</td>
<td>22,256,456</td>
<td>37,466,062</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Police</td>
<td>22,201,224</td>
<td>37,400,758</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soldier</td>
<td>21,939,853</td>
<td>37,365,735</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Super Hero</td>
<td>22,046,588</td>
<td>37,054,862</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Game</td>
<td>22,228,489</td>
<td>37,593,488</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>477,809,929</td>
<td>1,671,890,035</td>
</tr>
</tbody>
</table>
```

List Table

A list table is a two-dimensional representation of data in which the data values are arranged in unlabeled rows and labeled columns. List tables can use any data items from a data source. A list table cannot use a hierarchy or a percentage of subtotals.

```
<table>
<thead>
<tr>
<th>Product Line</th>
<th>Revenue</th>
<th>Expenses</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game</td>
<td>1,671,890,035</td>
<td>477,809,929</td>
<td>1,194,080,107</td>
</tr>
<tr>
<td>Promotional</td>
<td>813,699,290</td>
<td>223,822,374</td>
<td>589,876,916</td>
</tr>
<tr>
<td>Stuffed Animal</td>
<td>276,990,966</td>
<td>159,548,680</td>
<td>117,442,285</td>
</tr>
<tr>
<td>Action Figure</td>
<td>262,318,761</td>
<td>281,390,254</td>
<td>-19,071,493</td>
</tr>
</tbody>
</table>
```
Graphs, Charts, and Plots

Bar Chart

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 data-driven lattices. You can filter or rank your data based on a specified number of top or bottom values.

![Bar Chart](image)

Box Plot

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.

![Box Plot](image)
Bubble Plot

A bubble plot is a variation of a scatter plot in which the markers are replaced with bubbles. 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 bubbles. Each bubble represents an observation. A bubble plot is useful for data sets with dozens to hundreds of values. You can add categories to the Grouping and Lattice roles.

Note: A bubble’s size is scaled relative to the minimum and maximum values of the size variable. The minimum and maximum sizes are illustrated in the plot legend. The actual value for each bubble is displayed as a data tip. For example, the legend that is displayed in the figure on page 4, the minimum size is 1.3 and the maximum size is 8.3.
**Butterfly Chart**

A *butterfly chart* compares a measure across two categories of values.

![Butterfly Chart Diagram](image)

**Correlation Matrix**

A *correlation matrix* displays the degree of correlation between multiple intersections of measures as a matrix of rectangular cells. Each cell in the matrix represents the intersection of two measures, and the color of the cell indicates the degree of correlation between those two measures.

![Correlation Matrix Diagram](image)
Dual Axis Bar Chart

A *dual axis bar chart* is a variation of the bar chart that has measures on two Y axes.

![Dual Axis Bar Chart Example](image)

Dual Axis Bar-Line Chart

A *dual axis bar-line chart* is a variation of the bar chart that is overlaid by a line chart.

![Dual Axis Bar-Line Chart Example](image)
**Dual Axis Line Chart**

A dual axis line chart is a variation of the line chart that has two measures. A measure is displayed on both the left and right side of the Y axis. The relationship between two measures can be examined on two different scales in a dual axis line chart.

![Dual Axis Line Chart](image)

**Dual Axis Time Series Plot**

A dual axis time series plot is a variation of the time series plot that has two measures. A measure is displayed on both the left and right side of the Y axis.

For example, a dual axis time series plot can be useful when you need to display two measures that have the same unit of measurement and different scales, such as quantity ordered and returns, or when you need to display two measures that have different units of measurement, such as sales and quantity ordered.
Gauge

A *gauge* is a dashboard indicator that compares an actual value to a target value. The scale of the gauge and the colored data ranges on the gauge are controlled by display rules. To change these properties, edit the display rules for the gauge.

Several types of gauges are available:

**Bullet**

- displays a linear gauge. The target value is indicated by a line and the actual value is indicated by a narrow bar.

**Note:** The scale of a bullet gauge often begins at zero, but it can contain both positive and negative values if both types of values apply to the primary measure, such as profit. The inset horizontal bar should always begin at zero so that comparing multiple bullet graphs is not confusing.
Dial

display an arc-shaped gauge. The target value is indicated by a black arrow pointing inward. The actual value is indicated by a white arrow pointing outward.

Slider

displays a linear gauge. The target value is indicated by a small black arrow. The actual value is indicated by a large white arrow.

Note: Like a bullet gauge, a slider gauge is oriented horizontally by default, but you can change the gauge’s orientation to vertical. You should use a slider gauge when the numeric scale does not start at zero.
**Speedometer**

displays an arc-shaped gauge. The target value is indicated by a small white triangle pointing outward. The actual value is indicated by a black pointer pointing outward.

**Thermometer**

displays a linear gauge. The target value is indicated by a line. The actual value is indicated by the background bar.

**Note:** The base of a thermometer bar should always start at zero. You can set this by defining your first range display rule to begin at zero. SAS Visual Analytics always shows the base of the bar at the bottom of the thermometer.
A geo map overlays your data on a geographic map. You can display your data by using the following types of map:

**Bubbles**

displays your data as a series of bubbles. Each bubble is located at the center of a geographic region or at the coordinates of a location. The size of the bubbles can represent either the frequency of each geographic location or the value of a measure.
Coordinates
displays your data as a simple scatter plot on the map. Each point is located at the center of a geographic region or at the coordinates of a location.
Regions
displays your data as colored regions on the map. You can fill geographical boundaries (for example, a country or a state) on a map with color, based on measure values that are aggregated to the level defined by a geographical boundary.

Note: The Regions map style is not available for custom geographic roles or for ZIP codes.
Heat Map

A *heat map* displays the distribution of values for two data items by using a table with colored cells.

![Heat Map Diagram]

Histogram

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

A *line chart* shows the relationship of one or more measures over some interval, such as time or a series of ranges. You can measure a single measure (univariate analysis), or you can show the relationships among multiple measures (multivariate analysis), such as the leading or lagging relationship between advertising and sales over time. The category on the X axis of a line chart is discrete; the category on the X axis of a time series plot is continuous.

You can apply grouping and create lattices.
Pie Chart

A pie chart displays a part-to-whole relationship in a circle divided into multiple slices for each value of a category data item based on a single measure data item. Each slice represents the relative contribution of each part to the whole. In a pie chart, the legend is sorted by contribution.

Starting in the 8.1 release, the default chart style is a donut chart.

In SAS Visual Analytics, a pie chart does not show a slice with a missing or zero response.

Effective pie charts limit the number of slices to 5 or 6. In SAS Visual Analytics, you can use a rank to reduce the number of slices in a pie chart. For more information, see “Add a New Rank” in SAS Visual Analytics: Working with Report Data.

Note: The Other slice does not display data tip values. In addition, the Other slice always sums the included values, regardless of the aggregation method selected for the measure. For example, if the aggregation method selected is Count, then the Other slice displays the sum of the individual counts.

Scatter Plot

A scatter plot is a two-dimensional plot that shows the relationship of two measure data items. Each marker (represented by a symbol such as a dot, a square, or a plus sign) represents an observation. The marker’s position indicates the value for each observation. Use a scatter plot to examine the relationship between numeric data items. You can apply grouping by assigning a category to the Color role.

Scatter plots do not use aggregated data.
**Targeted Bar Chart**

A *targeted bar chart* is a variation of the bar chart that has target values. A target value is represented as a triangle with a line at the target value that is determined by the target role.

![Targeted Bar Chart Image]

**Time Series Plot**

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, datetime, time, or hierarchy data item that is continuous on the X axis.

You can add forecasting to a time series plot to predict future values.

![Time Series Plot Image]
A treemap displays your data as a set of rectangles (called tiles). Each tile represents a category node 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. (There are two data roles for measures in a treemap—Size and Color.) For example, a sales data treemap might have tile sizes that represent the number of orders, and it might have tile colors that are derived from color gradients that represent sales.

The layout of the tiles in the treemap is dependent on the size of the display area because it uses a space-filling algorithm to lay the tiles out. 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 because the aspect ratio and size available in those viewers might be different from what the original report designer sees in SAS Visual Analytics.

Note: Treemaps allow only one category data item or hierarchy data item.
Waterfall Chart

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 bar showing how incremental changes lead to the final value of the measure.
**Word Cloud**

A word cloud displays a set of category values as text, grouped in a cloud-like shape. Depending on the word cloud data roles, the size of the text indicates the frequency of a category value or the value of a measure that corresponds to a category value.

![Word Cloud Diagram]

**Controls**

A control is a report object that filters or narrows the scope of the data that the user is viewing. A control enables a report designer to select a category that he or she wants the report user to see.

**Button Bar**

A button bar control displays buttons, which represent a narrowed scope of data, in a horizontal or vertical layout. A report user can select a button to filter a list of category values.

<table>
<thead>
<tr>
<th>East</th>
<th>North</th>
<th>South</th>
<th>West</th>
</tr>
</thead>
</table>

**Drop-Down List**

A drop-down list control enables a report user to select an item from a filtered list of category values.
List

A list control enables a report user to select one or more category values from a list.

☐ East
☐ North
☐ South
☐ West

Slider

A slider control enables a report user to move a selector horizontally or vertically to select a single data item or range of data items.

Text Input

A text input control enables a report user to enter text in a field to narrow the list of category values.

Enter Facility Region...

Analytics

Decision Tree

A decision tree displays a series of nodes as a tree, where the top node is the response data item, and each branch of the tree represents a split in the values of a predictor data item. The splits enable you to see which values of the predictor data item correspond to different distributions of values in the response data item.
Network Analysis

A network analysis displays the relationships between the values of categories or hierarchy levels by using a series of linked nodes.
**Text Topics**

A *text topics* object displays a set of words from a character data item. The size of each word in the cloud indicates the importance (topic term weight) of the word.

A text topics object analyzes each value in a document collection as a text document that can contain multiple words. Words that often appear together in the document collection are identified as topics. For the selected topic, the text topics object displays the terms with the greatest topic term weight values. The topic term weight indicates the importance of the term within the topic.

A text topics object can also display whether the documents in a topic express positive, negative, or neutral sentiment.
Other

**Container**
A container object enables you to group other report objects in your report.

**Image**
An image object enables you to include your corporate logo or other graphics in your report.

**Prompt Container**
A prompt container object enables you to group prompt controls in your report. Prompt containers can be used for both report prompts and page prompts.

**Text**
A text object displays static text, which can contain links, in your report.

**Web Content**
A web content object displays a web page or embedded video content in an inline frame (iframe).

**SAS Visual Statistics**

**About Visual Statistics Objects**
If SAS Visual Statistics is licensed at your site, then these plots are available.

**Assessment Plot**
The assessment plot displays how well the model predicts the value of the dependent variable against the true value of the dependent variable.
Cluster Matrix Plot

The *cluster matrix* displays a two-dimensional projection of each cluster onto a specified number of effect pairs.

Fit Summary Plot

The *fit summary plot* ranks each input variable based on importance to the model as determined by its p-value.

Icicle Plot

An *icicle plot* is an alternative way to view a decision tree. The width of each item in the plot indicates what percentage of the data is contained in that item. The root node spans the entire width of the plot because it contains 100% of the data, while each leaf node contains only a fraction of the data and is thus much smaller.
Influence Plot

The influence plot displays the relative influence of each observation based on a specified statistic.

Lift Plot

Lift measures the ratio of percent captured response within each decile to the baseline percent response.
Cumulative lift measures the ratio of percent captured response within each decile, up to and including the current decile, to the baseline percent response.

Misclassification Plot
This misclassification plot displays the number of true positives, false positives, true negatives, and false negatives in a bar chart.

Parallel Coordinates Plot
The parallel coordinates plot displays how each cluster interacts with the effect variables.

Residual Plot
The residual plot displays a specified residual value for each observation in the input data set.
ROC Plot

The Receiver Operator Characteristic (ROC) plot displays the sensitivity and 1–specificity measures for a model over a range of cutoff values. Sensitivity is defined as the number of true positives divided by the sum of true positives and false positives. Specificity is defined as the number of true negatives divided by the sum of true negatives and false negatives. One minus specificity is the number of false positives divided by the number of nonevents.

Tree Plot

See Decision Tree on page 21 for more information.

Variable Importance Plot

A variable importance plot ranks each input variable based on its relative contribution to the model.
**SAS Visual Data Mining and Machine Learning**

**About Visual Data Mining and Machine Learning Objects**

If SAS Visual Data Mining and Machine Learning is licensed at your site, then these plots are available.

**Iteration Plot**

For tree-based models with a categorical response, the *iteration plot* displays the change in misclassification rate at each iteration during model training. For tree-based models with a measure response, the *iteration plot* displays the change in average squared error.

For other models, the *iteration plot* displays the value of a specified model convergence criterion at each iteration during model training.
Network Diagram

The network diagram displays the input nodes, hidden nodes, connections, and output nodes of a Neural Network.
High-Cardinality Thresholds for Report Objects

Client-side thresholds for report objects are documented in the following table. These thresholds affect SAS Visual Analytics and all of the viewers. The second column indicates the maximum number of unique values.

**Client-Side Thresholds for Report Objects**

<table>
<thead>
<tr>
<th>Report Object</th>
<th>Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>List table</td>
<td>truncates the data after 40,000 rows.</td>
</tr>
<tr>
<td>Crosstab</td>
<td>displays an error message if the server returns more than 50,000 rows.</td>
</tr>
<tr>
<td>Report Object</td>
<td>Rows</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bar chart (regular, targeted, and dual axis)</td>
<td>displays an error message if the server returns more than 3,000 rows.</td>
</tr>
<tr>
<td>Box plot</td>
<td>displays an error message if the data would create more than 800 boxes.</td>
</tr>
<tr>
<td>Bubble plot</td>
<td>without the <strong>Group</strong> or <strong>Animation</strong> roles assigned, displays an error message if the server returns more than 25,000 rows.</td>
</tr>
<tr>
<td></td>
<td>with the <strong>Group</strong> and <strong>Animation</strong> roles assigned, displays an error message if the server returns more than 50,000 rows.</td>
</tr>
<tr>
<td></td>
<td>with the <strong>Group</strong> role assigned and no <strong>Animation</strong> assigned, displays an error message if the server returns more than 500 rows.</td>
</tr>
<tr>
<td></td>
<td>with a lattice role assigned, displays an error message if the server returns more than 5000 rows.</td>
</tr>
<tr>
<td>Butterfly chart</td>
<td>displays an error message if the server returns more than 50,000 rows.</td>
</tr>
<tr>
<td>Correlation matrix</td>
<td>allows only 60 measures to be assigned.</td>
</tr>
<tr>
<td>Dual axis bar-line chart</td>
<td>displays an error message if the server returns more than 50,000 rows.</td>
</tr>
<tr>
<td>Gauge</td>
<td>has no client or server cardinality limits.</td>
</tr>
<tr>
<td>Geo map</td>
<td>for the region map style, displays an error if the server returns more than 5,000 rows.</td>
</tr>
<tr>
<td></td>
<td>for the bubble map style, displays an error if the server returns more than 25,000 rows.</td>
</tr>
<tr>
<td></td>
<td>for the coordinates map style, displays an error if the server returns more than 40,000 rows.</td>
</tr>
<tr>
<td>Heat map</td>
<td>when category values are assigned, displays an error if the server returns more than 3,000 rows.</td>
</tr>
<tr>
<td>Histogram</td>
<td>has no client or server cardinality limits.</td>
</tr>
<tr>
<td>Line chart (regular and dual axis line)</td>
<td>truncates the data after 4,000 rows.</td>
</tr>
<tr>
<td>Pie chart</td>
<td>displays an error message if the server returns more than 3,000 rows.</td>
</tr>
<tr>
<td>Scatter plot</td>
<td>displays an error message if the server returns more than 40,000 rows.</td>
</tr>
<tr>
<td>Time series plot (regular and dual axis)</td>
<td>displays an error message if the server returns more than 10,000 rows.</td>
</tr>
<tr>
<td>Treemap</td>
<td>truncates the data after 1,500 rows.</td>
</tr>
<tr>
<td>Report Object</td>
<td>Rows</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Waterfall chart</td>
<td>displays an error message if the server returns more than 3,000 rows.</td>
</tr>
<tr>
<td>Word cloud</td>
<td>truncates the data to the value of the <strong>Word display limit</strong> option. The maximum value is 100.</td>
</tr>
<tr>
<td>Button bar</td>
<td>truncates the data after 100 rows</td>
</tr>
<tr>
<td>Drop-down list</td>
<td>truncates the data after 500 rows</td>
</tr>
<tr>
<td>List</td>
<td>truncates the data after 500 rows</td>
</tr>
<tr>
<td>Decision tree</td>
<td>displays an error if the server returns more than 100,000 rows for the response values, or more than 10,240 rows for the predictor values.</td>
</tr>
<tr>
<td>Network</td>
<td>displays an error message if network contains more than 25,000 nodes and links.</td>
</tr>
<tr>
<td>Text topics</td>
<td>displays an error message if the data source contains more than 10,000,000 rows.</td>
</tr>
<tr>
<td></td>
<td>truncates the number of topics to 13.</td>
</tr>
<tr>
<td></td>
<td>truncates the number of terms to 100.</td>
</tr>
<tr>
<td></td>
<td>truncates the number of documents to 1,000.</td>
</tr>
</tbody>
</table>