



## Pentaho Report Designer User Guide



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# Introduction

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Pentaho Report Designer is a sophisticated report creation tool that you can use standalone, or as part of the larger Pentaho BI Suite. It enables professionals to create highly detailed, "pixel-perfect" reports based on adequately prepared data from virtually any data source.

Report Designer is not the only way to create reports with Pentaho software. Through the BI Server's Web-based Pentaho User Console you can also use the Interactive Reporting interface, or you can integrate the Pentaho Reporting engine (on which Report Designer is built) into your own software. If you're an XML guru, you could also use Design Studio to create a report by hand via an action sequence.

This user guide covers all of the major Report Designer features and functions, from adding a data source to working with conditional formatting and formulas. You can read it cover-to-cover to attain a reasonably comprehensive Report Designer education, or you can use it strictly as a reference to consult when you run into an operational challenge.

## How to Start Report Designer

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How you start Report Designer depends on which platform you're on -- Windows, Linux, or OS X.

### Starting Report Designer on Windows

If you used the Pentaho BI Suite installer available to you through your subscription, you will have a Start menu category for all of your Pentaho applications. To run Report Designer, click the **Report Designer** item in the **Pentaho BI Suite** subdirectory in the **Pentaho** application folder. Alternatively, you can run the `\pentaho\design-tools\report-designer\report-designer.exe` from Windows Explorer or the command prompt.

### Starting Report Designer on Linux

The BI Suite installer does not create program entries in the K menu or Applications menu in Linux desktop environments, so you will have to start Report Designer by navigating to the `/pentaho/design-tools/report-designer/` directory and running the **report-designer.sh** script. You can do this from your file manager, or from a terminal window.

### Starting Report Designer on OS X

The Mac installation procedure does not create program entries in the dock, so you will have to start Report Designer by opening your **Applications** folder, then the **report-designer** sub-folder, then running **report-designer.app**.

## Report Designer Configuration Directories

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Upon first launch, Report Designer creates a `.pentaho` directory in the current user's home directory, and populates it with the following subdirectories:

Directory	Purpose
caches	Contains cached fonts, which speeds up report rendering
classic-engine	A cache directory that contains low-level options saved by the Pentaho Reporting engine

Directory	Purpose
report-designer	Contains both the default Pentaho-supplied report samples and content, and user preferences for the Report Designer interface
report-design-wizard	Contains the default Pentaho-supplied Report Design Wizard templates
simple-jndi	Holds a single properties file that contains JNDI connection information. By default it has connection details for the Pentaho-supplied HSQLDB sample database

## Pentaho Reporting Configuration Files

The following files contain various configuration options for Pentaho Reporting. The options are not particularly self-explanatory and their value limits are not obvious; therefore, you shouldn't change any options in these files unless you are following guidelines from Pentaho documentation or are assisted by a Pentaho support or consulting representative.

File	Purpose
/pentaho/design-tools/report-designer/resources/ <b>report-designer.properties</b>	Contains options for the Report Designer client tool. It does not change any report options.
/pentaho/design-tools/report-designer/resources/ <b>classic-engine.properties</b>	Contains global report rendering options for reports generated locally from Report Designer. Some of these options can be overridden in individual reports.
/tomcat/webapps/pentaho/WEB-INF/classes/ <b>classic-engine.properties</b>	Contains global report rendering options for published reports that are generated on the BI Server. Some of these options can be overridden in individual reports.

## Workflow

To create a report in Report Designer, you will generally follow a process similar to this one:

1. Connect to a data source (database, usually, though you can also pull data from a flat file)
2. Constrain the data with a query
3. Arrange data elements in the Report Designer workspace
4. Apply formatting and add extra graphical elements
5. Create formulas or calculated fields using data retrieved from your query
6. Publish the report, either to the Pentaho BI Server, or locally as a PDF or other supported file format

Your report will consist mostly of data retrieved from a database query that you will create through Report Design Wizard, SQL Query Designer, MQL Query Builder, or by hand. Once you have a dataset, you are able to further constrain it to show specific details, and then move on to report layout and design.



# Navigating Report Designer

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If you have little or no experience with Report Designer, then you will need to learn how to navigate the user interface before you can move on to more complex tasks. The content in this section provides a comprehensive yet brief introduction to all of Report Designer's user interface components.

## The Welcome Screen

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The Welcome screen's primary purpose is to provide new a quick, four-step process that walks you through creating a new report through the Report Design Wizard. This is the default view when you start Report Designer, but if you close it, you can make it reappear at any time by going to the **Help** menu and selecting **Welcome**.

In addition to the new report creation buttons, the Welcome screen also shows a list of sample reports. You might find these useful if you're looking for inspiration, or if you can't figure out how to use a certain Report Designer feature. In order to display the samples, you must have the Pentaho sample data HSQLDB database installed and running.

If you do not want to see the Welcome screen at startup, you can un-check the **Show at startup** option in the lower right corner of the window.

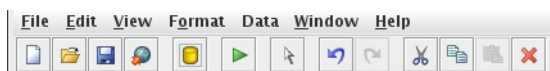


## The Report Designer Main Toolbar

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The toolbar at the top of the Report Designer window is for file, data, publishing, and cut-and-paste operations. The toolbar makes some of the most frequently used features more accessible to users who have not yet learned keyboard shortcuts for them. There are no unique data, publishing, or file operations in the toolbar; every icon represents a feature that is also available through one of the panes or menus in Report Designer.

To discover what each icon does, mouse over it to see a tooltip description.



## Defining Preferences

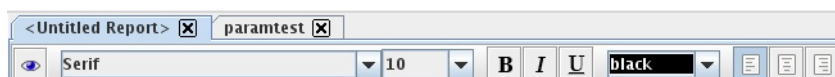
To edit preferences associated with date and time format, look-and-feel, browsers, networks, external tools and locations go to **Edit -> Preferences**. Enable **Display the index columns in the Report Designer's field selectors...** to refer to data fields by name or column position. For more information, see [Referring to Report Elements by Name or Column Position](#) on page 52

## Report Designer's Tabbed Views

Each report and subreport is opened in its own tab in Report Designer, much like in modern Web browsers and text editors. The currently selected report's tab will always be highlighted in blue, as shown in the graphic below. Click the **X** in the corner of a tab to close the open report it represents, or right-click the tab to see a context menu that offers more advanced close operations.

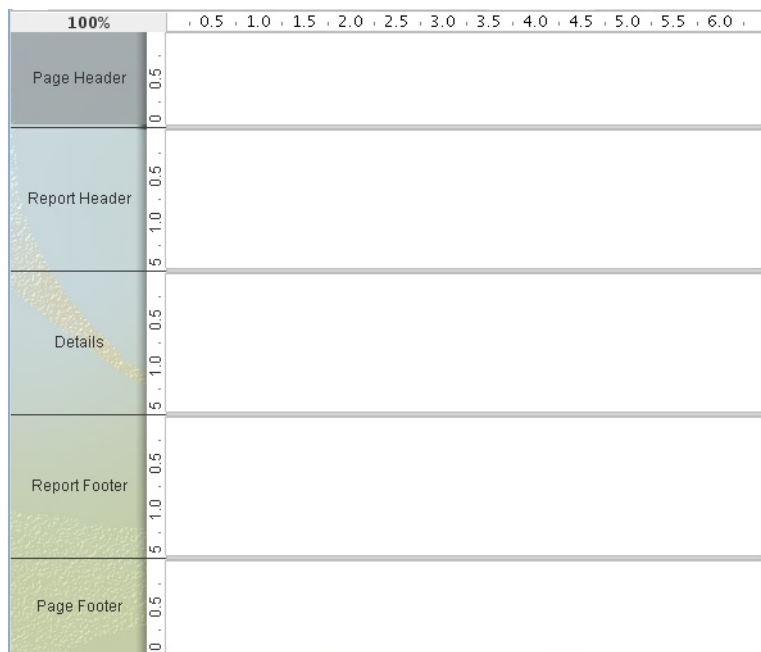
The button bar below the tab area offers font and preview options. The eye icon switches to preview mode, which shows you approximately how the report, as currently arranged, will display when published. When you are in preview mode, the eye turns into a pencil icon; click it to return to design mode.

The rest of the functions in this bar are standard font controls found in most text editors and word processors. The list of font types is pulled from your Java Runtime Environment's **fonts** directory and from the TrueType fonts registered with your operating system or desktop environment.



## The Report Workspace

The workspace is dominated by the layout bands, which define each individual portion of the report. The currently selected band's label will always be highlighted in gray, as shown with the page header band in the graphic below.



The top band is the page header, which represents the top of each report page. On the first page of a multi-page report, the page header is at the absolute top, above the report header.

The next band is the report header, which contains report elements just below the page header, but only on the first page of the report. The report header only appears once per report; it is not repeated on subsequent pages in the same report.

The details band is next, and it contains middle-of-the-page report elements. This is where most of your report data should go, and ordinarily represents the largest portion of your report pages.

Next is report footer, which appears at the bottom of the last page of the report, just above the page footer. Like the report header, it only appears once per report.

The last band is the page footer, which appears at the absolute bottom of every page in a report.

You can also create groups for various report elements, with each group having its own header and footer bands in the workspace.

All of the report bands can be resized by dragging their resize handles, or by moving report elements down past the bottom border. For this reason, report elements cannot be dragged from one band to another; they must be cut from the first band and pasted into the second.

If you'd like to change the size of the layout bands to give yourself more area to work in without changing the dimensions of the published report, you can click and drag the percentage number in the upper left corner of the workspace. By default it says **100%**, but if you click and drag it diagonally toward the upper left or lower right corners, the view will zoom in or out. If you want to reset the view to 100%, double-click the upper left corner where the percentage shows.

## The Structure Pane

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The Structure tab shares a pane with the Data tab in the upper right section of Report Designer. The Structure pane shows the exact hierarchy of every element included in a report. If you add an element to the workspace, it will show up in the Structure pane; when selected there, all of its fine-grained details can be viewed and modified through the Style and Attributes panes in the bottom right section of the screen. In addition to the standard drag-and-drop method using the palette and the workspace, you can also add an element to a report by right-clicking on any of the report sections in the Structure list, then selecting **Add Element** from the context menu. You can delete any element in the list by clicking on it, then pressing the **Delete** key, or by right-clicking it and selecting **Delete** from the context menu.

### Master Report or sub-report

This is the top-level category under which all other report bands are listed. For standalone or master reports, this will be **Master Report**; for subreports, it will be **sub-report**.

### Page Header

All of the elements shown in the page header band will be listed in this category.

### Report Header

All of the elements shown in the report header band will be listed in this category.

### Groups

If you've created any groups for your report elements, they will show up here. You can add or delete a group by right-clicking the Groups heading, then selecting the appropriate action from the context menu. You can also delete a group by selecting it, then pressing the **Delete** key. Your Details band is considered a group, and is explained below.

### Details

All items you place in the Details band will appear in the Details heading under the Group section. There are also Details-specific Header and Body bands which are not displayed in the workspace by default, but are available in the Structure pane to add to. You can add these extra bands to your workspace by

selecting each of them in the Structure pane, then clicking the checkbox next to **hide-on-canvas** in the Attributes pane.

### No Data

In the event that your query does not return any data, whatever content you put into the No Data band will appear in your report. You can add a no data band to your workspace by selecting **No Data Band** in the Structure pane, then clicking the checkbox next to **hide-on-canvas** in the Attributes pane.

### Report Footer

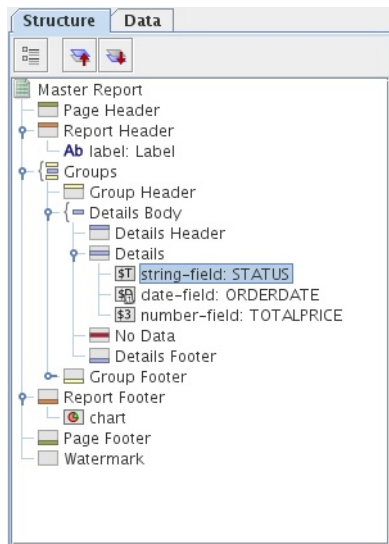
All of the elements shown in the report footer band will be listed in this category.

### Page Footer

All of the elements shown in the page footer band will be listed in this category.

### Watermark

You can add a watermark to your report by clicking **Watermark** in the Structure pane, then either right-clicking it and adding an element directly through the Structure pane, or by clicking the checkbox next to **hide-on-canvas** in the Attributes pane and dragging an element to the new Watermark band.



## The Data Pane

The Data pane enables you to add data sources and view the individual queries, functions, and parameters in each report. The three buttons at the top of the pane will add a new data source, function, or parameter when clicked, respectively.

### Data Sets

All of the data sources and queries you have defined for the current report will be listed here. If you want to add a new data source, click the leftmost icon (the yellow cylinder) and select the data source type from the ensuing drop-down menu. To add a new query to an established data source, right-click the data source and then select **Edit DataSource** from the context menu. To delete a data source, select it, then press the **Delete** key, or right-click it and select **Delete** from the context menu.

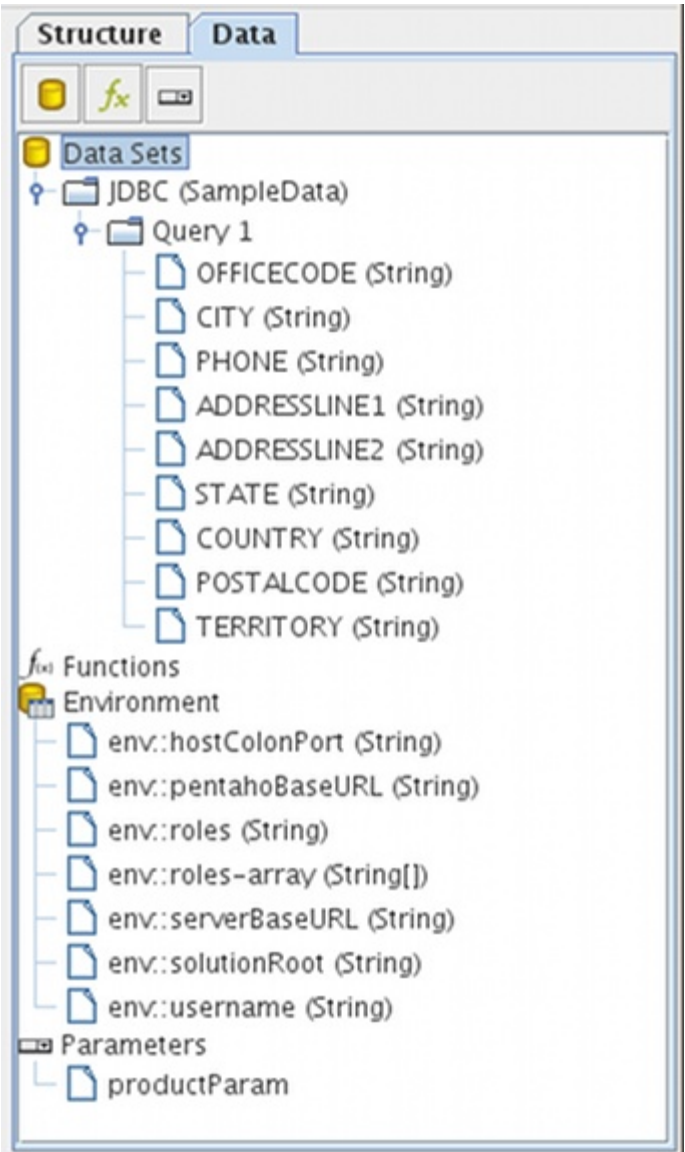
### Functions

All of the mathematical functions and conditional elements that you add to a report will be listed in this category. Click the **fx** button in the upper left corner of the pane to add a new function. You can delete a

function by clicking it, then pressing the **Delete** key, or by right-clicking it and selecting **Delete** from the context menu.

**Parameters**

If your query is properly formed, you can add a parameter to your report, which enables report readers to customize the content of the output. To add a new parameter, click the rightmost icon in the upper left corner of the pane. You can delete parameters by selecting the parameter you want to eliminate and pressing the **Delete** key, or by right-clicking the parameter and selecting **Delete** from the context menu.



**Environment Variables**

If you are publishing your report to the Pentaho BI Server, you can use certain BI Server environment variables in your report:

Variable	Purpose
hostColonPort	The hostname and port number for the BI Server service
pentahoBaseURL	The complete URL to the BI Server, as set in the <b>Base URL</b> property in the Pentaho Enterprise Console.

Variable	Purpose
roles	Returns a comma-separated list of roles that the BI Server user who is currently running this report belongs to
roles-array	Returns a Java array of strings containing the roles that the BI Server user who is currently running this report belongs to
serverBaseURL	The URL to the BI Server, minus the BI Server application context name (the default context is /pentaho/)
solutionRoot	The path to the top-level Pentaho solution directory. The default location is /home/pentaho/pentaho/server/biserver-ee/pentaho-solutions/ on Linux and Solaris, and C:\pentaho\server\biserver-ee\pentaho-solutions\ on Windows.
username	Returns the BI Server username of the person currently running the published report

## Function Reference

Every function available in Report Designer is defined below and categorized according to the group it belongs to.

### Common Functions

The Common category contains functions that handle page numbering, and a generic OpenFormula feature that you can use to create your own custom function.

Function Name		Purpose
Open Formula		Enables you to create your own custom OpenFormula function using the built-in Formula Editor. This function will run according to its placement in the report. If you need a custom function to run before all other report actions, use the Open Formula function in the Advanced category instead.
Page		Counts the number of pages rendered thus far in a report.
Total Page Count		Lists the total number of pages in the rendered report.
Page of Pages		Prints the current page number in comparison to

Function Name		Purpose
		the total number of pages in the rendered report.

### Report Functions

The Report category contains functions that modify the layout of the rendered report.

Function Name		Purpose
Is Export Type		Tests whether the given export type has been selected for this report.
Row Banding		Alternates the background color of each item band in a group.
Hide Repeating		Hides equal values in a group. Only the first changed value is printed.
Hide Page Header & Footer		Hides the page header and footer bands when the output type is not pageable.
Show Page Footer		Only shows the page footer on the last page rendered in the report.

### Summary Functions

The Summary category contains mathematical functions that count, add, and divide report data in groups.

Function Name		Purpose
Sum		Calculates the sum of the selected numeric column. This produces a global total.
Count		Counts the total number of items contained in a group. If no group is specified, all items in the entire report are counted.
Count by Page		Counts the total number of items contained in a group on one rendered page. If no group is specified, all items on the entire page are counted.
Group Count		Counts the total number of items in the selected groups. If no group is specified, all items in all groups are counted.
Minimum		Identifies the lowest or smallest value in a group.

Function Name		Purpose
Maximum		Identifies the highest or largest value in a group.
Sum Quotient		Performs simple division on the sum totals from two columns and returns a numeric value.
Sum Quotient Percent		Performs simple division on the sum totals from two columns and returns a percentage value.
Calculation		Stores the result of a calculation. This function can be used to convert a group of Running functions into a single total Summary function.
Count For Page		Counts items on a page according to the specified criteria. This value is reset to zero when a new page is reached.
Sum For Page		Adds all of the specified items on one page and produces a total. This value is reset to zero when a new page is reached.

### Running Functions

The Running category contains mathematical functions that deal with running totals, as opposed to global or summary totals.

Function Name		Purpose
Sum		Calculates a running total sum of the specified column.
Count		Counts the items in a group or report.
Group Count		Counts the number of groups in a report.
Count Distinct		Counts the distinct occurrences of a certain value in a column.
Average		Calculates the average value in a given column.
Minimum		Identifies the lowest or smallest value in a column.



Function Name		Purpose
Maximum		Identifies the highest or largest value in a column.
Percent of Total		Calculates the percentage value of a numeric column. The total sum is divided by the number of items counted.

### Advanced Functions

The Advanced category contains functions that deal with developer-centric actions.

Function Name		Purpose
Message Format		Formats text according to the Java Message Format specification.
Resource Message Format		Formats text from a resource bundle according to the Java Message Format specification.
Lookup		Maps a string from one column to another string. The possible mappings are given as (key, text) pairs. If the string from the column is null or matches none of the defined keys, a fallback value is returned.
Indirect Lookup		Returns a value from a mapped field. The field's value is used as a key to the field-mapping. The expression maps the value to a new column name and returns the value read from this column.
Resource Bundle Lookup		Performs a resource-bundle lookup using the value from the defined field as a key in the resource bundle. This expression behaves like a resource field.
Open Formula		Enables you to create your own custom OpenFormula function using the built-in Formula Editor. This function will run before any other action in the report.

### Chart Data Functions

The Chart Data category contains functions that create datasets for JFreeChart elements.

Function Name		Purpose
CategorySet Data Collector		See <a href="#">CategorySet</a> on page 84
Pie DataSet Collector		See <a href="#">PieSet</a> on page 123
Pivoting CategorySet Data Collector		See <a href="#">PivotCategorySet</a> on page 85
TimeSeries Collector		See <a href="#">TimeSeries</a> on page 178
XY-Series Collector		See <a href="#">XYSeries</a> on page 180
XYZ-Series Collector		See <a href="#">XYZSeries</a> on page 168

## Image Functions

The Image category contains functions .

Function Name		Purpose
Area Chart		See <a href="#">Area</a> on page 108
Bar Chart		See <a href="#">Bar</a> on page 82
Bar Line Chart		See <a href="#">Bar Line Combination</a> on page 140
BarCode		A simple barcode chart available through the Report Designer palette
Bubble Chart		See <a href="#">Bubble</a> on page 166
Extended XY Line Chart		See <a href="#">XY Extended Line (XY Step, XY StepArea, XY Difference)</a> on page 237
Line Chart		See <a href="#">Line</a> on page 95
Multi Pie Chart		See <a href="#">Multi-Pie</a> on page 130
Pie Chart		See <a href="#">Pie</a> on page 121
Radar Chart		See <a href="#">Radar</a> on page 265
Ring Chart		See <a href="#">Ring</a> on page 156
Scatter Plot Chart		See <a href="#">Scatter Plot</a> on page 178
Sparkline		Creates a Sparkline chart element. See <a href="#">Creating a Sparkline Chart</a> on page 57 for more details.
Survey Scale		A sliding scale chart element.

Function Name		Purpose
Waterfall Chart		See <a href="#">Waterfall</a> on page 253
XY Area Chart		See <a href="#">XY Area</a> on page 222
XY Bar Chart		See <a href="#">XY Bar</a> on page 192
XY Line Chart		See <a href="#">XY Line</a> on page 207

## Script Functions

The Script category contains functions that enable you to directly type in code from a supported scripting language.

- Bean-Scripting Framework (BSF)
- Bean-Scripting Host (BSH)
- JavaScript
- Single Value Query

The only unique object Pentaho offers in Report Designer for a scripting language is `getValue` for the Bean-Scripting Framework, which retrieves the current record or row, as shown below:

```
Object getValue()
{
    Object value = dataRow.get("RegionVariance");
    if (value instanceof Number == false)
    {
        return Boolean.FALSE;
    }
    Number number = (Number) value;
    if (number.doubleValue() < 0)
    {
        return Boolean.TRUE;
    }
    return Boolean.FALSE;
}
```

## Deprecated Functions

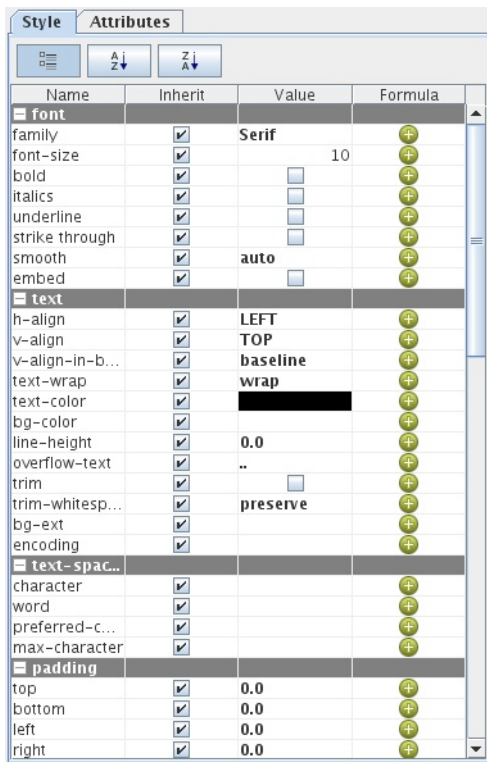
The Deprecated category contains functions that had to be included in this version of Report Designer to provide backwards compatibility for files created with older Report Designer versions. You should never use any of these functions in new reports; there are no Deprecated functions that are not more sensibly implemented in other functions in other categories.

## The Style Pane

The Style pane displays all of the visual and positional style options for any given item in the Structure pane. Click on any Structure element, and the composition of the Style pane will adjust to show all of the available style properties, listed by group.



**Note:** You cannot edit any Style or Attributes options for any selected report elements in the workspace while the Data tab has focus. Click the Structure tab to see the Style and Attributes panes for selected elements.



## Style Properties Reference

Every report element can be customized according to the below-listed parameters. To access style properties, click the **Style** tab in the lower right pane.

### Font Styles

Font styles control the font and font properties pertaining to the text of the selected element.

Property Name	Data Type	Purpose
family	Selection	The name of the font or font family
font-size	Integer	The size of the font, in points (1/72 of an inch)
bold	Boolean	A flag indicating whether a bold-type face should be used
italics	Boolean	A flag indicating whether a italic or oblique type face should be used
underline	Boolean	A flag indicating whether the text should be underlined
strikethrough	Boolean	A flag indicating whether the text should be rendered striken through
smooth	Selection	A flag indicating whether text-aliasing should be activated

Property Name	Data Type	Purpose
embed	Boolean	A flag indicating whether the font information should be embedded into the target document

## Text Styles

Font styles control the font and font properties pertaining to the text of the selected element.



**Note:** For elements that control colors, possible values are standard HTML color names (red, blue, green, black, etc.) or hexadecimal color values (#000000, #FFFFFF, #CCFF00, etc.)

Property Name	Data Type	Purpose
h-align	Selection	Horizontally aligns the selected content within this element
v-align	Selection	The size of the font, in points (1/72 of an inch)
v-align-in-band	Selection	A extended text-alignment that allows fine control on how inline-text is aligned within a line
text-wrap	Boolean	A flag indicating whether text will automatically wrap at the end of the line
text-color	Selection	The text (foreground) color.
bg-color	Selection	The element's background color.
line-height	Integer	Defines the height of a single text line. Is always greater or equal to the font size
overflow-text	String	A text quote that is printed if the given text does not fully fit into the element bound
trim	Boolean	A flag indicating whether leading and trailing white spaces will be removed
trim-whitespace	Selection	Controls how the renderer treats white spaces
bg-ext	String	A extended foreground paint property. Expert option
encoding	Boolean	Specifies the target text-encoding for the given field, in case the output supports per-field encodings

## Text Spacing Styles

Text spacing styles control the amount of space between letters and words in a textual element.

Property Name	Data Type	Purpose
character	Integer	The minimum space between two letters
word	Integer	Defines additional spacing between words
preferred-character	Integer	The preferred space between two letters
max-character	Integer	The maximum space between two letters

## Padding Styles

Padding styles control the space around the selected element.

Property Name	Data Type	Purpose
top	Decimal	Defines the padding on the top edge of the element
bottom	Decimal	Defines the padding on the bottom edge of the element
left	Decimal	Defines the padding on the left edge of the element
right	Decimal	Defines the padding on the right edge of the element

## Object Styles

Object styles control the appearance of shape elements.

Property Name	Data Type	Purpose
fill	Boolean	A flag indicating whether the given shape should be filled.
fill-color	Selection	Provides a way to define alternative fill-colors. If undefined, the foreground color is used.
draw-outline	Boolean	Defines whether the shape-outline should be drawn in the foreground color.
stroke	Selection	Defines the stroke (pen type and width) that should be used to render a shape.
anti-alias	Boolean	Defines whether drawable content should be rendered with anti-aliasing enabled.

Property Name	Data Type	Purpose
aspect-ratio	Boolean	A flag indicating whether the scaling should preserve the aspect ratio.
scale	Boolean	A flag indicating whether the content printed in the element should be scaled to fit the element's boundaries.

### Size & Position Styles

Size & Position styles control the size and position of the selected element.

Property Name	Data Type	Purpose
height	Decimal	The element's preferred height. If defined, this overrides all other height definitions including the dynamic-height flag
width	Decimal	The preferred width. If defined, this width overrides all other layout rules
x	Decimal	The X-Coordinate where the element should be placed
y	Decimal	The Y-Coordinate where the element should be placed
visible	Boolean	A flag indicating whether the element will be printed
invisible-consumes-space	Boolean	A flag indicating whether an element set to visible maintains its space
dynamic-height	Boolean	A flag indicating whether the field should expand its height based on the content it contains
min-height	Decimal	The element's minimum height
max-height	Decimal	The element's maximum height
min-width	Decimal	The element's minimum width
max-width	Decimal	The element's maximum width
x-overflow	Boolean	Defines whether content is allowed to overflow the element's layout box to the right

Property Name	Data Type	Purpose
y-overflow	Boolean	Defines whether content is allowed to overflow the element's layout box to the bottom
fixed-position	String	(Group elements only) Shifts the band to a fixed position on the page
layout	String	(Band elements only) The layout strategy for elements in bands. See <a href="#">Report Layout Types</a> on page 50 for more information on layout options.
box-sizing	Selection	Specifies the border-model to use

### Links Styles

Links styles control the properties of any HTML links created from any report element.

Property Name	Data Type	Purpose
pdf-bookmark	String	(Band elements only) Adds bookmark to pdf outputs
html-anchor	String	The name of an anchor (link-target) embedded in the html outputs
url	String	The destination URL
url-tool-tip	String	Hyperlink title that is displayed as tooltip
url-window-title	String	The window where the link should be opened

### Excel Styles

Excel styles control XLS output options.

Property Name	Data Type	Purpose
sheet-name	String	The title of the sheet/table generated in table-exports
format-override	String	A override setting that provides a Excel-specific cell-formats
formula-override	String	A override setting that provides a formula that should be printed in the generated Excel-cell instead of the original content
wrap-text	Boolean	A override setting that defines whether Excel-Cells



Property Name	Data Type	Purpose
		should have text-wrapping enabled

### Sparkline Styles

Sparkline styles control the colors of the various sparkline chart types.

Property Name	Data Type	Purpose
low-color	Selection	Defines the color of the lower value on a pie sparkline
medium-color	Selection	Defines the color for midrange values on a pie sparkline
high-color	Selection	Defines the color of the higher value on pie and bar sparklines
last-color	Selection	Defines the color of the last value in a series on a bar sparkline, and the line color on a line sparkline

### Page Behavior Styles


Page behavior styles control page display and rendering properties of the selected element when publishing to a page-aware file format.

Property Name	Data Type	Purpose
display-on-first-page	Boolean	(Band elements only) If true, only displays this band on the first page
display-on-last-page	Boolean	(Band elements only) If true, only displays this band on the last page
repeat-header	Boolean	(Header and footer elements only) If true, repeats this header or footer on every printed page
page-break-after	Boolean	If true, a page break will occur before this element
page-break-before	Boolean	If true, a page break will occur after this element
sticky	Boolean	If true, imports page-header/footer and the repeated group-header/footer from the master report into sub reports
avoid-page-break	Boolean	If true, cancels a predefined (through a formula or function) page break

Property Name	Data Type	Purpose
orphan	Integer	Defines the minimum number of elements or lines at end of the page before a pagebreak can occur within the band or paragraph
widows	Integer	Defines the minimum number of elements or lines at the beginning of the page before a pagebreak can occur within the band or paragraph

### Border Styles

Border styles control the color, texture, and size of the border around the selected element.

 **Note:** For elements that control colors, possible values are standard HTML color names (red, blue, green, black, etc.) or hexadecimal color values (#000000, #FFFFFF, #CCFF00, etc.)


Property Name	Data Type	Purpose
top-size	Integer	Specifies the size (in pixels) of the top border segment
top-style	Selection	Specifies the line style of the top border segment
top-color	Selection	Specifies the color of the top border segment
top-left-round-height	Integer	Specifies the degree of vertical roundness (in pixels) of the top left border corner
top-left-round-width	Integer	Specifies the degree of horizontal roundness (in pixels) of the top left border corner
top-right-round-height	Integer	Specifies the degree of vertical roundness (in pixels) of the top right border corner
top-right-round-width	Integer	Specifies the degree of horizontal roundness (in pixels) of the top right border corner
bottom-size	Integer	Specifies the size (in pixels) of the bottom border segment
bottom-style	Selection	Specifies the line style of the bottom border segment
bottom-color	Selection	Specifies the color of the bottom border segment

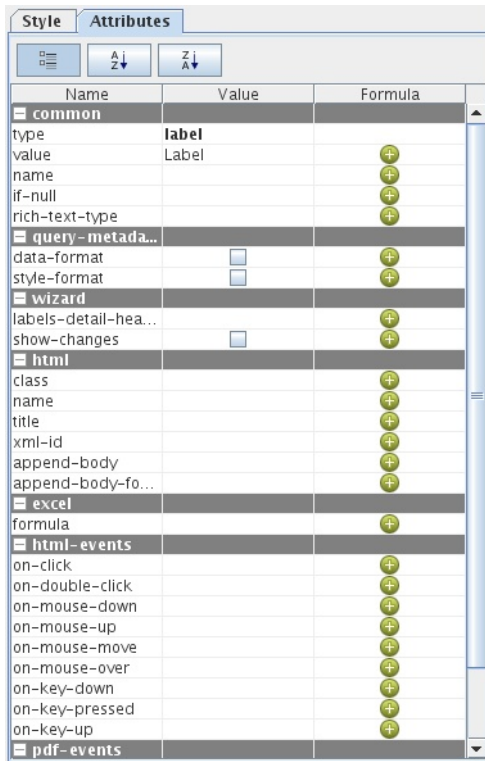
Property Name	Data Type	Purpose
bottom-left-round-height	Integer	Specifies the degree of vertical roundness (in pixels) of the bottom left border segment
bottom-left-round-width	Integer	Specifies the degree of horizontal roundness (in pixels) of the bottom left border segment
bottom-right-round-height	Integer	Specifies the degree of vertical roundness (in pixels) of the bottom right border segment
bottom-right-round-width	Integer	Specifies the degree of horizontal roundness (in pixels) of the bottom right border segment
left-color	Selection	Specifies the color of the left border segment
left-size	Integer	Specifies the size (in pixels) of the left border segment
left-style	Selection	Specifies the line style of the left border segment
right-color	Selection	Specifies the color of the right border segment
right-size	Integer	Specifies the size (in pixels) of the right border segment
right-style	Selection	Specifies the line style of the right border segment
break-color	Selection	Specifies the color of the border segment that closes an element that is cut short by a page break
break-style	Selection	Specifies the color of the border segment that closes an element that is cut short by a page break
break-size	Integer	Specifies the color of the border segment that closes an element that is cut short by a page break

## The Attributes Pane

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The Attributes pane displays all of the low-level properties, and input and output options for any given item in the Structure pane. Click on any Structure element, and the composition of the Attributes pane will adjust to show all of the possible ways its can be customized.

 **Note:** You cannot edit any Style or Attributes options for any selected report elements in the workspace while the Data tab has focus. Click the Structure tab to see the Style and Attributes panes for selected elements.



## Element Attributes Reference

Below is a complete reference for all of the items in the Attributes pane in Report Designer, organized alphabetically by property name. Not all attributes will apply to every report element.

### Barcode

The below attributes belong to the **barcode** property:

Attribute Name	Purpose	Possible Values
bar-height	Sets the height of the bar code.	Integer of any value.
bar-width	Sets the width of the bar code.	Integer of any value.
checksum	Shows the checksum value.	Boolean; default is <b>false</b> .
type	Sets the type of bar code.	String; default is <b>code128</b> (see <a href="#">Barbecue project documentation</a> for details)
show-text	Displays text under the bar code.	Boolean; default is <b>false</b> .

## Common

The below attributes belong to the **common** property:


Attribute Name	Purpose	Possible Values
type	Defines the type of element.	Predefined and locked as an element type.
field-name	Defines the existing field to use.	String; there is no default, you must define a value manually.
value	Defines a hard coded value instead of a field.	String or integer; no default value.
group-fields	Defines the field to group by.	String or integer; no default value.
resource-value	A resource string found within the resource bundle.	String; no default value.
resource-identifier	Defines the file that contains resource strings.	String; no default. This is a properties file, including the path.
name	The name you want to assign to this element.	String; no default value.
output-format	Sets preferred output type for the report.	String; no default value. Possible values are: html, pdf, xls, rtf, csv, xml.
lock-output-format	Locks the output type specified in the <b>output-format</b> attribute so that no other output type can be chosen.	Boolean; default is <b>false</b> .
auto-submit	If selected, your parameterized reports will automatically update based on the current selection in your parameter lists. If un-checked, parameter selections will not automatically change the report data; report users will have to select a new parameter value and then click <b>View Report</b> to update the report. To change this globally in reports published to the BI Server, see <a href="#">Permanently Overriding the Auto-Submit Option</a> on page 73.	Boolean; default is <b>false</b> .
format	Sets the Java format string.	String; there is no default. Must be in the Java number or date format.

Attribute Name	Purpose	Possible Values
if-null	If the defined field or value returns null, show the value defined here.	Boolean; default value is <b>false</b> .
message-null-value	If the message returns null, then return the value defined here.	String; no default value.
arc-height	Defines the arc (corner) height of a rectangle.	Integer; default value is <b>0</b> .
arc-width	Defines the arc (corner) width of a rectangle.	Integer; default value is <b>0</b> .
data-cache	Determines whether parameter result sets are cached, which would reduce the amount of reload time when switching parameters in a rendered report. This option can be further configured through the <b>org.pentaho.reporting.engine.classic.core.cache.InMemoryCache.CachedSize</b> and <b>org.pentaho.reporting.engine.classic.core.cache.InMemoryCache.MaxEntries</b> engine settings.	Boolean; default is <b>True</b> (cache is turned on).

## Table of Contents


The below attributes belong to the **table-of-contents** property:

Attribute Name	Purpose	Possible Values
group-fields	Defines both the depth of the data-collection and the fields from which to read the <b>group-value-X</b> values.	If the group-field given in the array is empty, the field value will be read from the current relational group and in the details-processing, the value will be null. If the <b>group-fields</b> list is empty, an automatic mode is activated that collects all groups extracting the group-value from the relational group.
title-field	Defines a field in the master-report that will be read for a valid <b>item-title</b> .	Any column field or function
title-formula	Defines a formula that is evaluated when a new item has been collected. The formula will only be evaluated if the title-field is not set.	formula

Attribute Name	Purpose	Possible Values
collect-details	Defines, whether detail items should be included in the data-collection.	Boolean; default is <b>false</b> .  <b>Note:</b> This attribute consumes a significant amount of system memory. Do not use this attribute on reports that are over a million rows.
index-separator	Defines the separator text that is used between the index-elements.	String; default is comma ", ".

## Index

The below attributes belong to the **index** property:

Attribute Name	Purpose	Possible Values
data-field	Defines the field to be used as the <b>item-data</b> or <b>item-key</b> .	Any column field or function
data-formula	Defines an open formula to be used as the <b>item-data</b> or <b>item-key</b> .	Formula  <b>Important:</b> Make sure that data-field is <b>not</b> defined, if this attribute is used.
index-separator	Defines the separator text that is used between page numbers in the item-pages field in the index sub report. It defaults to ", ".	String; default is <b>comma</b> , (,).
condensed-style	Defines whether or not a dash (-) is used between continuous page numbers; for example, <b>4,5,6,7</b> display as <b>4-7</b> .	Boolean; default is <b>false</b> .

## Excel

The below attributes belong to the **excel** property:

Attribute Name	Purpose	Possible Values
formula	Converts an entered value or formula into a Excel numeric value.	String; no default value.
page-header-text	Appends text into Excel page header.	String; no default value.
page-footer-text	Appends text into Excel page footer.	String; no default value.

## HTML

The below attributes belong to the **html** property:

Attribute Name	Purpose	Possible Values
append-header	Inserts the HTML entered here into the <header> of the HTML output.	String; no default value.
append-body	Inserts the HTML entered here into the <body> of the HTML output.	String; no default value.
append-body-footer	Inserts the HTML entered here into the <footer> of the HTML output.	String; no default value.
alt-name	Defines the text for the HTML <img> tag's alt attribute.	String; no default value.

## HTML-Events

The below attributes belong to the **html-events** property:

Attribute Name	Purpose	Possible Values
class	Defines the value to insert into the HTML <class> tag.	String; no default value.
name	Defines value for the name HTML object attribute.	String; no default value.
title	Defines the value to insert into the HTML <title> tag.	String; no default value.
xml-id	Defines value to insert into the HTML <xml-id> tag.	String; no default value.
on-click	Defines value for the onclick HTML DOM event object property.	String; no default value.
double-click	Defines value for the doubleclick HTML DOM event object property.	String; no default value.
on-mouse-down	Defines value for the onmousedown HTML DOM event object property.	String; no default value.
on-mouse-up	Defines value for the onmouseup HTML DOM event object property.	String; no default value.
on-mouse-move	Defines value for the onmousemove HTML DOM event object property.	String; no default value.
on-mouse-over	Defines value for the onmouseover HTML DOM event object property.	String; no default value.



Attribute Name	Purpose	Possible Values
on-key-down	Defines value for the onkeydown HTML DOM event object property.	String; no default value.
on-key-pressed	Defines value for the onkeypress HTML DOM event object property.	String; no default value.
on-key-up	Defines value for the onkeyup HTML DOM event object property.	String; no default value.

## Images

The below attributes belong to the **images** property:

Attribute Name	Purpose	Possible Values
image-encode-quality	Controls the JPEG encoding quality	A decimal percentage value between 0 and 1. The closer to 1, the higher the quality and larger the file size.
image-encode-type	Determines the image format of PDF and HTML graphics.	Possible values are: <b>.jpg</b> and <b>.png</b> . Default is <b>.png</b> .


## PDF

The below attributes belong to the **pdf** property:

Attribute Name	Purpose	Possible Values
script	References a script name inside the PDF.	String; no default value.

## Pentaho

The below attributes belong to the **pentaho** property:

 **Note:** This list is incomplete.

Attribute Name	Purpose	Possible Values
report-cache	Determines whether parameterized reports published to the BI Server are cached on a per-session basis, which would reduce the amount of reload time when switching parameters in a rendered report.	Boolean; default is <b>True</b> (cache is turned on).

## Query

The below attributes belong to the **query** property:

Attribute Name	Purpose	Possible Values
name	Assigns a name to the selected query. If you are using a JDBC Custom data source, you can type the entire query directly into the name field.	String; no default value.
row-limit	Row limit for the query.	Integer; default value is <b>-1</b> , meaning there is no hard limit.
time-out	Timeout limit for the query.	Integer; default value is <b>0</b> , meaning there is no timeout.
design-time-out	Timeout limit when running from Report Designer.	Integer; default value is <b>0</b> , meaning there is no timeout.

### Query-Metadata

The below attributes belong to the **query-metadata** property:

Attribute Name	Purpose	Possible Values
data-format	Use the number or date formatting from the Report Design Wizard or the data source.	Boolean; default is <b>true</b> if you are using the wizard, <b>false</b> if you are not.
style-format	Use the style formatting from the Report Design Wizard or the data source.	Boolean; default is <b>true</b> if you are using the wizard, <b>false</b> if you are not.

### Parameter

Below are the attributes associated with the **parameter** property:

Attribute Name	Purpose	Possible Values
auto-submit	Determines if the report when it runs uses parameter interface in the Pentaho User Console.	Boolean, undefined, or prompt; default is <b>undefined</b> . If set to <b>true</b> , the report runs when any control is updated in the parameter interface. If set to <b>false</b> , the report does not run when any control is updated in the parameter interface. It runs when the <b>Update</b> button is selected. If set to <b>undefined</b> displays the auto-submit checkbox in the parameter interface so the user can control when they want to use the option. The initial state of the checkbox is determined by the <b>auto-submit-default</b>

Attribute Name	Purpose	Possible Values
		attribute. If set to <b>prompt</b> , displays the Auto Submit checkbox in the parameter interface so the user can control when to use the option. The initial state of checkbox is determined by the <b>auto-submit-default</b> attribute.
parameter-layout	Set parameter display in the Pentaho User Console.	Selection; default is <b>vertical</b> — vertical adds each selection control into separate rows; <b>horizontal</b> adds each selection control into the same row; <b>flow</b> adds each selection control into the same row and wraps them when space is limited.
show-parameter-ui	Determines whether the parameter interface will display in the Pentaho User Console	Boolean; default is <b>false</b> .
auto-submit-default	Sets the state of the auto submit checkbox on the parameter interface.	Boolean, undefined; default is <b>false</b> . If <b>true</b> or <b>undefined</b> , the auto submit checkbox will be enabled. If <b>false</b> , the auto submit checkbox will be disabled.

## Sparkline

The below attributes belong to the **sparkline** property:

Attribute Name	Purpose	Possible Values
spacing	Sets the spacing (in pixels) between bars for a bar sparkline.	Integer; default is <b>0</b> .
start-angle	Sets the start angle (in degrees) on a pie sparkline.	Integer; possible values are from 1 to 360. Default is <b>1</b> .
counter-clockwise	Sets the plot direction on a pie sparkline.	Boolean; default is <b>false</b> , which represents clockwise.
high-slice	Sets the hexadecimal color for the high slice.	String; there is no default, you must define it manually.
medium-slice	Sets the hexadecimal color for the medium slice.	String; there is no default, you must define it manually.
low-slice	Sets the hexadecimal color for the low slice.	String; there is no default, you must define it manually.

## Survey-Scale

The below attributes belong to the **survey-scale** property:

Attribute Name	Purpose	Possible Values
highest	Sets the scale max value.	Integer; default is <b>5</b> .
lowest	Sets the scale min value.	Integer; default is <b>1</b> .
range-upper	Sets the bar plot max value.	Integer; default is not defined.
range-lower	Sets the bar plot min value.	Integer; default is not defined.

## Swing

The below attributes belong to the **swing** property:

Attribute Name	Purpose	Possible Values
action	Defines the Java method.	String; default is not defined.
tooltip	Defines the content of the tooltip.	String; default is not defined.

## Wizard

The below attributes belong to the **wizard** property:

Attribute Name	Purpose	Possible Values
wizard-enabled	If enabled, clears out all bands affected by the <b>generated-content-marker</b> attribute and starts from scratch.	Boolean; default is <b>true</b> .
aggregation-group	Defines the group name to aggregate by.	String; default is not defined.
aggregation-type	Defines the function to use to aggregate the field.	String; default is not defined.
generated-content-marker	Marks the band that you want to insert the wizard's generated content into.	Boolean; default is <b>false</b> .
grid-color	Defines the hexadecimal border color of the selected element in the Details band.	String; default is not defined.
grid-style	Defines the border style of the selected element in the Details band.	String; default is not defined. Possible values are: solid, dashed, dot-dash, dot-dot-dash, dotted, double, hidden, none, groove, ridge, inset, outset.
grid-width	Defines the border width (in pixels) of the selected element in the Details band.	Integer; default is not defined.

Attribute Name	Purpose	Possible Values
label-detail-header	Defines the Detail band header.	String; default is the selected field name.
only-show-changing-value	Controls whether the field repeats in the Details band.	Boolean; default is <b>false</b> .

## The Palette

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The Palette contains all of the elements that you can use to build a report. To add an element, click on a layout band to select it, then drag and drop an element from the Palette to the selected band. Each of the report elements is described in detail below.

### Label

A static text string. You can set and change it by hand as many times as you like, but it cannot be changed dynamically through a query or function.

### Text Field

A textual report element that is dynamically changed through a query or function.

### Number Field

Displays dynamic numerical data from a query.

### Date Field

Handles date information from a query.

### Message Field

An element that combines multiple static and dynamic report elements such as labels and text fields, etc.

### Resource Label

Static text string that maps to a resource bundle, allowing you to localize a label element based on locale.

### Resource Field

Dynamic text string that maps to a resource bundle, allowing you to localize any database field. This is particularly useful when you have multiple fields for multiple languages and need to implement some kind of logic to choose among them based on locale.

### Resource Message

Dynamic text string that concatenates data from multiple types, and dynamically maps to a resource bundle, allowing you to localize a report based on locale.

### Image Field

A reference to an image stored in a database.

### Image

A static image embedded into a report from an accessible location.

### Ellipse

A vector graphical element with no angles.

**Rectangle**

A vector graphical element in the shape of a rectangle.

**Horizontal Line**

A vector graphical line segment, drawn horizontally.

**Vertical Line**

A vector graphical line segment, drawn vertically.

**Survey Scale**

A simple sliding scale chart element.

**Chart**

A chart or graph that shows your query results graphically.

**Simple Barcodes**

A barcode chart element.

**Bar Sparkline**

A bar sparkline chart element.

**Line Sparkline**

A line sparkline chart element.

**Pie Sparkline**

A pie sparkline chart element.

**Band**

A method of grouping elements.

**Sub Report**

An element that references another report.



# Data Sources and Queries

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The first step in creating a report is connecting to a data source. The second step is to use a query to refine that data source such that it only contains the information you need for your report. These two operations are closely related, so this section covers both in sufficient detail.

## Supported Data Sources

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Pentaho Report Designer supports the following data source types:

- **JDBC:** Any JDBC-compliant database will work with Report Designer, but you will probably have to provide your own JDBC driver JAR. This is accomplished by copying the appropriate JAR file to the `/pentaho/design-tools/report-designer/lib/` directory.
- **Metadata:** A Pentaho Metadata XML file.
- **Pentaho Data Integration (Kettle):** Kettle KTR files can act as a data source, but you must copy all of the JAR files from `/pentaho/design-tools/data-integration/libext/` and all of its subdirectories **except the JDBC subdirectory** to `/pentaho/design-tools/report-designer/lib/`.
- **OLAP:** Report Designer only supports Pentaho Analysis (Mondrian) OLAP sources at this time.
  - **Pentaho Analysis:** A Mondrian schema file.
  - **Pentaho Analysis Denormalized:** A Mondrian schema file, denormalized.
  - **Pentaho Analysis Legacy:** A Mondrian data source imported from a report created with a version of Report Designer older than 3.5.0.
- **XML:** An XQuery file.
- **Table:** Create your own data table by entering information manually, or importing it from an Excel spreadsheet file (XLS).
- **Advanced:** The data sources in this category are typically for software developers and special-use cases.
  - **JDBC (Custom):** Allows designers to dynamically create a query from a formula or function.
  - **Scriptable:** Allows designers to generate a data set via JavaScript, Bean Shell, Groovy, Netrexx, XSLT, JACL, or Jython.
  - **Java Method Invocation:** Allows designers to access data via a Java method and dynamically change the method name.
  - **Named Java Method Invocation:** Allows designers to access data via a specific Java method.
  - **External:** Used only if the report is going to run on the BI Server, which means the data is retrieved via a component in an action sequence. The query name for the report has to be mapped to the result set in the `.action` file.

## Adding Data Sources

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This section explains each data source dialogue. You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer.




**Note:** If you are using Report Designer on Linux or Solaris, after you add a data source it will not appear in the Data tab until you double-click the **Data Sets** item.

### Adding a JDBC Driver

Before you can connect to a data source in any Pentaho server or client tool, you must first install the appropriate database driver. Your database administrator, CIO, or IT manager should be able to provide you with the proper driver JAR. If not, you can download a JDBC driver JAR file from your database vendor

or driver developer's Web site. Once you have the JAR, follow the instructions below to copy it to the driver directories for all of the BI Suite components that need to connect to this data source.


 **Note:** Microsoft SQL Server users frequently use an alternative, non-vendor-supported driver called JTDS. If you are adding an MSSQL data source, ensure that you are installing the correct driver.

### Backing up old drivers


You must also ensure that there are no other versions of the same vendor's JDBC driver installed in these directories. If there are, you may have to back them up and remove them to avoid confusion and potential class loading problems. This is of particular concern when you are installing a driver JAR for a data source that is the same database type as your Pentaho solution repository. If you have any doubts as to how to proceed, contact your Pentaho support representative for guidance.

### Installing JDBC drivers

Copy the driver JAR file to the following directories, depending on which servers and client tools you are using (Dashboard Designer, ad hoc reporting, and Analyzer are all part of the BI Server):

 **Note: For the DI Server:** before copying a new JDBC driver, ensure that there is not a different version of the same JAR in the destination directory. If there is, you must remove the old JAR to avoid version conflicts.

- **BI Server:** /pentaho/server/biserver-ee/tomcat/lib/
- **Enterprise Console:** /pentaho/server/enterprise-console/jdbc/
- **Data Integration Server:** /pentaho/server/data-integration-server/tomcat/webapps/pentaho-di/WEB-INF/lib/
- **Data Integration client:** /pentaho/design-tools/data-integration/libext/JDBC/
- **Report Designer:** /pentaho/design-tools/report-designer/lib/jdbc/
- **Schema Workbench:** /pentaho/design-tools/schema-workbench/drivers/
- **Aggregation Designer:** /pentaho/design-tools/agg-designer/drivers/
- **Metadata Editor:** /pentaho/design-tools/metadata-editor/libext/JDBC/

 **Note:** To establish a data source in the Pentaho Enterprise Console, you must install the driver in both the Enterprise Console and the BI Server or Data Integration Server. If you are just adding a data source through the Pentaho User Console, you do not need to install the driver to Enterprise Console.

### Restarting


Once the driver JAR is in place, you must restart the server or client tool that you added it to.

### Connecting to a Microsoft SQL Server using Integrated or Windows Authentication

The JDBC driver supports Type 2 integrated authentication on Windows operating systems through the **integratedSecurity** connection string property. To use integrated authentication, copy the **sqljdbc\_auth.dll** file to all the directories to which you copied the JDBC files.

The **sqljdbc\_auth.dll** files are installed in the following location:

```
<installation directory>\sqljdbc_<version>\<language>\auth\
```

 **Note:** Use the **sqljdbc\_auth.dll** file, in the x86 folder, if you are running a 32-bit Java Virtual Machine (JVM) even if the operating system is version x64. Use the **sqljdbc\_auth.dll** file in the x64 folder, if you are running a 64-bit JVM on a x64 processor. Use the **sqljdbc\_auth.dll** file in the IA64 folder, you are running a 64-bit JVM on an Itanium processor.

## Adding a JDBC Data Source

You may need to obtain database connection information from your system administrator, such as the URL, port number, JDBC connection string, database type, and user credentials.

Follow this procedure to add a standard JDBC data source in Report Designer.

1. Select the **Data** tab in the upper right pane.

By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.



- Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
- Select **JDBC** from the drop-down menu.  
The **JDBC Data Source** window will appear.
- If you want to provide parameters that contain different database connection authentication credentials, click the **Edit Security** button in the upper left corner of the window, then type in the fields or variables that contain the user credentials you want to store as a parameter with this connection.  
The role, username, and password will be available as a security parameter when you are creating your report.
- Above the **Connections** pane on the left, click the round green **+** icon to add a new data source.  
If you installed the Pentaho sample data, several **SampleData** entries will appear in the list. These sample data sources are useless if you do not have the Pentaho HSQLDB sample database installed, so if you don't have that, you can safely delete the SampleData entries. If you do have Pentaho's HSQLDB samples installed, it may be advantageous to leave the sample data sources intact in the event that you want to view the sample reports and charts at a later time.
- In the subsequent **Database Connection** dialogue, type in a concise but reasonably descriptive name for this connection in the **Connection Name** field; select your database brand from the **Connection Type** list; select the access type in the **Access** list at the bottom; then type in your database connection details into the fields in the **Settings** section on the right.  
The Access list will change according to the connection type you select; the settings section will change depending on which item in the access list you choose.
- Click the **Test** button to ensure that the connection settings are correct. If they are not, the ensuing error message should give you some clues as to which settings need to be changed. If the test dialogue says that the connection to the database is OK, then click the **OK** button to complete the data source configuration.

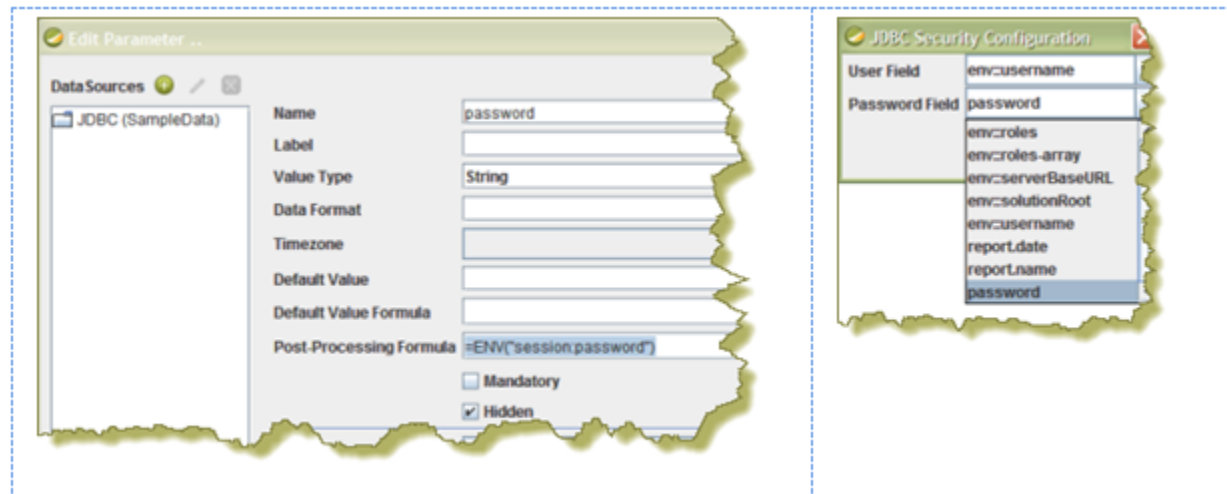
Now that your data source is configured, you must design or enter an SQL query before you can finish adding the data source. See [Creating Queries With SQL Query Designer](#) on page 47 for more details on using SQL Query Designer.

### Passing Security Information to a Report over a JDBC Connection

You can use one of two options when you want to pass security-related information, (such as user name and password), associated with a report over a JDBC connection:

- Choose from the list of predefined environment variables; for example, **env::username** or **env::roles**
- Define your own specific environment variables to pass to the connection, (session or global), using the formula function, **ENV**, inside a hidden parameter.

For example, `=ENV("session:xaction_parameter_password")`  
or `=ENV("global:xaction_parameter_password")` where  
`xaction_parameter_password` is the parameter defined in



an .xaction.

In either case, the available selections appear as drop-down options under **JDBC Security Configuration** when you click **Edit Security** in the **JDBC Data Source** dialog box.



## Adding a Metadata Data Source

You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer.

Follow this procedure to add a Metadata data source in Report Designer.

1. Select the **Data** tab in the upper right pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **Metadata** from the drop-down menu.  
The **Metadata Data Source Editor** window will appear.
4. Click **Browse**, navigate to your XML metadata definition file, then click **Open**.
5. Click the round green + icon to add a query, then type in a name for the new query in the **Query Name** field.
6. Type in the name of the solution directory this metadata file pertains to into the **Domain Id** field.  
If this XML file was created with Pentaho Metadata Editor, then the domain ID has to be the root directory for this solution -- the directory one level above pentaho-solutions, typically. If you created this XML with Pentaho Data Integration, then the domain ID must be set to the full solution path to the XML, which would be something like this: `example-solution/resources/metadata/mymeta.xml`. If the domain ID is not properly defined, you will be able to preview the report, but you will not be able to publish it to the BI Server.
7. Click the pencil icon on the right above the **Query** field to start Metadata Query Editor, or type in your query directly into the Query field.  
See [Creating Queries With Metadata Query Editor](#) on page 48 for more details on Metadata Query Editor.
8. Click **OK** when your query is complete.

## Adding a Pentaho Data Integration Data Source

You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer. As mentioned previously in this guide, the first time you create a Kettle data source you must also copy all of the JAR files from `/pentaho/design-tools/data-integration/libext/` and all of its subdirectories **except the JDBC subdirectory** to `/pentaho/design-tools/report-designer/lib/` in order to access it through Report Designer.

Follow this procedure to add a Pentaho Data Integration (Kettle) data source in Report Designer.

1. Select the **Data** tab in the upper right pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **Pentaho Data Integration** from the drop-down menu.  
The **Kettle Datasource** window will appear.
4. Click the round green + icon to add a new query.
5. Type a concise yet sufficiently descriptive name into the **Name** field.
6. Click **Browse** and navigate to your Pentaho Data Integration KTR file.
7. Review the imported steps and modify their parameters accordingly, then click **OK**.

## Adding an OLAP Data Source

You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer. You may need to obtain database connection information from your system administrator, such as the URL, port number, JDBC connection string, database type, and user credentials.

Follow this procedure to add a Pentaho Analysis (Mondrian) data source in Report Designer.

1. Select the **Data** tab in the upper right pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **OLAP** from the drop-down menu, then select one of the following: **Pentaho Analysis**, **Pentaho Analysis (Denormalized)**, or **Pentaho Analysis (Legacy)**.  
The **Mondrian Datasource Editor** window will appear.
4. If you want to provide parameters that contain different Mondrian connection authentication credentials, click the **Edit Security** button in the upper left corner of the window, then type in the fields or variables that contain the user credentials you want to store as a parameter with this connection.  
The role, username, and password will be available as a security parameter when you are creating your report.
5. Click **Browse**, navigate to your Mondrian schema XML file, then click **Open**.
6. Above the **Connections** pane on the left, click the round green + icon to add a new data source.  
If you installed the Pentaho sample data, several **SampleData** entries will appear in the list. These sample data sources are useless if you do not have the Pentaho HSQLDB sample database installed, so if you don't have that, you can safely delete the SampleData entries. If you do have Pentaho's HSQLDB samples installed, it may be advantageous to leave the sample data sources intact in the event that you want to view the sample reports and charts at a later time.
7. In the subsequent **Database Connection** dialogue, type in a concise but reasonably descriptive name for this connection in the **Connection Name** field; select your database brand from the **Connection Type** list; select the access type in the **Access** list at the bottom; then type in your database connection details into the fields in the **Settings** section on the right.  
The Access list will change according to the connection type you select; the settings section will change depending on which item in the access list you choose.
8. Click the **Test** button to ensure that the connection settings are correct. If they are not, the ensuing error message should give you some clues as to which settings need to be changed. If the test dialogue says that the connection to the database is OK, then click the **OK** button to complete the data source configuration.

Now that your data source is configured, you must enter an MDX query before you can finish adding the data source. See [Creating an MDX Query](#) for details.

## Adding an OLAP (Advanced) Data Source

You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer. You may need to obtain database connection information from your system administrator, such as the URL, port number, JDBC connection string, database type, and user credentials.

Follow this procedure to add a Pentaho Analysis (Mondrian) data source in Report Designer.



**Note:** OLAP (Advanced) data sources differ from standard OLAP data sources only in the method by which you design and enter the MDX query. Standard OLAP data sources allow for Report Designer's built-in Metadata Query Editor, whereas advanced OLAP data sources require you to build a formula to calculate the query, which gives you more power over report parameterization functionality.

1. Select the **Data** tab in the upper right pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **OLAP** from the drop-down menu, then select one of the following: **Pentaho Analysis**, **Pentaho Analysis (Denormalized)**, or **Pentaho Analysis (Legacy)**.  
The **Mondrian Datasource Editor** window will appear.
4. If you want to provide parameters that contain different Mondrian connection authentication credentials, click the **Edit Security** button in the upper left corner of the window, then type in the fields or variables that contain the user credentials you want to store as a parameter with this connection.  
The role, username, and password will be available as a security parameter when you are creating your report.
5. Click **Browse**, navigate to your Mondrian schema XML file, then click **Open**.
6. Above the **Connections** pane on the left, click the round green **+** icon to add a new data source.  
If you installed the Pentaho sample data, several **SampleData** entries will appear in the list. These sample data sources are useless if you do not have the Pentaho HSQLDB sample database installed, so if you don't have that, you can safely delete the SampleData entries. If you do have Pentaho's HSQLDB samples installed, it may be advantageous to leave the sample data sources intact in the event that you want to view the sample reports and charts at a later time.
7. In the subsequent **Database Connection** dialogue, type in a concise but reasonably descriptive name for this connection in the **Connection Name** field; select your database brand from the **Connection Type** list; select the access type in the **Access** list at the bottom; then type in your database connection details into the fields in the **Settings** section on the right.  
The Access list will change according to the connection type you select; the settings section will change depending on which item in the access list you choose.
8. Click the **Test** button to ensure that the connection settings are correct. If they are not, the ensuing error message should give you some clues as to which settings need to be changed. If the test dialogue says that the connection to the database is OK, then click the **OK** button to complete the data source configuration.

Now that your data source is configured, you must enter an MDX query before you can finish adding the data source. This is done by selecting the **Master Report** in the **Structure** pane, then clicking the **Attributes** pane. See the [Query](#) on page 33 for more information.

## Adding an XML Data Source

You must have a report file open in order to proceed, and your data source must be accessible before you can connect to it in Report Designer. For database connections, you may need to first obtain necessary information from your system administrator, such as the URL, port number, JDBC connection string, database type, and user credentials.

Follow this procedure to add a data source in Report Designer.

1. Select the **Data** tab in the upper left pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **XML** from the drop-down menu.  
The **XML Datasource Editor** window will appear.
4. Click the round green + icon above the **Available Queries** field.
5. Type a concise yet reasonably descriptive name into the **Query Name** field.
6. Enter your XQuery into the **Query** field, then click **Preview** to ensure that it is valid.
7. Click **OK** when your query is in order.

## Adding a Table Data Source

You must have a report file open in order to proceed.

Follow this procedure to add a Table data source in Report Designer.

1. Select the **Data** tab in the upper right pane.  
By default, Report Designer starts in the **Structure** tab, which shares a pane with **Data**.
2. Click the yellow cylinder icon in the upper left part of the Data pane, or right-click **Data Sets**.  
A drop-down menu with a list of supported data source types will appear.
3. Select **Table** from the drop-down menu.  
The **Table Datasource Editor** window will appear.
4. Click the round green + icon to add a query, then type in a name for the new query in the **Name** field.
5. Use the four buttons below the Name field to add or remove rows and columns appropriately, or click the **Import Spreadsheet** button in the lower left corner to pull in data from an XLS file.
6. Enter or change any tabular data by selecting, then double-clicking a cell.
7. Click **OK** when you're done creating your Table data source.

Your new data source will

## Adding Advanced Data Sources

Advanced data sources require advanced knowledge and skills, so only a high-level overview of each Advanced data source is given in this section.

### JDBC Custom

This is much like a standard JDBC connection, except you create a formula-based query through the Master Report's Attributes pane instead. See the [Query](#) on page 33 for more information.

### Scriptable

Select your language, then add a query by clicking the round green + button, give your query a name, then type in your script in the **Query** field.

### Java Method Invocation

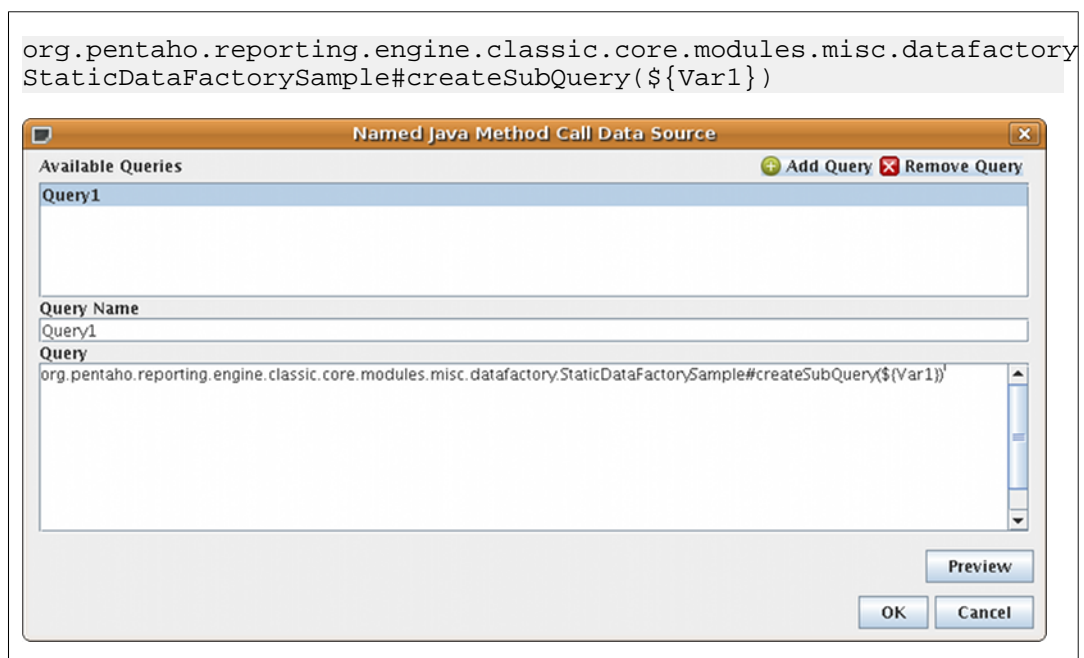
Once added, you create a query (which involves calling the specified Java class) through the Master Report's Attributes pane. See the example below for more details on query syntax.

### Named Java Method Invocation

Click the round green + button to add a query, type in a name in the **Query Name** field, then provide the method you want to use, plus any optional parameters. See the example below for more details on query syntax.

## External

This data source is used when a report (.prpt — simple reporting component) is used in an .xaction. In the report, you must specify the result-set name for the "query name" attribute on the report. Also, you must add a report parameter using the same name as the result-set name and set the parameter to the tablemodel parameter type. The .xaction result-set can be MQL, SQL, MDX or JavaScript.



## Adding a JNDI Data Source

You should already have established a JNDI data connection in your application server before continuing. Follow this procedure to establish a connection to a JNDI data source.

1. Quit Report Designer if it is currently running.
2. Edit the .pentaho/simple-jndi/default.properties file.  
The .pentaho directory is in the home or user directory of the user account that runs Report Designer. If you have multiple copies of Report Designer installed to multiple user accounts, each default.properties file will have to be edited.
3. Add your JNDI connection information, beginning with the JNDI name on each line, as shown in the example below:

```
SampleData/type=javax.sql.DataSource
SampleData/driver=org.hsqldb.jdbcDriver
SampleData/url=jdbc:hsqldb:hsq://localhost/sampledata
SampleData/user=pentaho_user
SampleData/password=password
```
4. Save and close the file, then start Report Designer.
5. To add this data source to a report, add a JDBC data source, choose **JNDI** as the connection type, and type in the JNDI name in the appropriate field.

Report Designer can now access your JNDI data sources.

## Creating Queries

Most data source types employ queries to refine the broader data set into a smaller, more relevant subset that is specific to the kind of report you want to generate. Most commonly, Report Designer users connect to a JDBC database and use an SQL query to refine the data set. For this purpose, Report Designer has



both a query window where you can type in an SQL statement by hand, and an SQL Query Designer to help less SQL-savvy users refine data with a graphical drag-and-drop interface. There is a similar utility for metadata data sources called MQL Query Builder.

Both of the query builder tools are explained below. For all other query types -- MDX, XQuery, etc. -- there are public documentation and other help resources on the Web.

## Hadoop Hive-Specific SQL Limitations

There are a few key limitations in Hive that prevent some regular Metadata Editor features from working as intended, and will limit the structure of your SQL queries in Report Designer:

- **Outer joins are not supported.**
- **Each column can only be used once in a SELECT clause.** Duplicate columns in SELECT statements will cause errors.
- **Conditional joins can only use the = conditional unless you use a WHERE clause.** Any non-equal conditional in a FROM statement will force Metadata Editor to use a cartesian join and a WHERE clause conditional to limit it. This is not much of a limitation, but it will seem unusual to experienced Metadata Editor users who are accustomed to working with SQL databases.

## Creating Queries With SQL Query Designer

You must be in the JDBC Data Source window to follow this process. You should also have configured and tested a JDBC data source connection.



**Note:** SQL Query Designer does not work with Hadoop Hive data sources.

Follow this process to design an SQL query for your data source with SQL Query Designer:

1. Select your data source in the **Connections** pane on the left, then click the round green **+** icon above the **Available Queries** pane on the right (this is the **+** button in the upper right corner of the window).
2. Type a concise yet sufficiently descriptive name for this query in the **Query Name** field.
3. Click the pencil icon above the upper right corner of the **Query** field.  
The SQL Query Designer tool will come up.
4. In the lower left pane, click to select the first table you want to select data from, then double-click it to move it to the query workspace.  
The table you selected will appear in the blue workspace as a sub-window containing all of the table's rows.
5. Check all of the rows you want to include in the query.  
By default, all rows are selected. If you only want to select a few rows (or a single row), click the table name at the top of the sub-window, then click **deselect all** in the popup menu, then check only the rows you want to include in your query.
6. Repeat the previous step for other tables you want to work with.
7. You can create an SQL JOIN between tables by selecting a reference key in one table, then dragging it to the appropriate row in another table. To modify the JOIN, right-click its red square, then click **edit** in the popup menu.
8. To add a condition or expression, right-click a row in the query workspace, and select the appropriate action from the context menu.
9. To order or group by a particular row, drag a statement from the **SELECT** category in the upper left pane down to the **GROUP BY** or **ORDER BY** categories.
10. To edit the SQL syntax directly, click the **syntax** tab in the bottom left corner of the SQL Query Designer window.
11. Click **Preview** to view the unformatted query results; click **OK** to finish working on the query.

You now have a data source and at least one query that will return a data set that you can use for reporting.

## Creating Queries With Metadata Query Editor

You must be in the Metadata Data Source Editor window to follow this process. You should also have established and tested a metadata data source connection.

Follow this process to design a metadata query:

1. With all of your metadata data source options properly typed in, click the pencil icon above the upper right corner of the **Query** field.

The **Query Editor** window opens. If the pencil icon is greyed out, then your data source is misconfigured.

2. Select a data set from the **Business Models** drop-down box in the upper left.

The list of available tables and columns will update appropriately.

3. Double-click a table to display its columns.

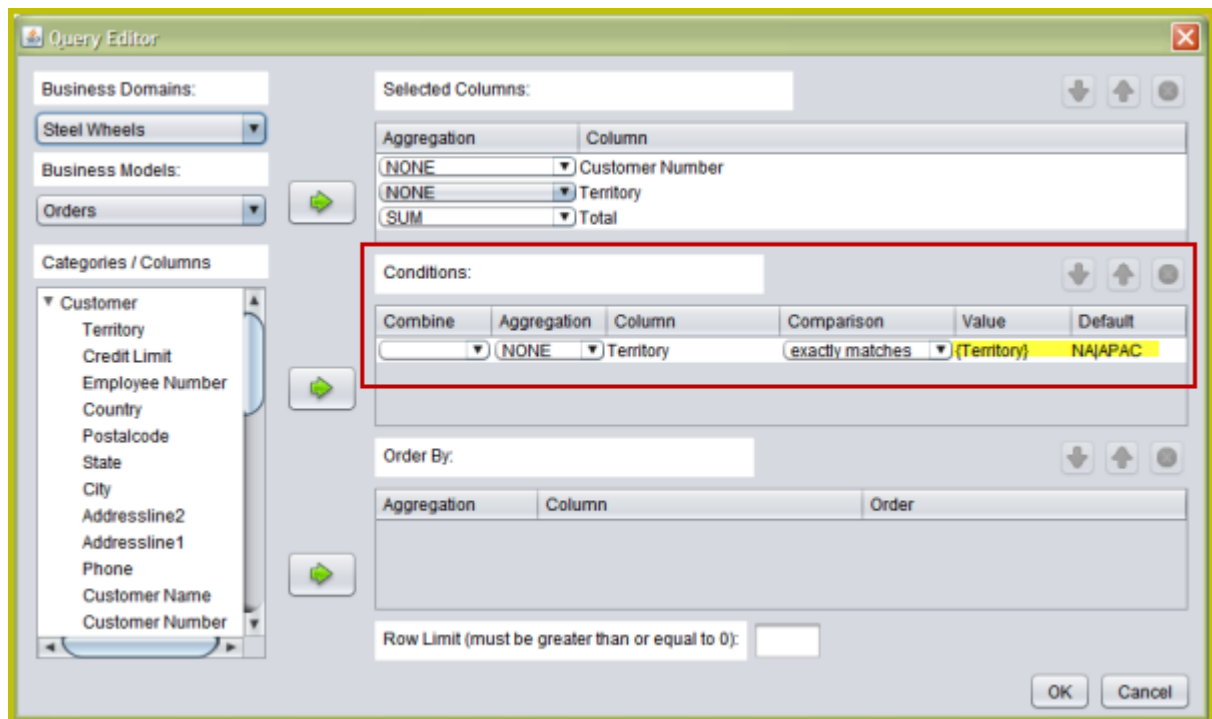
4. Click on a column that you want to select, then click the arrow next to the **Selected Columns** box.

You can select multiple columns by holding down the **Ctrl** key while clicking on columns.

 **Note:**

To define a parameter, use curly brackets as in, {*Parameter Name*}, to specify the parameter name.

The parameter name must reference the parameter you created in your report. The Default value column is used to preview data in the Metadata Data Source Editor, only. To specify, multiple values for a parameter use a "|" (pipe) between your values as shown in the example below.



Aggregation	Column
NONE	Customer Number
NONE	Territory
SUM	Total

Combine	Aggregation	Column	Comparison	Value	Default
	NONE	Territory	exactly matches	{Territory}	NA APAC

Aggregation	Column	Order
-------------	--------	-------

5. Repeat this process for the columns you want to create conditions for by moving a column over to the **Conditions** box.

Condition values must be in double quotes in order to validate in Metadata Query Editor.

6. Repeat the above process for the column you want to order your results by by moving a column into the **Order By** box.

7. Click **OK** to finalize the query.

You will return to the data source configuration window. Your newly formed query should appear in the **Query** field. This field is editable, so you can modify the query before continuing.



8. Click **OK** to close the Metadata Data Source Editor.

You now have a data source and at least one query that will return a data set that you can use for reporting.

# Adding Report Elements

---

Most report elements can easily be added by dragging and dropping them from the Palette or the Data pane to one of the layout bands. In some cases, there are a few extra details that you should know before you dive into report creation. See the sections below that apply to your project.



**Note:** Though it may appear to be a good solution to some report design challenges, you should resist the temptation to overlap elements in Report Designer. While the output may seem agreeable in the Preview window and in some kinds of report output, the HTML and Excel output formats will have unusual problems.

## Report Layout Types

---

The bands in a report can have a few different methods of content layout:

- block
- inline
- canvas
- row

The default layout scheme is **canvas**, in which report elements have no positioning relationship to one another, and can potentially encroach on the space occupied by other elements in the band. The three other layout types are defined in the sections below.

You can change the layout type by selecting any of the band elements in the **Master Report** item in the **Structure** pane, then selecting one of the options from the **layout** drop-down box in the **Size & Position** section of the **Properties** pane. Choosing a layout scheme will deselect the layout checkbox.

### block

Elements in a block layout band are arranged vertically. Block-level elements span the full width of the parent band. If an element expands, it pushes all other elements down so that no element overlaps any other elements.

Master Report and SubReport elements, as well as Groups, are always block elements.

### inline

In an inline formatting context, elements are arranged horizontally, one after the other, beginning at the top of a containing block. Horizontal margins, borders, and padding are respected between these boxes. The boxes may be aligned vertically in different ways: their bottoms or tops may be aligned, or the baselines of text within them may be aligned. The rectangular area that contains the boxes that form a line is called a **line box**.

An inline element that is placed in a non-inline layout band creates an artificial paragraph to wrap around this element during the layouting process. The most common use of this layout strategy is to produce rich-text content from several independent report elements.

### row

The row layout scheme positions elements one after each other on the horizontal axis. All elements are printed in a single row, expanding their height as needed. If all elements expand to the height of tallest element, set the min-height to "100%" to even them out.

This layout type is a natural match for list reports, where multiple columns of data should be printed per row. When an element expands its width, all other elements get pushed to the right.

When you use a row layout for your list reports, you will no longer need to arrange elements manually. To create spacing between elements, use either padding on your elements, or place an empty band as a padding element into the row layout band. The Report Design Wizard makes use of the row layout to position elements in the details and details-header bands.

## Adding Standard Design Elements

---

In order to add a report element, you must have configured a data source and designed a query to refine the data.

Follow this process to add design elements to a report.

1. If you have not already done so, click the **Structure** tab in the upper right pane.  
If the **Data** tab is selected, you will be unable to edit the attributes or styles of any report elements.
2. Click the design element you want to add, then drag it into the report band that you want to add it to, roughly in the position where you want it to appear.  
Once the element is placed, it will change from a grey shape to a transparent element with an inline label and blue resize handles.
3. Click the resize handles and drag them out to the desired dimensions.
4. If necessary, click the center of the element and drag it to a different location within the layout band.  
You cannot drag an element from one band to another. If you want to move something to a different band, you must cut and paste it. Dragging an element toward the bottom of the band will increase the size of the band.
5. With the new report element selected, examine the options in the **Attributes** and **Style** panes and make any necessary changes or customizations.  
Any changeable aspect of a report element can be changed through these two panes. For a complete reference that explains every property of every element, consult the [Element Attributes Reference](#) on page 28 and [Style Properties Reference](#) on page 20 sections of this guide.
6. To delete an element, click to select it, then press the **Delete** key, or right-click the element and select **Delete** from the context menu.

You should now have a properly sized and placed report design element containing the data and options you specified in the Style and Attributes panes. Any of the changes you made in this process can be revisited to further customize the new element.

## Aligning Elements

---

Report Designer has several features to help you easily align your report elements. All can be found in the **View** menu.

**Grids** show a graph-paper-like grid on the report canvas. This can make it easier to evenly space elements by counting the exact number of hash marks between them. Grids can also make it easier to line up elements, but you may find it easier to rely on guides instead.

**Guides** are markers you create by clicking on the rulers on the top and left of the report canvas. Once you have guides in place, it's easier to align report elements vertically and/or horizontally. To turn off guides, go to the **Guides** submenu in the **View** menu, then un-check the **Show Guides** item. You can remove individual guides by right-clicking them on the ruler, then selecting **Delete** from the context menu.

Perhaps the most useful alignment feature in Report Designer is **Element Alignment Hints**. When you enable this option, each report element's outer borders will extend to the edges of the canvas, allowing you to easily line up multiple elements.

The **Snap to Elements** feature will add a kind of magnetism to elements so that they are easier to align with adjacent elements.

## Adding Bands

---

Follow this process in order to create a band (formerly called a sub-band in older versions of Report Designer), which allows you to group several report elements into a single area.

1. Drag and drop a **band** element into a layout band.
2. Using the resize handles, change the size of the band to fit your specifications.
3. Drag and drop an existing report element into the new band and position it according to your preference.
4. Drag and drop other elements into the band as necessary.

You should now have a layout band containing several report elements. It can be resized or moved anywhere in its parent band, or cut-and-pasted into another band.

## Creating Sub-Reports

---

You can create other reports in your current one by creating sub-reports. This enables you to display data from multiple sources.

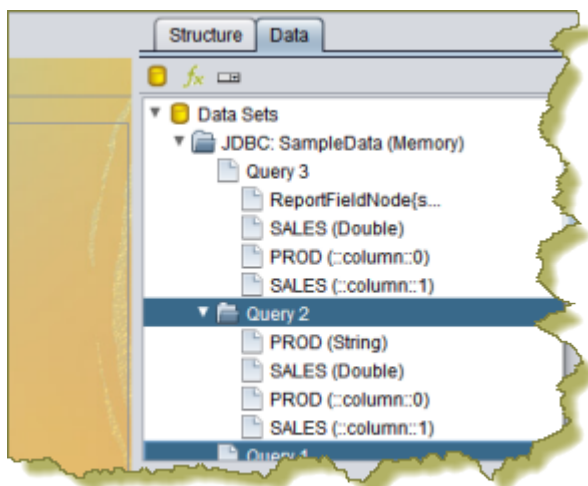
1. Drag and drop a **Sub-Report** element from the Palette to the layout band where you want to display it.
2. A Sub-Report dialogue will ask if you would like to make this an inline or banded element. Choose one. Inline Sub-Reports can be placed side-by-side with other elements (even other Sub-Reports). Banded Sub-Reports occupy a variable height, but 100% of the report page width, so they cannot be on the same line with other elements.
3. Double-click the Sub-Report element.  
A new report tab will open and capture the window focus.
4. In the new report tab, establish a data source and create a report as your ordinarily would, keeping in mind that this will be included in the parent report. When you are finished, switch back to the main report tab.

You should now have a report with a separate data source embedded within your current report. You can repeat this process for as many sub-reports as you have data sources for.

## Referring to Report Elements by Name or Column Position

---

If you enabled **Display the index columns in the Report Designer's field selectors...** in **Preferences**, you can refer to report elements by field name or by column position. This feature allows you to create a report that isn't locked to a field name, rather it is locked to the position of the query when the report runs; for example, column 0, column 1, column 2, and so on.



Locking to the query can be particularly useful when users create their own queries. When the report renders, the data displays in predictably mapped columns. This feature works with all data field types, groups, and formulas and functions.

Locking elements and formulas to the column position allows report designers to have more flexibility so that a single report can be used with any query regardless of the data source type (JDBC, Mondrian, Pentaho Metadata, and so on.). For example, this feature may be used by a report designer where the designer substitutes fields of report based on different queries that have a completely different set of column names.

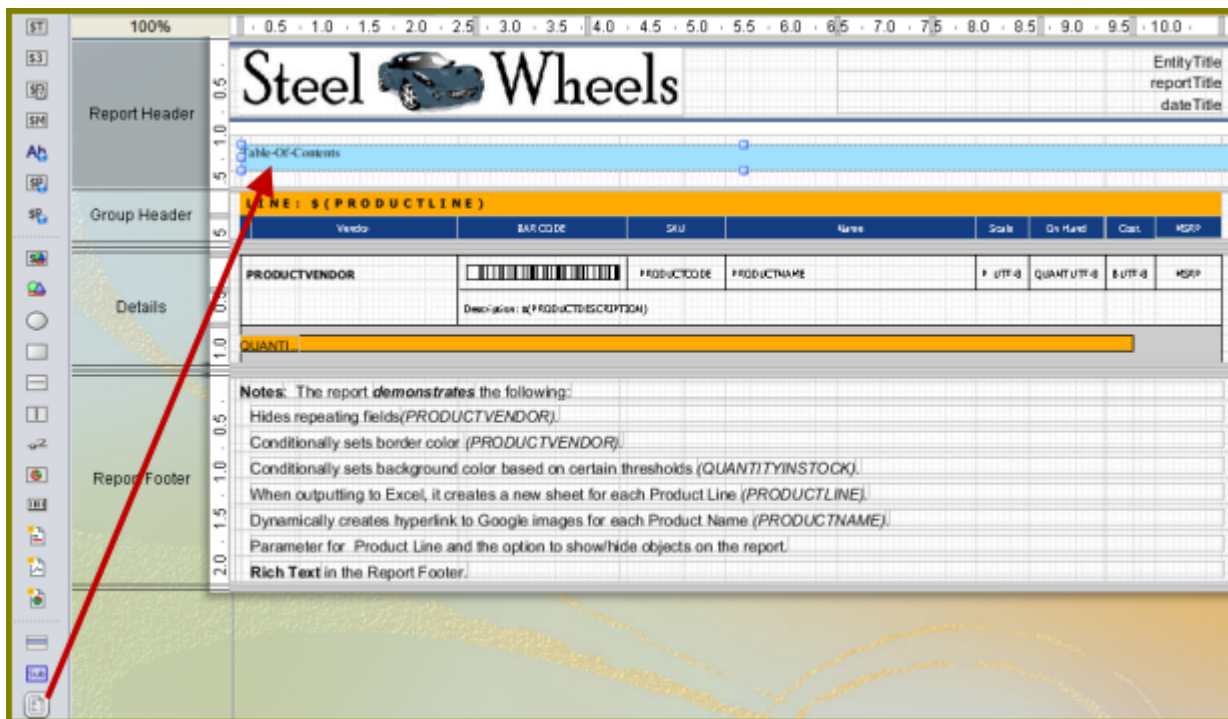
For a demo of this feature and how it can be applied to cross tab reports, see [Pentaho Reporting and BI Server 3.8 Preview and Demo](#).

## Creating a Table of Contents

You must have a report file open in order to proceed.

The Table of Contents (TOC) feature is similar to a sub-report. It allows you to generate a TOC based on groups you have mapped inside the report or to specify the sub-reports you want included in your TOC. Follow the instructions below to create your TOC:

1. Click and drag the **table-of-contents** icon onto the report canvas. You are prompted to make the TOC element **Inline** or **Banded**. Choose one. Inline sub-reports can be placed side-by-side with other elements (even other sub-reports). Banded sub-reports occupy a variable height, but 100% of the report page width, so they cannot be on the same line with other elements.



2. Click the TOC element and Define the following attributes for the TOC element:

- **group-fields** — Defines both the depth of the data-collection and the fields from where to read the **group-value-X** values. If the group-field given in the array is empty, the field value will be read from the current relational group and in the details-processing, the value will be null. If the **group-fields** list is empty, an automatic mode is activated that collects all groups extracting the group-value from the relational group.
- **collect-details** — Defines, whether detail items should be included in the data-collection.



**Note:** This attribute consumes a significant amount of system memory. Do not use this attribute on reports that are over a million rows.

- **title-formula** — Defines a formula that is evaluated when a new item has been collected. The formula will only be evaluated if the title-field is not set.
- **title-field** — Defines a field in the master-report that will be read for a valid **item-title**.
- **title-formula** — Defines a formula that is evaluated when a new item has been collected. The formula will only be evaluated if the title-field is not set. "title-field" - Defines a field in the master-report that will be read for a valid item-title.
- **index-separator** — Defines the separator text that is used between the index-elements. It defaults to ".".

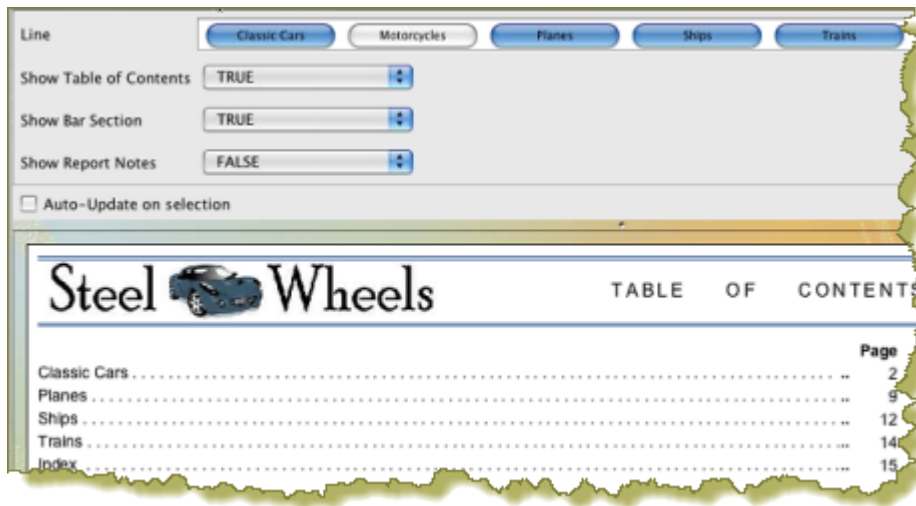
3. Double-click the TOC element.

A new sub-report tab opens.

4. In the new report tab, create the appropriate TOC headings and add the group value you want mapped. Add an item-page function to generate the page numbers. Keep in mind that all your entries will be included in the parent report. When you are finished, switch back to the main report tab.

5. Preview your report.

You should now have a TOC embedded in your current report. If you have multiple groups, you can create bookmark links manually by using the [Linking to a URL](#) on page 59 feature.



## Creating an Index

You must have a report file open in order to proceed.

The Index feature is similar to a sub-report. It allows you to generate an index based on fields, (or groups), in your report. When the index is generated, it displays the instances and page number in which the field name appears.

Follow the instructions below to create an index.

1. Click and drag the **index** icon onto the report canvas.

You are prompted to make the index element **Inline** or **Banded**. Choose one. Inline sub-reports can be placed side-by-side with other elements (even other sub-reports). Banded sub-reports occupy a variable height, but 100% of the report page width, so they cannot be on the same line with other elements.

2. Click the index element; under **Attributes**, double-click **data-field** and select the field to which you want to map. In the example below, the data-field is mapped to **PRODUCT NAME**.



- **data-field** — Defines the field to be used as the **item-data** or **item-key**.
- **data-formula** — Defines an open formula to be used as the **item-data** or **item-key**.



**Important:** Make sure that data-field is **not** defined, if this is used.

- **index-separator** — Defines the separator text that is used between page numbers in the item-pages field in the index sub report. It defaults to ",".
- **condensed-style** Define whether a "-" is used between continuous page numbers; example, 4,5,6,7 would display as 4-7.

3. Double-click the index element.

A new sub-report tab opens.

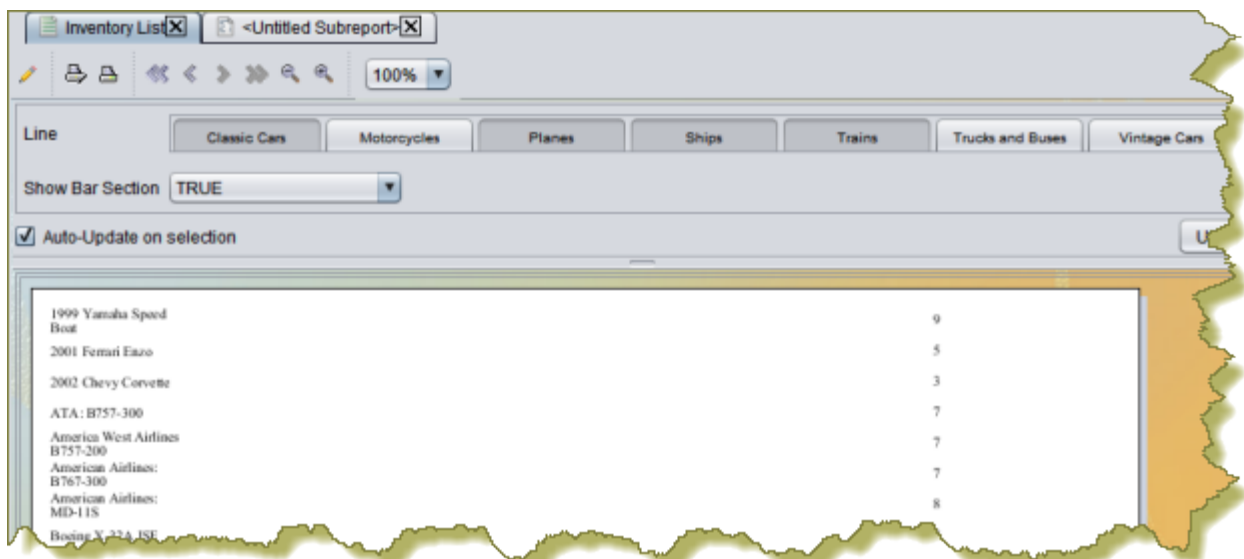
4. In the new report tab, create the appropriate index heading. Add the **item-data** and **item-pages** functions to generate the index data field name and page numbers. Keep in mind that all your entries will be included in the parent report. When you are finished, switch back to the main report tab.

5. Preview your report.



**Note:** The index appears on the last page of your report.

You should now have an index embedded in your current report.



# Creating Charts

---

A chart can be the most important graphical element in your report; it shows the report data visually so that readers can more easily see how the numbers compare. It's easy to add a simple chart in Report Designer, but it will take some time to tweak it to your exact specifications.

There are two types of charts in Report Designer: Traditional JFreeChart elements, and sparkline charts.

This section is both a reference and a set of tasks; read it in whatever fashion best supports your workflow.

## Choosing the Right Chart Type

---

There are 17 JFreeChart chart types built into Report Designer, with some of them changing significantly based on which data collector you choose.

If you want to show the strength of a trend for a single value over time, the best chart types are:

- Line
- Area
- XY StepArea
- XY Step
- XY Line

If you are directly comparing two or more related values, the best chart types to choose are:

- Pie
- Ring
- Bar
- Line
- Area
- Radar

If you want to show how one set of values directly affects another, the best chart types are:

- Bar line combination
- Waterfall

If you are comparing a large number of data points, the best chart types are:

- XY Difference
- XY Dot (Scatter plot)
- Bubble
- Pie Grid (Multi-Pie)

If you need to show a trend among a small number of related numerical data points, a sparkline chart may be appropriate. However, sparkline charts require comma-separated values for input, so if your data is not in that format, you must create a function to pull it from your data source and put commas between each data point.

## Creating a JFreeChart Element

---

To add a traditional graph or a chart to your report, follow this process.

1. Drag and drop a **Chart** element into a layout band.
2. Using the resize handles, change the size of the chart to fit your specifications.
3. Double-click the chart.



An **Edit Chart** dialog will appear with dozens of customizable options and settings.

4. Adjust the chart options to your preference, then click **OK**.

Consult the [Chart Types](#) on page 82 to learn more about what each setting does in each chart type.

5. Click **Preview** to verify that your chart appears as intended.

You should now have a suitable chart that visually represents the selected data.

## Creating a Sparkline Chart

Sparkline charts require comma-separated values for input, so if your data is not in that format, you must create a function to pull it from your data source and put commas between each data point. You can also create data points by hand and enter them into a formula directly.

To add a sparkline chart to your report, follow this process.

1. Drag and drop a **Sparkline Pie**, **Sparkline Bar**, or **Sparkline Line** element into a layout band.
2. Using the resize handles, change the size of the chart to fit your specifications.
3. Click the round green **+** icon in the **Value** row.  
A formula field will appear.
4. In the formula field, select the function that formats your sparkline data, or type in comma-separated values by hand directly, then click **Close**.
5. Click **Preview** to verify that your chart appears as intended.

### Sparkline

The below attributes belong to the **sparkline** property:

Attribute Name	Purpose	Possible Values
spacing	Sets the spacing (in pixels) between bars for a bar sparkline.	Integer; default is <b>0</b> .
start-angle	Sets the start angle (in degrees) on a pie sparkline.	Integer; possible values are from 1 to 360. Default is <b>1</b> .
counter-clockwise	Sets the plot direction on a pie sparkline.	Boolean; default is <b>false</b> , which represents clockwise.
high-slice	Sets the hexadecimal color for the high slice.	String; there is no default, you must define it manually.
medium-slice	Sets the hexadecimal color for the medium slice.	String; there is no default, you must define it manually.
low-slice	Sets the hexadecimal color for the low slice.	String; there is no default, you must define it manually.

# Applying Formatting to Report Elements

Once you've got your elements in place, there is much you can do to bring the appropriate level of distinction to them. Report Designer contains all of the features you're used to in other content creation tools in terms of formatting and design. See the sections below for details on specific formatting procedures.

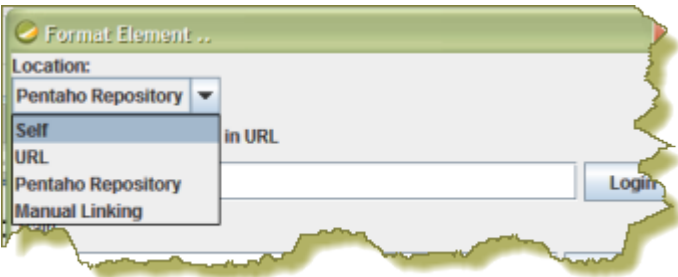
## Standard Element Formatting

All aesthetic aspects of all elements can be modified through the Style panel. However, all text-based elements such as text, message, number, and date fields; and labels can be more easily modified through the toolbar just above the report canvas. There you will see typical text controls found in nearly every text editor and word processor. These text controls also work for non-textual elements, but the settings will only affect how the element's label appears in the layout bands.

## Adding Hyperlinks

Report Designer provides you with several hyperlink options. You can:

- Create a link to nested content inside a report; for example, if you have provide a summary and detailed view (**Self**)
- Create a link to a URL and its associated parameters, if applicable (**URL**)
- Create a link to content in the BI server solution repository such as a .prpt (Report Designer report), .xaction, and analyzer view (**Pentaho Repository**)
- Create a link and its associated parameters manually (**Manual Linking**)



When you use the Report Designer linking features, you are building a URL that takes consumers of the content to specific data you want them to see.

Follow the instructions below to link to content in the Pentaho Solution Repository:

1. Select the element in the report you for which you want to create a hyperlink.
2. Go to the **Format** menu and select **Hyperlink**.  
The **Format Element** dialog box appears.
3. Under **Location**, select the **Pentaho Repository** option.
4. Enable the **Include server name in URL** option if you want users to see the server name in the URL associated with the report to which you are linking.
5. If you are not logged on to the BI server, click **Login**.
6. Click **Browse** to locate the report and click **OK**.
7. Select your **Target** option.


Option	Description
"_TOP"	Loads the linked report in the topmost frame

Option	Description
= "_BLANK"	Opens the report in a new window
= "_PARENT"	Used in instances when a frameset file is nested inside another frameset file; a link in one of the inner frameset documents which uses "_parent" loads the report in the location where the inner frameset file had been

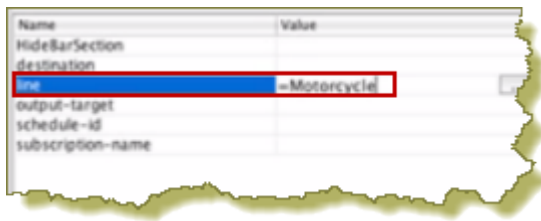
If none of the target options work for you, click [...] (ellipsis) to open the **Formula Editor**.

8. Enter a **Tooltip** (hover text) that displays with your hyperlink. Alternatively, click [...] (ellipsis) to create a tooltip using the Formula Editor.
9. Enable **Hide Parameter UI on Server** if you do not want users to see a parameter list on the report in the Pentaho User Console.

In most instances, the link you are creating takes users directly to the content on the report you want them to see; therefore, the parameter list is not necessary.


10. Define your parameter values; if necessary, click  (Refresh Parameter) to see the list of available parameters. Click down arrow next to **Value** to select your parameter value or click [...] (ellipsis) to add a value using the Formula Editor.

The parameters listed under the **Report Parameters** tab are defined by a report author. For example, suppose the report author created a parameter called "line" (product line). In the Format Element dialog box, the report author entered *Motorcycles* as the value for the line parameter.



When the report runs in the Pentaho User Console, users of the report will link to data associated with Motorcycles. Alternatively, the report author could have created a link to a specific field on the report. In that scenario, the data in the field changes dynamically when the report displayed.

Every piece of content, (reports, dashboards, analyzer reports), in the solution repository has associated parameters that define how the content is launched. For example, these **System Parameters** determine if the content displays in dashboard mode or if the UI displays the parameter list. In most instances, you will not have to provide values for these parameters. See [Plugin Parameter Names](#) for more information.

**Custom** parameters are parameters that you define manually to create your link. If you choose to enter custom parameters and their associated values, click  (Add). Type the parameter name and its value in the available text fields.

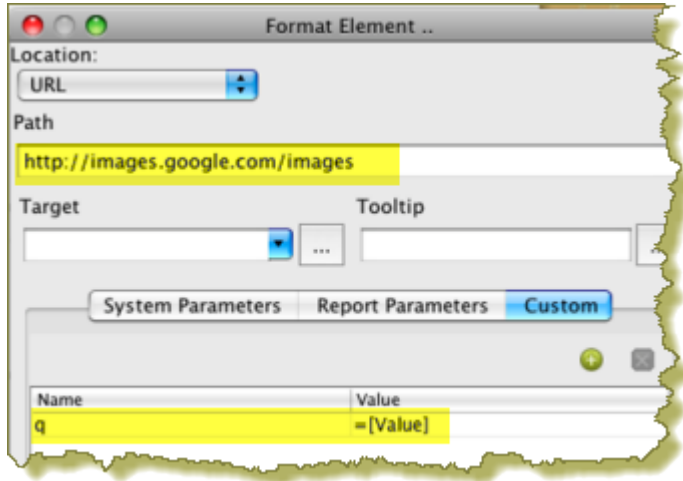
11. Click **OK** to save your entries.

When you generate report output that supports inline hyperlinks, the URL you specified will be linked to the element you specified. This also applies to preview scenarios that support hyperlinks; however, the built-in Report Designer preview mode (the eye icon) does not allow for clickable links.

## Linking to a URL

If you are linking to a URL, the **Path** is URL that accepts parameters in value pairs; for example, `http://images.google.com/images`. The "q" parameter is accepted by the URL; "q" stands for "query" and anything past in this parameter is treated as if it had been typed into a query box.

If you add the "q" parameter under **Custom** and map it to a report field, [Value], Report Designer will generate the following parameterized URL, `http://images.google.com/images?q={Value}`:  
`http://images.google.com/images?q=Rain`.



## Adding Hyperlinks Manually


You can make any object in a report into a clickable link. Follow this process to create a hyperlink:

1. Select the element you want to create a hyperlink for.
2. Go to the **Format** menu and select **Hyperlinks....**  
The **Format Element** dialog appears.
3. Type a URL into the **Hyperlink-Target** field, or choose **Formula** for this field and select a predefined formula that generates a URL.
4. Type your preferred alt text into the **Title** field, or choose **Formula** for this field and select a predefined formula that generates a string.
5. Click the drop-down box in the **Window** field and select a URL target, or choose **Formula** for this field and select a predefined formula that generates a URL.
6. Click **OK** to complete the process.

When you generate report output that supports inline hyperlinks, the URL you specified will be linked to the element you specified. This also applies to preview scenarios that support hyperlinks; however, the built-in Report Designer preview mode (the eye icon) does not allow for clickable links.

## URL Linking in Charts

The **url-formula** chart property allows you to layer an image map over your report HTML output. In essence, you are associating a link to the **series key**, (or **chart key** in pie charts), and **category key**.

You can enter a formula manually or build the formula by clicking  (Field Selector) and making the appropriate selections.

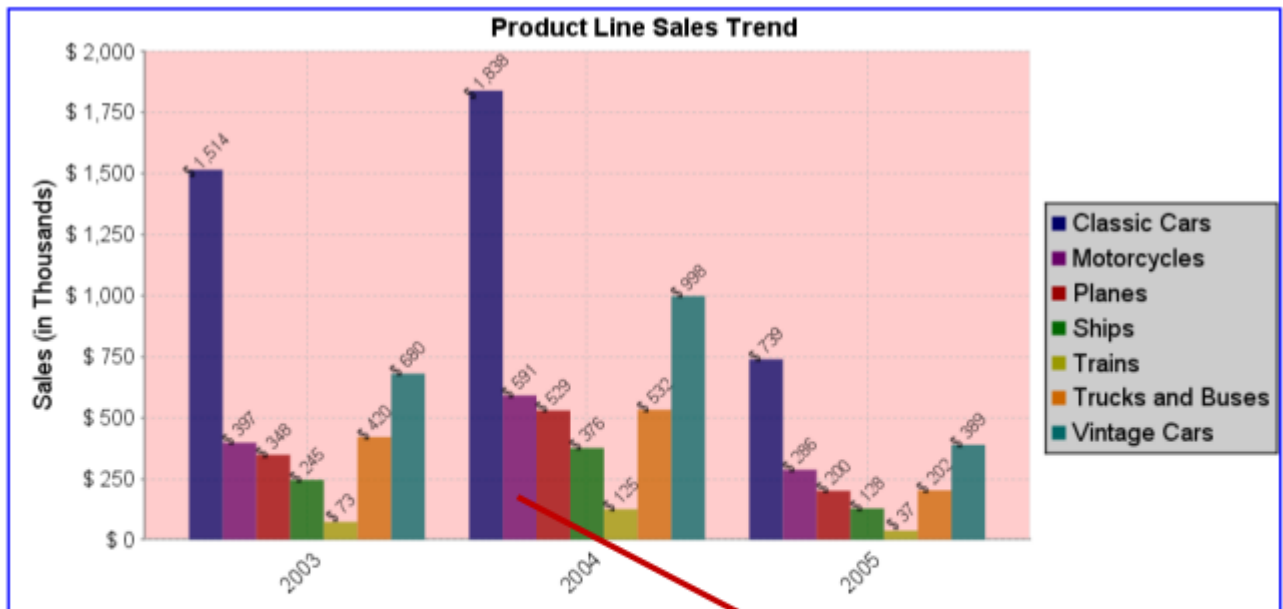
### Bar Chart Example

#### Formula:

`www.google.com/#hl=en&source=hp&q=" & ["chart::series-key"] & " " & ["chart::category-key"]`

#### Report Output:

When report consumers hover over a bar in chart, the relevant web page appears.



	2003	2004	2005
Classic Cars	\$ 1,514	\$ 1,838	\$ 738
Motorcycles	\$ 397	\$ 590	\$ 286
Planes	\$ 347	\$ 528	\$ 200
Ships	\$ 244	\$ 375	\$ 128
Trains	\$ 72	\$ 124	\$ 36
Trucks and Buses	\$ 420	\$ 531	\$ 201
Vintage Cars	\$ 679	\$ 997	\$ 388

Google

Everything  
Images

Motorcycles 2004

About 25,400,000 results (0.25 seconds)

2004 Motorcycles - Total Motorcycle

2004 Motorcycle Models - BMW, Buell, Harley Davidson, Honda, Kawasaki, Suzuki, Triumph, Yamaha

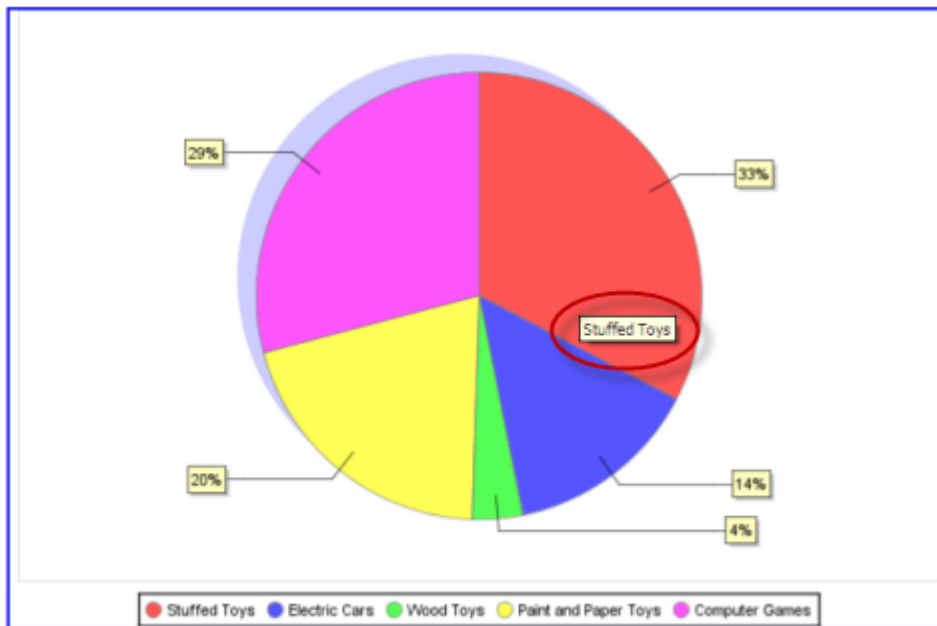
## Pie Chart Example

### Formula:

= "http://www.google.com/images?hl=en&source=imghp&biw=1163&bih=628&q=" & ["chart::key"]

### Report Output:

When consumers of the report hover over a slice in the pie chart, the relevant label associated with the chart appears.



[http://www.google.com/images?hl=en&source=imghp&biw=1163&bih=628&q=Stuffed Toys](http://www.google.com/images?hl=en&source=imghp&biw=1163&bih=628&q=Stuffed+Toys)

For more information, see [Pentaho Reporting and BI Server 3.8 Preview and Demo](#).

## Paste Formatting

Report Designer has the ability to copy the formatting properties of a certain element and apply them to other elements. Follow this procedure to paste formatting:

1. Click on the element you want to copy formatting properties from.
2. Copy the element to the clipboard by either pressing **Ctrl-C**, or by right-clicking the element and selecting **Copy** from the context menu.
3. Right-click the element you want to paste the formatting to, then press **Ctrl-Shift-V**, or right-click the target element and select **Paste Formatting** from the context menu.

## Morphing an Element

Any data-driven element can be transformed into another type of data-driven element. For instance, if you created and configured a date field and you later realize that it actually needs to be a number field, you can easily change the element type with the morph feature by following this process:

1. Select the element you want to morph.
2. Go to the **Format** menu, then select the **Morph** sub-menu.
3. In the Morph sub-menu, select the element type you would like to change to.

The element type should now be changed to the one you selected.

## Implementing Row Banding

Sometimes report data can be difficult to read from left to right, especially if there isn't much space between rows. Report Designer has a row banding property that allows you to add alternately colored backgrounds to each row. Follow the process below to implement row banding.

1. In the **Data** pane, click on **Add Function....**

The **Add Function** window will appear.

2. Double-click the **Report** function category, then select **Row Banding**, then click **Add**.

A Row Banding function will appear in your Data tab.

3. Select the new **Row Banding** function in the **Functions** section.

4. In the **Properties** pane, select colors for the **Active Banding Color** and **Inactive Banding Color** properties, and set any other options according to your preference.

Row banding is now implemented for each distinct rendered line in your Details band. Row banding makes it easier to read reports, but if you need to go one step further, you can override it with conditional formatting.

# Performing Calculations


---

There is much you can do with multiple data-driven elements in Report Designer. This section explains how to group, summarize, and associate multiple report elements.

## Using the Formula Editor

---

When adding conditional formatting or other constraints on data-driven report elements, you have the option of using a built-in Formula Editor to help you build an expression with a graphical interface. All element properties in Report Designer can have formulas. You can type in your own formula by hand, but it's much easier to use the built-in Formula Editor to build an expression.

The Formula Editor provides you with basic math and comparison operators so that you don't have to enter them manually. Also provided are concatenate and percent functions. Click the  (Field Selector) to select fields in the report.

Follow the instructions below to use Formula Editor:

1. Click on the element you want to add a condition or constraint to.
2. In the **Style** pane, select the property you want to add a constraint to, then click the round green + icon on the right side of the field.
3. Click the ... button.  
The Formula Editor window appears.
4. Select a function category from the drop-down box.  
The default category is **All**.
5. Select a function from the **Functions** list.  
If you click on a function, a description of what it does will appear in the tan-colored field at the bottom of the window.
6. Double-click on a function to bring up the option fields.
7. Erase the default values in the option fields, and replace them with your own settings. If you need to associate a column with a function, click the **Select Field** button to the right of the field, then select the data or function you want to use.  
Follow proper SQL syntax in your options; all values must be in quotes, and all column names must be in uppercase letters and enclosed in square brackets.
8. When you're done, click **OK**, then click **Close**.

You have applied a formula to a report element.

If you need more information on formula functions, conditionals, and operators, refer to the OASIS OpenFormula reference: <http://www.oasis-open.org/committees/download.php/16826/openformula-spec-20060221.html>. Pentaho does not implement all OpenFormula functions, but the ones included in Report Designer are documented sufficiently on the OASIS Web site.

## Common Formulas

By customer request, this section contains commonly created formulas in Report Designer.

### Conditional Formatting

The formula described here will highlight a given data cell with either a red or green background depending on a string value from a field in your result set. You can easily modify these instructions to use different indicators or thresholds to match your preference.


1. Open an existing report or create a new report and establish a data source and query, then drag your data-driven fields onto the canvas.



2. Select (left click) the data field you want to conditionally highlight.
3. Click the **Structure** tab and click **bg-color** in the **text** section under the **Style** tab.
4. Click the round green + (Add Expression) icon in the **Formula** column.  
The **Expression** dialogue will appear.
5. Click the ellipsis (...) to open the **Formula Editor** dialog box.
6. Select **Logical** from the **Category** drop-down box.
7. Double-click the **IF** statement in the list on the left.
8. Click the **Select Field** icon, (on the far right), next to the **Test** line.
9. In the **Select Field** box, choose the field you want to conditionally format, then click **OK** to return to the Formula Editor.  
Alternatively, you can simply type the field name in [square brackets] if you already know what it is.
10. Add a conditional statement to the **Test** line, after your field name.  
This is one of your formatting conditionals. For instance if you wanted to highlight cancelled orders in red, and this field contained order status, you could put **[STATUS]="Cancelled"** in the Test line, then a color value for red in the **Then\_value** line, as shown in the next step.

```
[STATUS]="Cancelled"
```

11. In the **Then\_value** line, type the color value or name you want to highlight this field with if the condition in the Test line is met.  
This can be a standard hexadecimal color value (such as **#FF0000** for red), or a standard HTML color name (red, green, white, black, etc.).

 **Note:** This value must be in quotes.

12. Click **OK** to exit the Formula Editor dialog box; click **Close** to exit the **Expression** dialog box.
13. Click **Preview** and verify that your conditional formatting is properly executed. You may have to adjust your query if it does not produce a testable result set.
14. To add more conditions -- such as to highlight both cancelled and disputed orders in red -- add an **OR** statement at the beginning of your **Test** line, enclose the conditions in parenthesis, and separate them with semicolons.

```
OR([STATUS]="Cancelled";[STATUS]="Disputed")
```

Your report output should now be formatted according to the specified conditions.

This is the resultant formula, following the above example for one condition and red and green colors:

#### Simple conditional formatting

```
=IF([STATUS]="Cancelled";"#FF0000";"#00CC00")
```

This is the resultant formula, following the above example for two conditions and red and green colors:

#### Multiple conditions

```
=IF(OR([STATUS]="Cancelled";  
[STATUS]="Disputed");"#FF0000";"#00CC00")
```

## Calculated Dates

This task is only useful for result sets that contain date information.

The formula described here will provide a calculated date in a report. Typically you would display a date as a static number or a range, but the process explained below will enable you to display specific dates like "the first Monday of the month" or "every second Wednesday."

1. Open an existing report or create a new report and establish a data source and query, then drag your data-driven fields onto the canvas.

2. Select (left click) the text field you want to print the calculated date in; if you do not have a text field dedicated to this task, create one now.
3. Click the **Structure** tab and click **value** in the **common** section under the **Attributes** tab.
4. Click the round green + (Add Expression) icon in the **Formula** column.  
The **Expression** dialogue will appear.
5. Click the ellipsis (...) to open the **Formula Editor** dialog box.
6. Select **Date/Time** from the **Category** drop-down box.
7. Double-click the **DATEVALUE** item in the list on the left.
8. Enter in your DATEVALUE formula, then click **OK**.

For more information on DATEVALUE's parameters, see the OASIS reference page for DATEVALUE: <http://www.oasis-open.org/committees/download.php/16826/openformula-spec-20060221.html#DATEVALUE> and VALUE: <http://www.oasis-open.org/committees/download.php/16826/openformula-spec-20060221.html#VALUE>. Alternatively you can consult the examples below and modify them for your purposes.

9. Click **Close** to exit the **Expression** dialog box.
10. Click **Preview** and verify that your date values are properly calculated and formatted. You may have to adjust your query if it does not produce a testable result set.

The date values you specified should now appear correctly in your report.

Some common calculated date formulas:

**1st day of current month**

```
=DATEVALUE ( DATE ( YEAR ( NOW ( ) ) ; MONTH ( NOW ( ) ) ; 1 ) )
```

**Sunday of current week**

```
=DATEVALUE ( DATE ( YEAR ( NOW ( ) ) ; MONTH ( NOW ( ) ) ; DAY ( NOW ( ) ) -  
WEEKDAY ( Now ( ) ; 2 ) ) )
```

**Saturday of current week**

```
=DATEVALUE ( DATE ( YEAR ( NOW ( ) ) ; MONTH ( NOW ( ) ) ; DAY ( NOW ( ) ) -  
WEEKDAY ( Now ( ) + 7 ) )
```

**Current day, date, and time**

```
=NOW ( )
```

**Current date**

```
=TODAY ( )
```

**Yesterday's date**

```
=DATEVALUE ( DATE ( YEAR ( NOW ( ) ) ; MONTH ( NOW ( ) ) ; DAY ( NOW ( ) - 1 ) ) )
```

## Date and Time Parameters

This task is only useful for result sets that contain date information. You should also want to do some kind of sorting based on date or time results.


The formula described here will provide a date picker in a report parameter, allowing report users to view data constrained by the specified date and time.

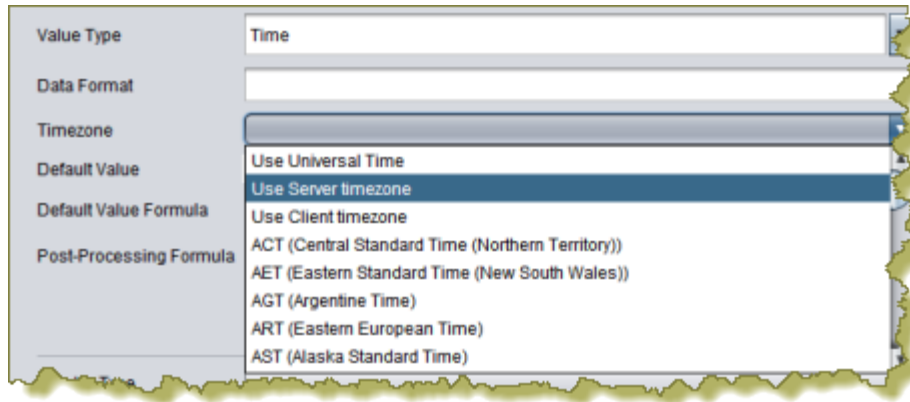
1. Open an existing report or create a new report and establish a data source and query, then drag your data-driven fields onto the canvas.
2. Add a new parameter by clicking the **Master Report Parameter** button at the top of the **Data** pane.  
The **Add Parameter...** dialogue will appear.
3. Type in an appropriate parameter name and friendly name for the parameter.

4. In the **Value Type** field, select or type in **Date**.

5. Create a formula for the **Default Value Formula**.

If you want the current date and time to be the default, you can use `=NOW()` as your formula, or for a slightly more specific output, try `=DATEVALUE(DATE(YEAR(NOW());MONTH(NOW());DAY(NOW()))-WEEKDAY(Now()))`.

 **Note:** Alternatively, to define a time-related value use the **Time** Value Type and select the appropriate option under **Timezone**.



6. In the **Display Type** field, select **Date Picker**, then click **OK** to create the parameter.

7. Click **Preview** and verify that the parameter displays and functions correctly. You may have to adjust your query if it does not produce a testable result set.

Your report's date-based result set can now be manually adjusted by report users.

## Page Numbering

Follow the directions below to add page numbers to your report.

1. Select the **Data** pane in the Report Designer interface.

2. Right-click the **Functions** section of the Data pane, then select **Add Functions...** from the context menu.

The **Add Function** dialogue will appear.

3. Double-click the **Common** category in Functions.

4. Click **Page of Pages**, then click **OK**.

A new Page of Pages function will be added to your Functions list.

5. Drag a new **text-field** element to either the **Page Header** or **Page Footer** band.

6. Select the new text-field element, then go to the **Attributes** pane (you must select the **Structure** tab in order to access the Attributes pane).

7. In the **field** attribute's drop-down list, select the **Page of Pages** function that you created earlier.

You now have a page number printed in the header or footer of every page in your report. Adjust the size and position of this element to match your preferences.

## Summarizing Data in Groups

It's possible to sort data by multiple fields by creating groups. Follow this process to summarize data in groups:

1. Double-click on your data source to open the query configuration dialog.

2. Reorder your query so that the fields you want to sort by are listed at the beginning of your **SELECT** statement.

If you use the SQL Query Designer to do this, you can simply drag and drop the columns in your SELECT section to change their order; if you use the query window, you can carefully copy and paste the columns to reorder them.

3. Copy the same columns you reordered in the SELECT section into the ORDER BY section, in the same order you specified previously.

```
SELECT
    `PRODUCTS`.`PRODUCTLINE`,
    `PRODUCTS`.`PRODUCTVENDOR`,
    `PRODUCTS`.`PRODUCTNAME`,
    `PRODUCTS`.`PRODUCTCODE`,
    `PRODUCTS`.`PRODUCTSCALE`,
    `PRODUCTS`.`PRODUCTSCALE`,
    `PRODUCTS`.`PRODUCTDESCRIPTION`,
    `PRODUCTS`.`QUANTITYINSTOCK`,
    `PRODUCTS`.`BUYPRICE`,
    `PRODUCTS`.`MSRP`
FROM
    `PRODUCTS`
ORDER BY
    `PRODUCTS`.`PRODUCTLINE` ASC,
    `PRODUCTS`.`PRODUCTVENDOR` ASC,
    `PRODUCTS`.`PRODUCTNAME` ASC
```

4. Save the query and close the configuration window.
5. Right-click the **Groups** category in the Structure pane, and select **Add Group** from the context menu.
6. Type in a name for this group in the **Name** field.
7. In the **Available Fields** area on the left, select each row you want to add to the group, then click the arrow button to move it to the **Selected Fields** area on the right.
8. Select the **Data** pane, then click **Add Function**.
9. Double-click the **Sum** function category, then select **Sum**, then click **Add**.
10. Select the newly created **TotalGroupSumFunction** item in the **Functions** list, then click on the **Reset on Group Name** property in the lower right pane.
11. Click the [...] button, select the group you just created in the list, then click **OK**.

You now have the proper Report Designer configuration to create a report with data sorted in groups. You can test this by adding text and number fields to your group and details bands, connecting them to the columns and functions you defined earlier, and previewing your report.

# Output Parameterization

---

Rather than generate multiple reports that share an identical layout and mostly the same data, it may be easier to maintain one report with parameterized output that enables the person viewing the report to change the structure or values of some of the data.

Simple parameterization involves changing data values. For instance, you might give readers an option to filter by the values in a drop-down list. This can include values stored in a particular column; for instance, you could choose to parameterize a column that contains product names, in which case the report reader would be able to change which product he wanted to see data for. Simple parameters are added after the data structure has been defined through a query.

Advanced parameters give readers the power to change the structure of the data. For instance, you might offer an option to select among multiple columns in a given table. These parameters must be expressed as formulas, and are executed along with the query.

## Simple SQL Output Parameterization

---

This procedure requires a **JDBC** data source type.

You can add dynamic interactivity to a published report such that when a user executes or views it, he can specify how to constrain certain parts of the query data. This is called **parameterization**. Follow the procedure below to parameterize a report by adding an SQL WHERE statement to your query.



**Note:** You can only use this procedure to parameterize data returned by a query. You cannot use a WHERE statement to dynamically choose columns or change the structure of tabular data. If you need to go beyond the capabilities of the method explained in this section, see [Advanced SQL Output Parameterization](#) on page 71 to create a custom formula instead.

1. Open the report you want to parameterize.
2. Click the **Data** tab in the upper right pane.
3. Right-click the **Parameters** item in the Data pane, then select **Add Parameter...** from the context menu. The **Add Parameter** dialogue will appear.
4. Select or change the options according to the definitions below:

Field	Purpose
Name	The name of the parameter within Report Designer
Label	The label of the parameter that will be shown to report readers -- a "friendly name"
Value Type	The data type of the column you chose in the Value field above
Data Format	Determines how the data specified by Value Type is formatted. For instance, dates and times can be formatted in a variety of different ways
Default Value	The value from the Value column that you want to pre-populate the parameter object with. This is a text field, so you must know the values in advance

Field	Purpose
Default Value Formula	Allows the Default Value to change dynamically, based on the formula you specify
Post-Processing Formula	Allows you to update a selected value according to conditions you specify in your formula
Mandatory	A checkbox which determines whether this parameter is required in order to display any data in the report
Hidden	A checkbox which hides the parameter from appearing when the value is already passed in a session variable
Display Type	The method of selection for this parameter; determines how report readers choose different values
Query	A drop-down list of queries that you have already defined. If you need to define a new query, use the toolbar above the left pane
Value	The value that is substituted into the query
Display Value Formula	Forces the display value to change depending on the conditions specified in your formula

5. Edit your target data source by double-clicking its entry in the Structure pane.
6. Below your **FROM** statement, add a **WHERE** statement that specifies which column you would like to query the user about, assigned to a parameter that has a name descriptive enough for users to understand.  
This should be one of the columns you have a **SELECT** statement for in the same query.
7. Click **OK** to save the query.
8. Include the parameterized fields in your report by dragging them onto the canvas.
9. Publish or preview your report.

When a user runs this report, he will be presented with an interactive field that specifies an adjustable constraint for the column you specified. For instance, in the example below, the constraint would be a specific product line from the PRODUCTLINE column of the PRODUCTS table.

```

SELECT
    PRODUCTLINE,
    PRODUCTVENDOR,
    PRODUCTCODE,
    PRODUCTNAME,
    PRODUCTSCALE,
    PRODUCTDESCRIPTION,
    QUANTITYINSTOCK,
    BUYPRICE,
    MSRP
FROM
    PRODUCTS
WHERE PRODUCTLINE = ${ENTER_PRODUCTLINE}
ORDER BY


```

```
PRODUCTLINE ASC ,  
PRODUCTVENDOR ASC ,  
PRODUCTCODE ASC
```


## Advanced SQL Output Parameterization

This procedure requires a **JDBC (Custom)** data source type. Establish this data source before continuing with the instructions below. You do not need to construct a query yet.

You can add dynamic interactivity to a published report such that when a user executes or views it, he can specify how to constrain certain parts of the query data. This is called **parameterization**. Follow the procedure below to parameterize a report by creating a custom formula.

 **Note:** This is the nuclear option for adding user interactivity to a report; it allows you to parameterize both structure and values. If you only need to parameterize values, see [Simple SQL Output Parameterization](#) on page 69 instead.

1. Open the report you want to parameterize.
2. Right-click the **Parameters** item in the Data pane, then select **Add Parameter...** from the context menu. The **Add Parameter** dialogue will appear.
3. Select or change the options according to the definitions specified in [Simple SQL Output Parameterization](#) on page 69.
4. Go to the **Structure** pane, then select **Master Report**.
5. In the **Attributes** pane, click the round green **+** icon in the **name** field of the **Query** section. The **Expression** window will appear.
6. Click [...]. The Formula Editor will appear.
7. In the **Formula** field, use a **SELECT DISTINCT** statement to parameterize the data structure with your previously defined parameter, as shown in the example below (**paramexample** is a placeholder for the name of the parameter you created earlier, **COL1** is the example name of the element in your report that will be parameterized, and **PRODUCTS** is an example table name in your database).

 **Note:** The spaces after **DISTINCT** and before **AS** are extremely important. Do not omit them.

```
= "SELECT DISTINCT " & [paramexample] & " AS COL1 FROM PRODUCTS "
```

8. Click **OK** when you are done with the query, then click **Close** in the **Expression** window.
9. Add a field of the appropriate data type to your report, and name it according to the AS statement you defined in your query.  
In the example above, the name of the text field would be **COL1**.
10. Publish or preview the report.

When a user runs this report, he will be presented with an interactive field that specifies the source of the column you specified.

## Simple Metadata Output Parameterization

This procedure requires a **Metadata** data source type. Establish this data source and a query before continuing with the instructions below.

You can add dynamic interactivity to a published report such that when a user executes or views it, he can specify how to constrain certain parts of the query data. This is called **parameterization**. Follow the procedure below to parameterize a Metadata-based report.

1. Open the report you want to parameterize.
2. Right-click the **Parameters** item in the Data pane, then select **Add Parameter...** from the context menu. The **Add Parameter** dialogue will appear.
3. Select or change the options according to the definitions specified in [Simple SQL Output Parameterization](#) on page 69.
4. Edit your query and add the columns you want to parameterize to the **Conditions** field.
5. Create a parameter token in the **Value** field of each row in the **Conditions** area, and a valid default value in the **Default** field.  
Parameter tokens are in {braces} and do not contain spaces.
6. Click **OK** to save the query.
7. Include the parameterized fields in your report by dragging them onto the canvas.
8. Publish or preview the report.

When a user runs this report, he will be presented with an interactive field that specifies an adjustable constraint for the column or columns you specified.

## Simple OLAP Output Parameterization

This procedure requires a **Pentaho Analysis** (Mondrian) data source type. Establish this data source and a query before continuing with the instructions below.

You can add dynamic interactivity to a published report such that when a user executes or views it, he can specify how to constrain certain parts of the query data. This is called **parameterization**. Follow the procedure below to parameterize an OLAP-based report.

1. Open the report you want to parameterize.
2. Right-click the **Parameters** item in the Data pane, then select **Add Parameter...** from the context menu. The **Add Parameter** dialogue will appear.
3. Select or change the options according to the definitions specified in [Simple SQL Output Parameterization](#) on page 69.
4. Edit your MDX query and add parameter functions and a where statement, as in the example below.

```
with
  set [TopSelection] as
    'TopCount(FILTER([Customers].[All Customers].Children,[Measures].
[Sales]>0), Parameter("TopCount", NUMERIC, 10, "Number of Customers to
show"), [Measures].[Sales])'
  Member [Customers].[All Customers].[Total] as 'Sum([TopSelection])'
  Member [Customers].[All Customers].[Other Customers] as '[Customers].[All
Customers] - [Customers].[Total]'
select NON EMPTY {[Measures].[Sales],[Measures].[Quantity]} ON COLUMNS,
  { [TopSelection], [Customers].[All Customers].[Other Customers]} ON ROWS
from [SteelWheelsSales]
where
(
  strToMember(Parameter("sLine", STRING, "[Product].[All Products].[Classic
Cars]")),
  strToMember(Parameter("sMarket", STRING, "[Markets].[All Markets].
[Japan]")),
  strToMember(Parameter("sYear", STRING, "[Time].[All Years].[2003]"))
)
```

5. Click **OK** to save the query.



**Note:** Each parameter must have its own query or data table.

6. Include the parameterized fields in your report by dragging them onto the canvas.



## 7. Publish or preview the report.

When a user runs this report, he will be presented with an interactive field that specifies an adjustable constraint for the column or columns you specified.

## Permanently Overriding the Auto-Submit Option

---

This feature only applies to reports that are published to the BI Server.

Ordinarily the presence of the auto-submit option is determined when designing the report, simply by selecting the option in the Master Report's Attributes pane in Report Designer. However, if you want to permanently enable or disable this option and set a static value for all published reports, you must use the **autoSubmit** URL parameter, which you can force a value for through the **plugin.xml** configuration file.

### 1. Stop the BI Server process or service.

```
/home/pentaho/pentaho/biserver-ee/stop-pentaho.sh
```

### 2. Open the `/pentaho/server/biserver-ee/pentaho-solutions/system/reporting/plugin.xml` with a text editor.

```
vim /home/pentaho/pentaho/server/biserver-ee/pentaho-solutions/system/reporting/plugin.xml
```

### 3. Find the **RUN** id and add an **autoSubmit=false** (or true, if you want to set this feature to always submit the parameter) parameter to the front of the URL in the **command** element, as shown below:

```
<operation>
  <id>RUN</id>
  <command>content/reporting/reportviewer/report.html?
autoSubmit=false&amp;solution={solution}&amp;path={path}&amp;name={name}</
command>
</operation>
```

### 4. Save and close the file, then start the BI Server process or service.

```
/home/pentaho/pentaho/biserver-ee/start-pentaho.sh
```

The auto submit checkbox will now always appear or not appear in rendered reports, depending on the value you chose.

## Integration With the Pentaho BI Server

---

You can easily publish your report to a variety of different output formats by using the **Preview As** and **Export** functions in the File menu. However, if you have a Pentaho BI Server in production, you can publish directly to it instead. Additionally, you can link two reports together so that they share selected resources.

It's assumed that you or your BI administrator set a publish password for your Pentaho BI Server during installation, and that the BI Server is accessible from the machine you're using Report Designer from. For more information on configuring the Pentaho BI Server, see the Pentaho BI Suite 3.6 Administrator's Guide. When your server is ready, refer to the sections below that apply to your situation.

### Publishing to the BI Server

---

Follow this procedure to publish a report to the Pentaho BI Server.



**Note:** If your administrator has enabled row-level security, it is possible that some Pentaho User Console users may not have permission to run the report you are publishing if it includes information from restricted data sources.

1. Open the report you want to publish.
2. Go to the **File** menu and click **Publish to Server....**

The Repository Login window will appear.

3. Enter your Pentaho BI Server connection information, then click **OK**.

If you do not know what should go in any field in this dialog box, contact your system administrator or IT manager.

Report Designer will attempt to connect to your BI Server and publish the report to it. If everything is properly configured and you entered the right connection information, the operation will be a success. If there is a problem in your configuration, an error message should give you a clue about how to solve it.

### Hiding Reports

---

You must have a report file open in order to proceed.

Use this feature in instances in which you want to prevent users from viewing an unfinished report in the Pentaho User Console but want to ensure that the report publishes successfully. You can also use this feature to make the report exclusively accessible from another report through linking.

1. Go to the **Structure** pane and select **Master Report**.
2. Under **Attributes**, scroll down to the **visible** attribute.
3. Right-click the **visible** attribute and choose **False**.
4. Save and publish your report.

The report, even though published successfully, does not display in the Pentaho User Console. You can edit the report, as needed, in Report Designer.

### Linking Reports

---

Just as you can create a hyperlink to a Web address, you can also create a hyperlink from one report to another, as long as the report you're linking to is published on a Pentaho BI Server. Follow the below process to link to a published report.

1. Log into the Pentaho User Console.
2. Run the report you want to link to.
3. When the report is generated, copy its URL from your browser's address bar.
4. Start Report Designer and open the report you want to link from.
5. Follow the process of adding a hyperlink as explained in [Adding Hyperlinks](#) on page 58, using the URL you copied from the Pentaho User Console as the Hyperlink-Target value.
6. Save and publish the report as you normally would.

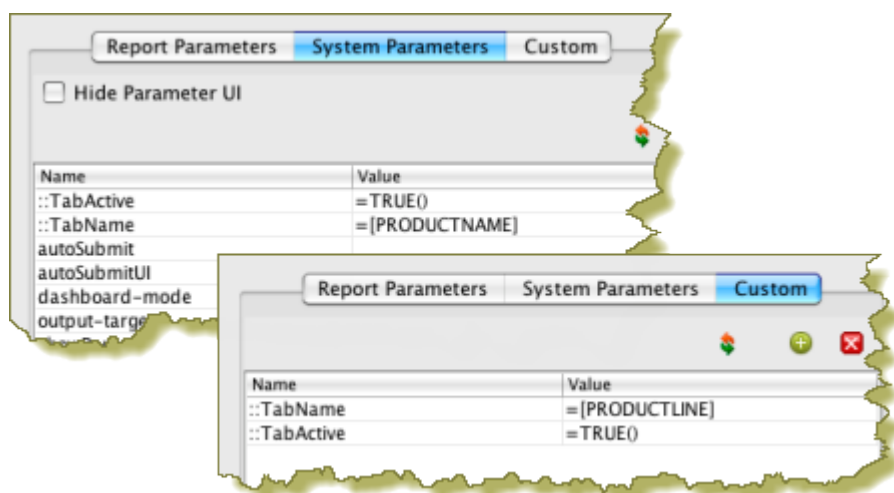
The published report will now link to the report URL you copied at the beginning of this procedure when viewed through the Pentaho User Console.

## Linking in Tabs

To open a link to a report, Analyzer report, or action sequence in a Pentaho User Console tab, the parameters described in the table below must be defined.

Parameter	Description
::TabActive	Defaults to <b>FALSE</b> . When set to <b>TRUE</b> , this parameter opens the target report in the Pentaho User Console report tab.
::TabName	Allows you to assign a name to the report tab either using static text, data field, parameter or a function.

For .prpt reports, the **TabActive** and **TabName** parameters can be found under **System Parameters**. For other file types, you must define them under **Custom**.



# Localizing a Report

---

Report Designer can dynamically pull text content from message bundles that contain localized strings. This enables you to localize the static and dynamic text content in a report.

The relevant report elements you must work with to dynamically localize a report are: Resource Message, Resource Label, and Resource Field. You'll use these in place of standard report text elements.

Follow the below procedure to prepare a report for localization.

1. Open the report you want to localize.

2. Go to the **File** menu and select **Resources....**

The **Resource Editor** window will appear.

3. Click **Create** to create a new default resource bundle.

A resource details window will appear.

4. Type in a file name for your resource file (using a **.properties** extension), and select its content type from the drop-down list.

You should name this properties file without any country or language codes. The Pentaho BI Suite will default to a non-localized message bundle name if no locale is specified, so the first message bundle you create should be the one you want to use by default. Typically you would use the report name for the resource bundle name. So for an **InventoryList.prpt** report, you would name your resource bundle **InventoryList.properties**.

5. In the Resource Editor, select the message bundle you just created, then click **Edit**.

A text window will appear.

6. Enter name/value pairs for all of the Resource Labels you intend to create, with the name of the label on the left and the value on the right, as shown in the example below.

```
title=Sales Report 2011
companyLabel=Steel Wheels, Inc.
```

7. Repeat the previous four steps for every locale and language you want to account for, using the appropriate language and country codes in the file names.

Following the example above, the traditional French version of the properties file would be **InventoryList\_fr\_FR.properties**. Refer to the *Customizing the Pentaho BI Suite* document for more details on message bundle naming conventions.

8. Add a Resource Label, Message, or Field to the report canvas.

9. With the new element selected, go to the **Attributes** pane.

10. Set the name of this replaceable resource in the **value** field.

This must match the name that you specified in your message bundle earlier. To follow the example above, your resource labels should be named **title** and **companyLabel**.

11. Set the name of the resource bundle that will contain this replaceable resource in the **resource-id** field.

This should *not* have a .properties extension. Following the example above, this would be **InventoryList**.

Your report will be localized according to your specifications. You can test this by changing the language code for Report Designer through the **.environment.designtime.Locale** variable in the **Configuration** dialogue in the **File** menu.

# Creating Report Design Wizard Templates

---

This section contains information on creating templates for Report Design Wizard. If you need to create a report template for Interactive Reporting, refer instead to the *Customizing the Pentaho BI Suite* document.

## Report Design Wizard Template Design Guidelines

---

### Methodology

To create a new RDW template, you must use Report Designer to create a report with certain template-specific properties enabled. The resultant PRPT file is then deployed to the Report Designer and/or Pentaho Data Integration template directory.

### Requirements

The **generated-content-marker** attribute in the **wizard** group is the flag that turns a normal report into a template. This attribute can only be applied to a band (group header, group footer, details header, details footer, details, or sub-band).

RDW will insert its auto-generated content into the first band with the **generated-content-marker** set to true. This applies to the group header, group footer, details header, details footer, and the details bands. In the event there are more groups defined in the Report Design Wizard than defined in the template, it repeats the last defined group header and footer in the template.

### Formatting Inheritance

Formatting styles are inherited, so any formatting applied to a band will also be applied to the elements used within it. Formatting is applied in three ways and in the following order:

1. Through the template via band inheritance
2. Through query data where it is defined in Pentaho Metadata
3. As defined by RDW users through the RDW interface

### Inheriting Styles from the Data Query

The **query-metadata** section of the Attributes tab contains options that determine whether formatting styles can come from the data query and be applied to the detail header, details, or detail footer band. This must be set directly on the detail header, detail footer, or details band; and the **style-format** option must be set to **true** for it to work. You must also disable any individual formatting styles (`enable-style-*=true`) that you don't want to come from the query.

### Padding and Grid Lines

Since the Details band is dynamically generated, you have to specify grid line and padding settings in the template definition. This is done through the **wizard** attribute group for the band that has the **generated-content-marker** enabled.

### Updating

An RDW template is only a set of initial defaults for a report, so if a template is updated, completed reports that were based on that template will not be affected; there is no connection between the template and the report once the report is saved. If you want to update an RDW-based report to reflect template changes, you can edit the report with Report Design Wizard, make any necessary selections, and re-save it.



**Note:** Interactive Reporting templates have the opposite behavior because the report links itself to the template; when an IR template is changed, all reports based on that template will automatically inherit the updated template.

## Dynamic Element Positioning in Templates

---

Use the following methods to accommodate for multiple page sizes in reports:

### Percentages

Express the height, width, x position, and y position in percentages.

### Block, inline, or row

Switch the band's layout mode from canvas to either block, inline or row:

layout-mode	value
canvas	Uses the x and y position to place the element in the band.
block	Stacks elements vertically according to the layer order in a band; width is set to 100%.
inline	Stacks elements horizontally according to the layer order in a band; width is determined by the length of the text in the field, and wraps within the band.
row	Stacks elements horizontally in one row according to the layer order in the band.

### Dynamic height message elements

Set **dynamic-height=true** on message elements. This will allow the element size to grow according to line height. Also, setting the following Reporting engine configuration option will allow the element size to grow according to the font size used:

```
org.pentaho.reporting.engine.classic.core.layout.fontrenderer.UseMaxCharBounds  
= true
```

### Proportional column widths

To support varying window sizes in a Web browser, enable the use of proportional column widths so that the resulting table will have a width of 100% and the columns will have the proportional equivalent of their static widths as width. The relevant Reporting engine option to set this globally is:

```
org.pentaho.reporting.engine.classic.core.modules.  
output.table.html.ProportionalColumnWidths = true
```

## Template Properties

The following band properties affect RDW and PIR report templates. Notice that many properties have a different effect in RDW than in PIR.

Band	Report Design Wizard	Interactive Reporting
page header	None	Edit message elements
report header	None	Edit message elements
group headers	Inserts a message element with the value of: <b>fieldname: \$(fieldname)</b>	Edits any message elements within the band. Inserts a message element with the value of: <b>fieldname: \$(fieldname)</b>
detail header	<b>1:</b> Inserts a column header label for every field used.	<b>1:</b> Inserts a column header label for every field used.

Band	Report Design Wizard	Interactive Reporting
	Default value for the label is the fieldname. <b>2:</b> Edits any label within the band.	Default value for the label is the fieldname. <b>2:</b> Edits any label within the band.
details	Inserts the appropriate fields defined	Inserts the appropriate fields defined
detail footer	Insert a numeric field in the same x-position and width of the details field that the summary calculation is applied.	None
group footer	None	<b>1:</b> Inserts a numeric field in the same x-position and width of the details field that the summary calculation is applied. <b>2:</b> Inserts a message element in the x-position of the details field with no summary calculations applied.
report footer	None	<b>1:</b> Inserts a numeric field in the same x-position and width of the details field that the summary calculation is applied. <b>2:</b> Inserts a message element in the x-position of the details field with no summary calculations applied. <b>3:</b> Edit any message elements within the band
page header	None	Allows the modification of message elements

## Deploying a Template to Report Design Wizard

Once you've created a template for RDW, you must follow the below process to deploy it to Report Design Wizard in Report Designer and Pentaho Data Integration.

1. Shut down Report Designer and Pentaho Data Integration if either of them are currently running.
2. Create an icon for your template, in PNG format, with the same name as the template file.

The size of the icon doesn't matter; RDW will scale it to fit the correct dimensions. However, you can avoid unusual scaling issues by creating a square-shaped (equal width and height) graphic. If you'd like further guidance, take a look at the default template icons that Pentaho provides in the templates directory.

3. Copy the icon and the PRPT template files to the following directories:

- /pentaho/design-tools/report-designer/templates/
- /pentaho/design-tools/data-integration/plugins/spoon/agile-bi/templates/

Your template is now deployed to Report Design Wizard and will be available when you next start Report Designer or Data Integration.

## Troubleshooting

---

This section contains reported or expected problem descriptions and solutions.

### Hive Database Disappears From Database Connection Dialog Box

---

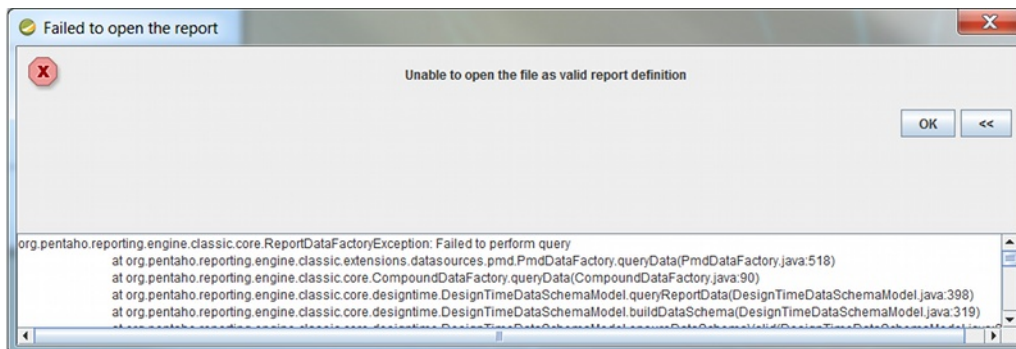
If your Hive database type disappears from the list in the database connection dialog box in Report Designer or Metadata Editor, this probably means that your Pentaho BI Suite For Hadoop license has expired, or the license file has been moved, deleted, or become corrupt. You must install a valid license key in order to reintroduce this functionality in Report Designer.

If you do not update the licence key, all of your existing Hive-based reports will still work; however, you will not be able to change the Hive connection details or create a new Hive connection.

### Reports Using Hive Metadata Data Sources Stop Working

---

If, when designing, editing, or running a report that contains a Hive metadata data source, you see an error like the one below, then your Pentaho BI Suite For Hadoop license has expired, or the license file has been moved, deleted, or become corrupt:



You must install a valid license key in order to reintroduce this functionality.

### Enabling Multi-Valued report Parameters for Metadata-based Queries Created with Previous Versions of Report Designer

---

In versions 3.7 and prior, there was no support for multi-value parameters in a Metadata query. If you have a report created in an earlier version, which contains a Metadata query and an "exactly matches" condition, the report will continue to work as is; however, if you try to change the parameter from a drop-down to a multi-selection type, such as a checkbox containing *more than one value*, the report will fail.

To resolve the problem, simply open the query for editing (Query Editor) and click **OK**. This adjusts MQL query to use the EQUALS function instead of the = operator. No additional changes are necessary.

### Report Elements With Dynamic Heights Overlap Other Elements

---

If you have overlapping elements in your report whenever you use the **dynamic-height** style property, or if you'd like to create proper table rows so that elements of the second row get pushed down by the expanding content of the first row, then follow the directions below to create a two-row details band.



1. Select your **Details** band in the **Structure** pane, then go to the **Style** pane and change the value of **layout** to **block**.
2. Right-click the **Details** band, then select **band** from the **Add Element** context menu.
3. Move or add the elements for the first row into the band you just created.
4. Add another band, then move or copy all elements for the second row into the second band.

When your first row elements expand, your second row elements will be pushed down. Repeat this process as necessary for multiple rows.

# Chart Types

---

There are 18 chart types in the JFreeChart engine, though some are only available through Report Designer, and one (Dial) is only available through an action sequence using Pentaho Design Studio and the BI Platform ChartComponent. Each of them is defined in the headings below, along with a comprehensive table of style elements that applies to each.

## Data Collectors

Each chart type is associated with one or more data collectors. Data collectors are the abstraction point between your data set and what the chart needs to understand about it. So essentially, the data collector constrains the data set to only the necessary chart-oriented columns, eliminating the data that you don't need or can't use for a particular chart type. The possible data collectors are:

- CategorySet
- PivotCategory
- xyzSeries
- TimeSeries
- PieSet
- xy

## Chart Properties

Each chart type has a set of groups of properties. Many of the groups are common to all of the chart types, but some are common only to a few. All groups that apply to each chart type are listed under that chart type's heading below, so each chart type section is a complete reference unto itself.

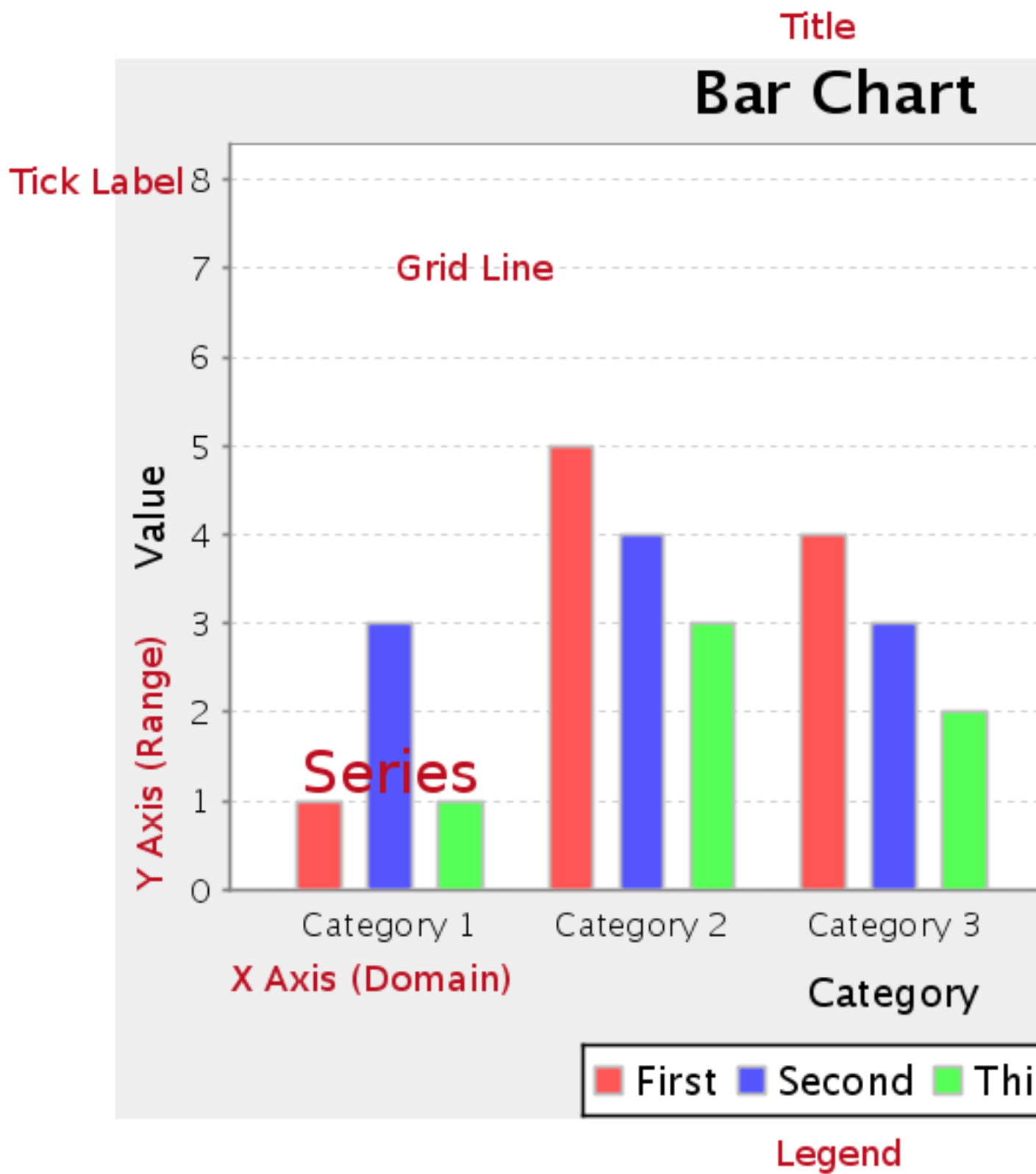
The property groups are merely an organizational tool, and have no meaning beyond the Report Designer user interface. If you are creating charts through action sequences via the BI Platform's ChartComponent, the groups listed for each chart type won't help you much. The chart properties lists below attempt to accommodate both Report Designer and Design Studio users by listing the default JFreeChart names for each property first, and the Report Designer name in parenthesis afterward whenever there is a name conflict. Properties specific to Report Designer or action sequences are contained in separate groups.

Each chart in Report Designer has an **Advanced** property category with a single **dependencyLevel** property. This property is not used under any ordinary circumstances; however, it remains in the Report Designer interface because hiding or removing it would harm certain functionality. Do not change the value of this property.

## Bar

---

Bar charts are useful for discovering trends over time by displaying data in thin, solid columns. Related data sets can be assembled in groups (series) for easy comparison. If you need to show time-oriented changes in data, or if you want to make comparisons between X and Y values that are not directly related in your data source, you must use an XY Bar chart instead. XY Bar charts cannot be created through action sequences with the JFreeChart (ChartComponent) engine at this time, but you can create one through Report Designer. The XY Step and XY StepArea chart types, which can be generated through action sequences, are similar to XY Bar and may be suitable substitutes for the data relationships that you want to show.



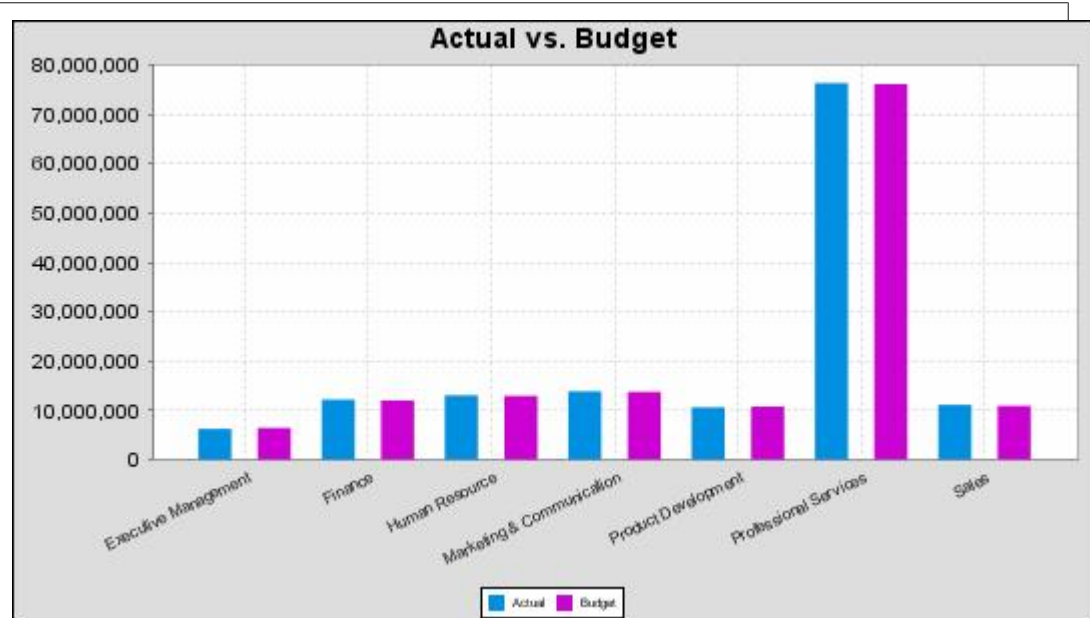
### Data Collectors

The following data collectors are associated with this chart type:

## CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



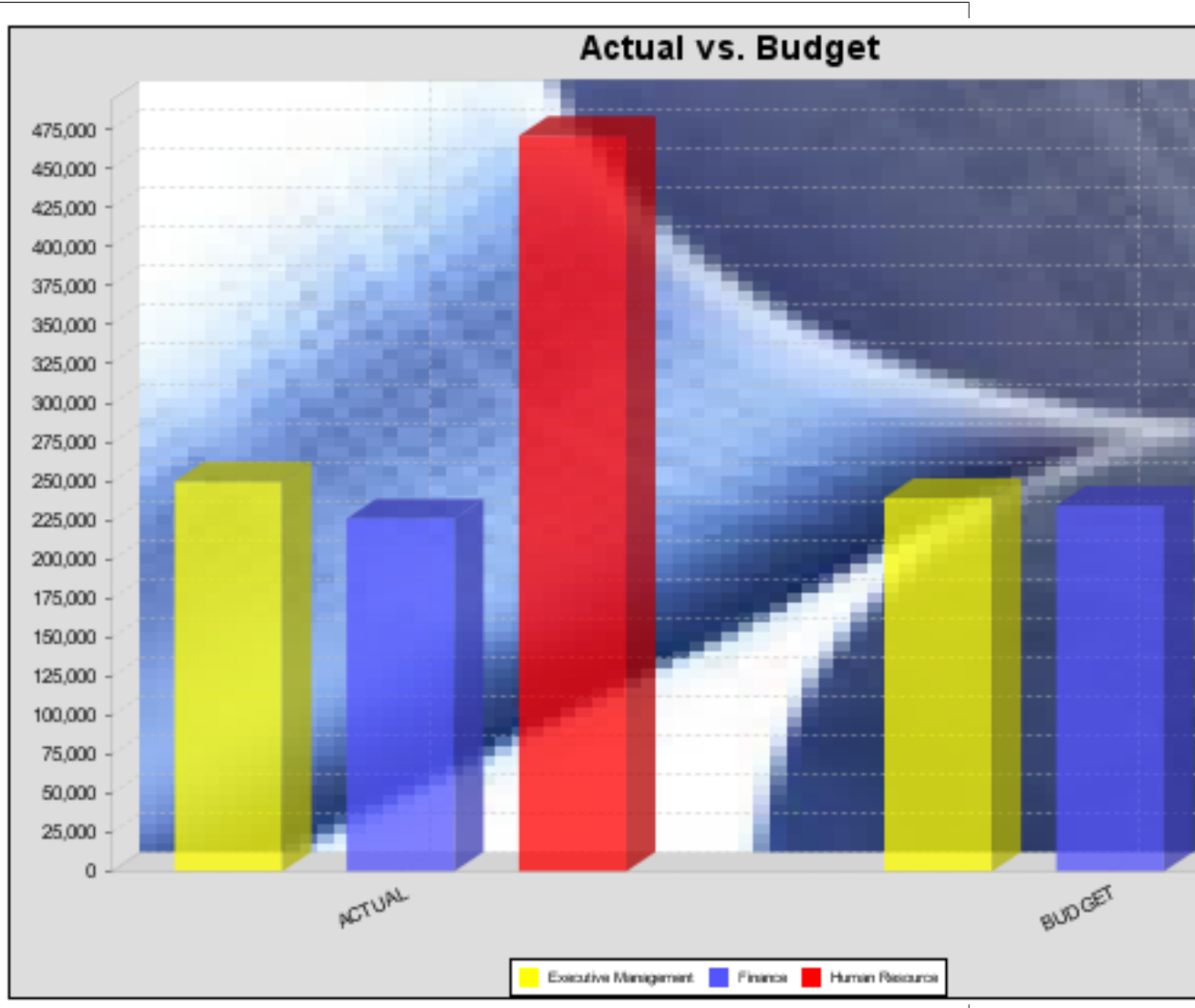
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

### PivotCategorySet

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.

Property	Description
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
```

```

<font-family/>
<size/>
<is-bold/>
<is-italic/>
</title-font>

```

## Options

The following groups of properties are associated with the Options group for this chart type:

### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### stacked-percent

Property	Data Type	Description
stacked-percent	Boolean	If true, stacks the series of the chart, one on top of the other, where each bar represents a percentage of the sum of all bars in the series. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### bar-borders

Property	Data Type	Description
bar-borders	Boolean	Draws a thin solid black border around each bar

### max-bar-width

Property	Data Type	Description
max-bar-width	Decimal	Sets the maximum bar width as a percentage of the axis length. For example, setting this to 0.05 will ensure that the bars never exceed five percent of the length of the axis. This can improve the appearance of charts where



Property	Data Type	Description
		there is a possibility that only one or two bars will be displayed. Possible values are between <b>.01</b> and <b>1.0</b> .

#### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

#### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

#### gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines that only show major scale values. Default value is <b>true</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire

Property	Data Type	Description
		surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-axis-label-width

Property	Data Type	Description
x-axis-label-width	Decimal	Limits the space (in pixels) occupied by the x axis labels. The invisible default value is <b>20.0</b> . If your labels are being truncated, try increasing this value.

### x-axis-label-rotation

Property	Data Type	Description
domain-label-rotation	Integer	The degree of the angle of rotation for X axis labels. Possible values are from 0 to 360.

### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

#### label-rotation

Property	Data Type	Description
label-rotation	Integer	The degree of the angle of rotation for the labels above the bars. Possible values are from 0 to 360.

#### numeric-format

Property	Data Type	Description
numeric-format	String	Determines the content of the domain plot labels. Must be in the Java number format.

#### text-format

Property	Data Type	Description
text-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents category; <b>{2}</b> represents the plotted value.

#### date-format

Property	Data Type	Description
date-format	String	Determines the content of the domain plot labels. Must be in the Java date format.

#### category-margin

Property	Data Type	Description
category-margin	Decimal	Specifies the width (in pixels) between bars (categories)

#### lower-margin

Property	Data Type	Description
lower-margin	Decimal	Specifies the space (in pixels) between the Y axis and the first bar in the chart

#### upper-margin

Property	Data Type	Description
upper-margin	Decimal	Specifies the space (in pixels) between the last bar and the outer edge of the chart

### item-margin

Property	Data Type	Description
item-margin	Decimal	Specifies the space (in pixels) between the bars in a series

### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

#### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

#### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

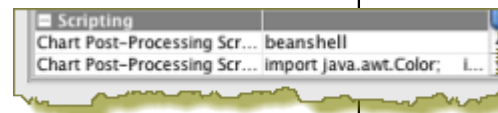
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.

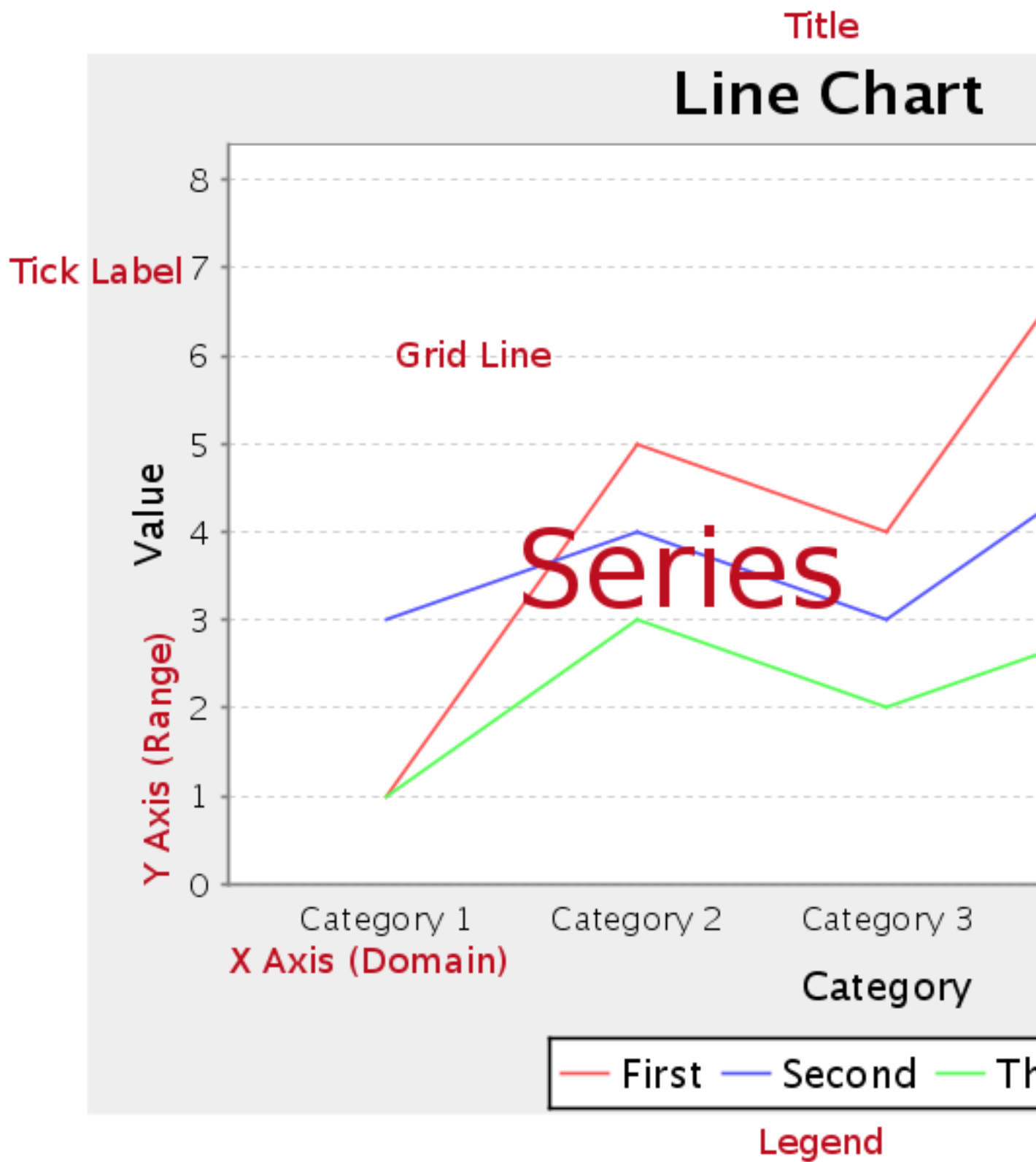


### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Line

Line charts are useful for discovering trends over time by displaying data in thin, usually horizontal lines. Related data sets can be assembled in groups (series) for easy comparison. If you need to make comparisons between X and Y values that are not directly related in your data source, you must use an XY line chart instead.



## Data Collectors

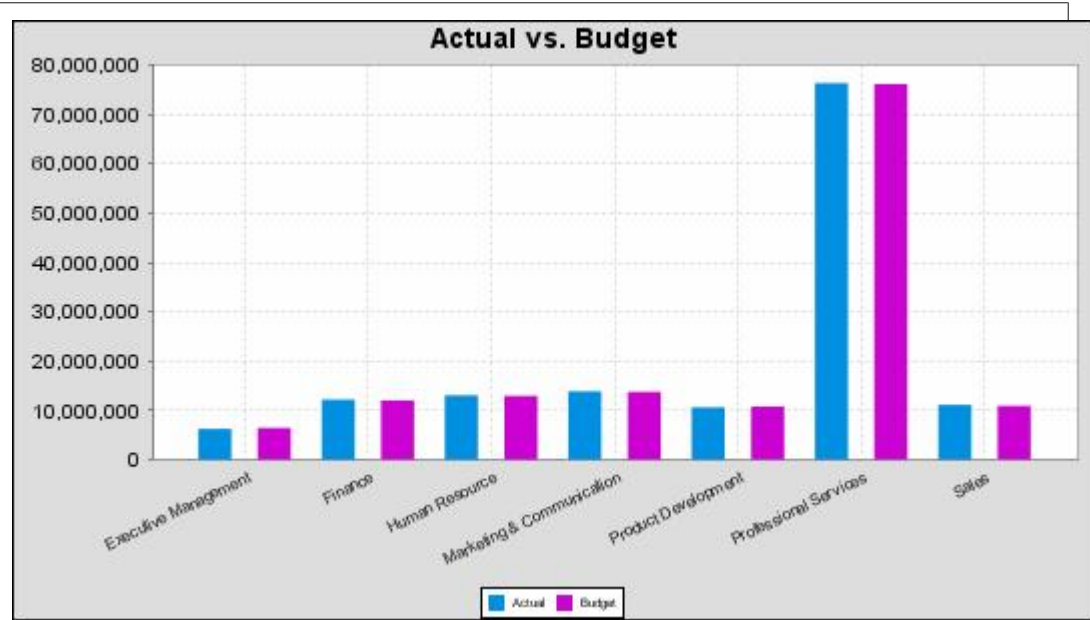
The following data collectors are associated with this chart type:



## CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



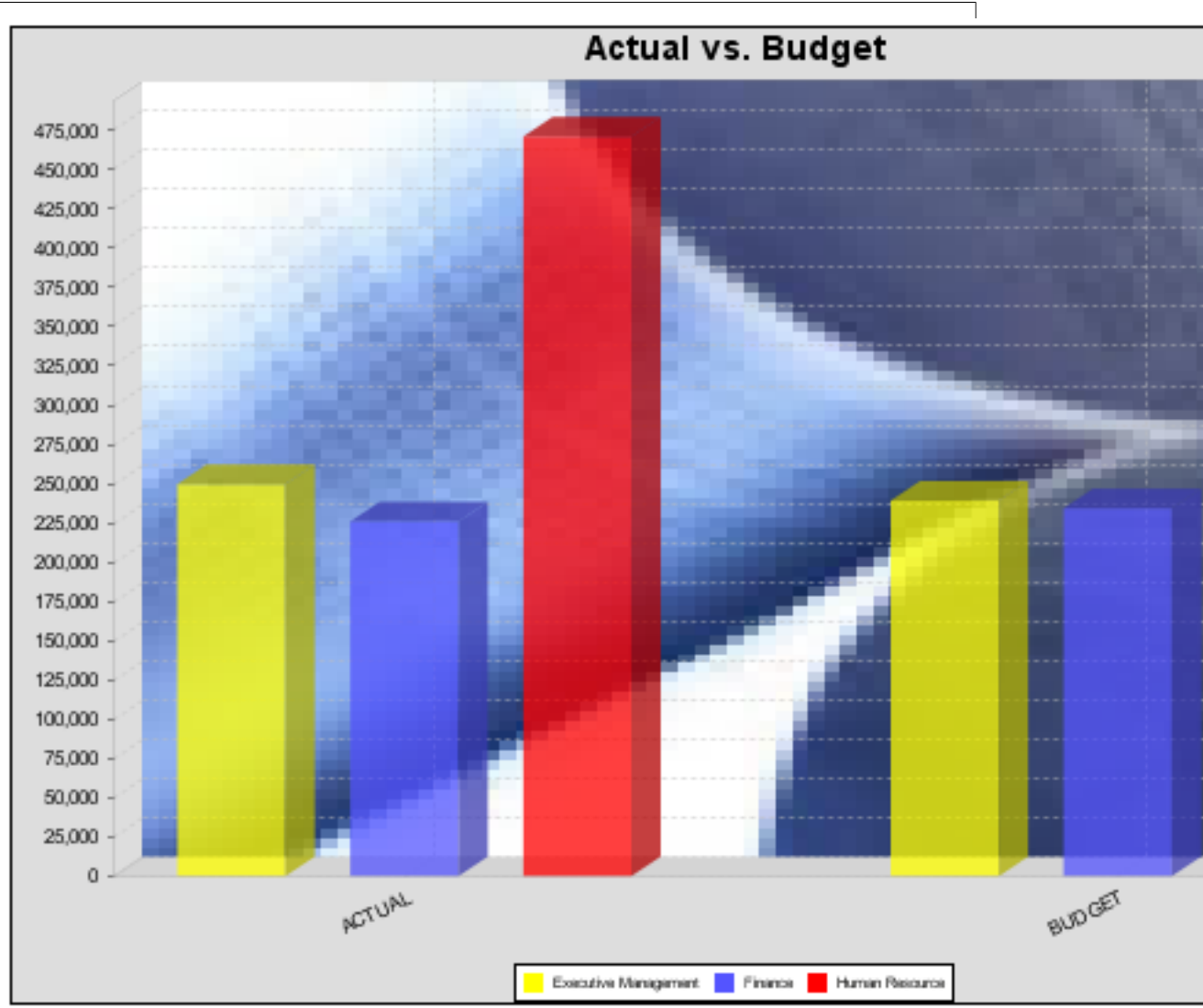
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

**PivotCategorySet**

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.

Property	Description
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
```

```

<font-family/>
<size/>
<is-bold/>
<is-italic/>
</title-font>

```

## Options

The following groups of properties are associated with the Options group for this chart type:

### line-style

Property	Data Type	Description
line-style	String	Sets the style of line series lines. Possible values are: solid, dash, dot, dashdot, dashdotdot. Default value is <b>solid</b> .

### line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

### show-markers

Property	Data Type	Description
markers-visible	Boolean	Sets the point markers visible in applicable charts. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines that only show major scale values. Default value is <b>true</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

### X Axis

The following groups of properties are associated with the X Axis category for this chart type:

#### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

#### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

#### x-axis-label-width

Property	Data Type	Description
x-axis-label-width	Decimal	Limits the space (in pixels) occupied by the x axis labels. The invisible default value is <b>20.0</b> . If your labels are being truncated, try increasing this value.

#### x-axis-label-rotation

Property	Data Type	Description
domain-label-rotation	Integer	The degree of the angle of rotation for X axis labels. Possible values are from 0 to 360.

#### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

#### label-rotation

Property	Data Type	Description
label-rotation	Integer	The degree of the angle of rotation for the labels above the bars. Possible values are from 0 to 360.



#### numeric-format

Property	Data Type	Description
numeric-format	String	Determines the content of the domain plot labels. Must be in the Java number format.

#### text-format

Property	Data Type	Description
text-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents category; <b>{2}</b> represents the plotted value.

#### date-format

Property	Data Type	Description
date-format	String	Determines the content of the domain plot labels. Must be in the Java date format.

#### category-margin

Property	Data Type	Description
category-margin	Decimal	Specifies the width (in pixels) between bars (categories)

#### lower-margin

Property	Data Type	Description
lower-margin	Decimal	Specifies the space (in pixels) between the Y axis and the first bar in the chart

#### upper-margin

Property	Data Type	Description
upper-margin	Decimal	Specifies the space (in pixels) between the last bar and the outer edge of the chart

#### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically

Property	Data Type	Description
		the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

#### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

#### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

## legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

## legend-font-color

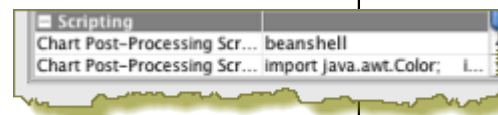
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.

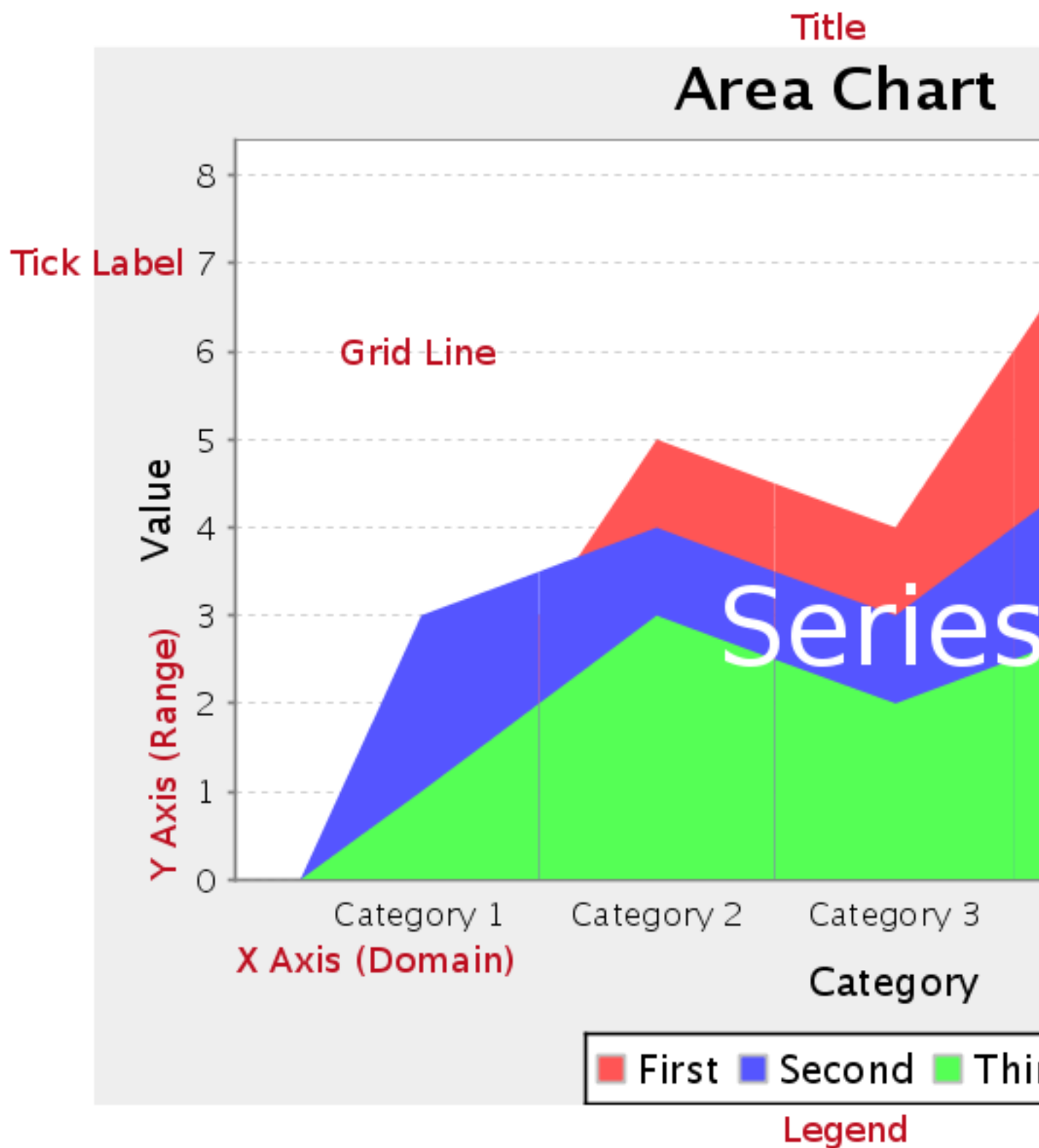


### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Area

Area charts are useful for discovering trends over time, where the values you are comparing are typically hierarchical. If one or more of the chart areas will dip below other areas, then the resulting chart may not be very useful, and you would be better served by a line or bar chart. Area charts are much like line charts, except the area between the lines and the X axis is filled in with either solid, non-overlapping; or transparent, overlapping colors. Related data sets can be assembled in groups (series) for easy comparison. If you need to make comparisons between X and Y values that are not directly related in your data source, you must use an XY area chart instead.



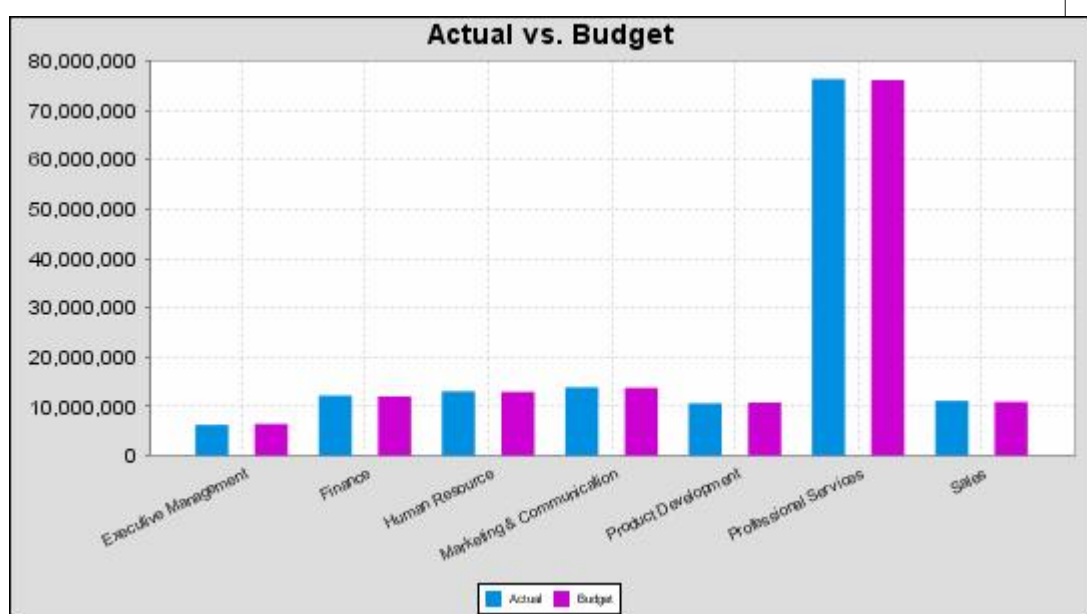
## Data Collectors

The following data collectors are associated with this chart type:

## CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



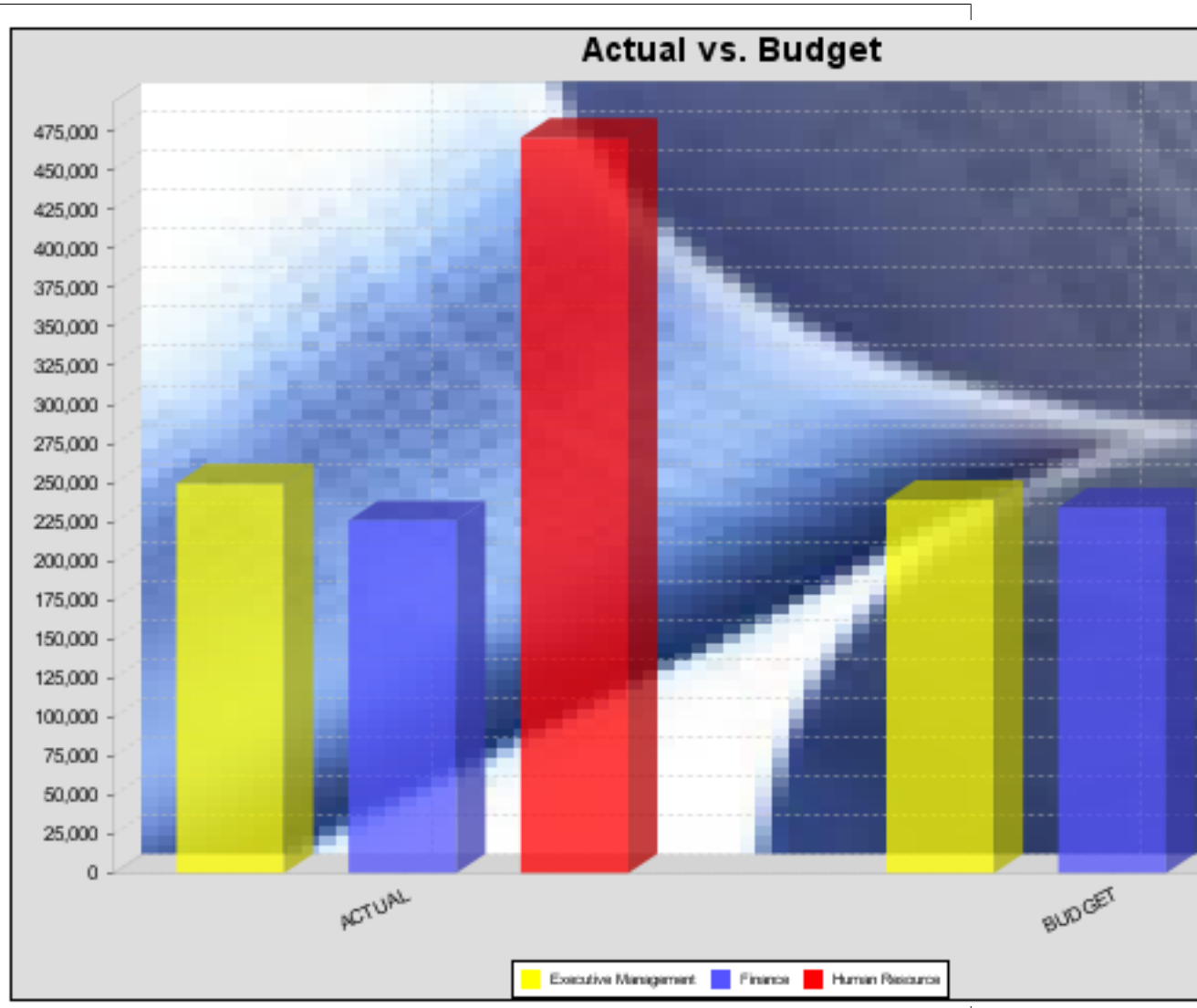
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

### PivotCategorySet

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.

Property	Description
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

<title-font>

```

<font-family/>
<size/>
<is-bold/>
<is-italic/>
</title-font>

```

## Options

The following groups of properties are associated with the Options group for this chart type:

### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### stacked-percent

Property	Data Type	Description
stacked-percent	Boolean	If true, stacks the series of the chart, one on top of the other, where each bar represents a percentage of the sum of all bars in the series. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines that only show major scale values. Default value is <b>true</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image

Property	Data Type	Description
		specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

### X Axis

The following groups of properties are associated with the X Axis category for this chart type:

#### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal

Property	Data Type	Description
		chart, this the categorical or X axis.

#### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

#### x-axis-label-width

Property	Data Type	Description
x-axis-label-width	Decimal	Limits the space (in pixels) occupied by the x axis labels. The invisible default value is <b>20.0</b> . If your labels are being truncated, try increasing this value.

#### x-axis-label-rotation

Property	Data Type	Description
domain-label-rotation	Integer	The degree of the angle of rotation for X axis labels. Possible values are from 0 to 360.

#### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

#### label-rotation

Property	Data Type	Description
label-rotation	Integer	The degree of the angle of rotation for the labels above the bars. Possible values are from 0 to 360.

#### numeric-format

Property	Data Type	Description
numeric-format	String	Determines the content of the domain plot labels. Must be in the Java number format.

#### text-format

Property	Data Type	Description
text-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents category;

Property	Data Type	Description
		{2} represents the plotted value.

#### date-format

Property	Data Type	Description
date-format	String	Determines the content of the domain plot labels. Must be in the Java date format.

#### category-margin

Property	Data Type	Description
category-margin	Decimal	Specifies the width (in pixels) between bars (categories)

#### lower-margin

Property	Data Type	Description
lower-margin	Decimal	Specifies the space (in pixels) between the Y axis and the first bar in the chart

#### upper-margin

Property	Data Type	Description
upper-margin	Decimal	Specifies the space (in pixels) between the last bar and the outer edge of the chart

### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this

Property	Data Type	Description
		flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

#### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

#### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

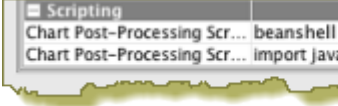
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:



## Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders. 

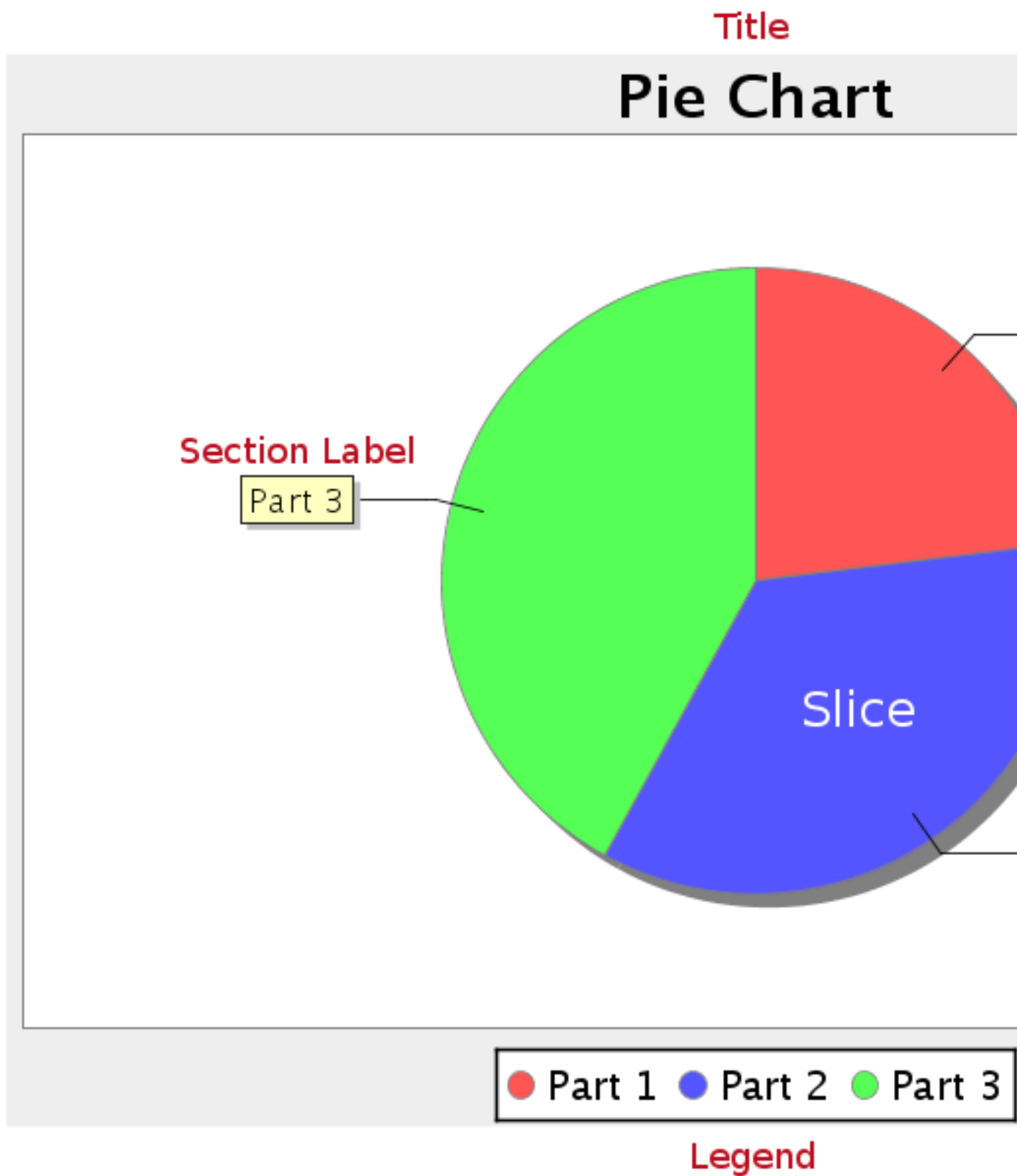
## Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Pie

---

Pie charts are useful for comparing multiple data points. A single pie slice can be "exploded" out from the rest of the chart to bring attention to the value it represents. If you need to compare related data sets in groups, you must use a pie grid chart instead.



## Data Collectors

The following data collectors are associated with this chart type:

## PieSet

Pie datasets require two and only two dimensions (columns) -- one for the pie piece names (the series) and one for the values that are used to calculate size of each pie piece. There are two chart types that work with Pie datasets: Pie and Ring.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
value-column	The data column that determines the chart values (or series items).
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### ignore-nulls

Property	Data Type	Description
ignore-nulls	Boolean	Specifies whether nonexistent data points should be referenced in the chart.

#### ignore-zeros

Property	Data Type	Description
ignore-zeros	Boolean	Specifies whether a data value of zero should be referenced in the chart.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
```

```
</title-font>
```

## Options

The following groups of properties are associated with the Options group for this chart type:

### slice-colors

Property	Data Type	Description
line-data-source	Hexadecimal	A comma-separated list of hexadecimal color values. The colors are used in order, starting with the first value returned by the data set.

### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

### label-format

Property	Data Type	Description
label-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents the value; and <b>{2}</b> represents the percentage value.

### rotate-clockwise

Property	Data Type	Description
rotate-clockwise	Boolean	Specifies whether the values returned by the data set are ordered from left to right (clockwise) or right to left (counterclockwise). Default is <b>True</b> (clockwise).

## explode-slice



**Note:** This property is called **explode-slice** in Report Designer.

Property	Data Type	Description
explode-slices	Complex (see example below)	A list of series names to explode in the pie chart. Pie slices will not explode on a 3D pie chart. In Report Designer, the possible values are integers representing the data points returned by your data set, starting at 0.

## explode-pct

Property	Data Type	Description
explode-pct	Decimal	A decimal value that represents the percentage that you want to expand the radius of the chart to make room for the exploded pie piece. The larger the value, the further out the piece will be exploded. Possible values are between <b>0.0</b> and <b>100</b> .

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

**show-border**

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

**border-color**

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

**anti-alias**

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

**plot-bg-color**

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

**plot-fg-alpha**

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

**plot-bg-alpha**

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

**plot-border**

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a

Property	Data Type	Description
		border between it and the chart background

#### shadow-paint

Property	Data Type	Description
shadow-paint	Selection	The color of the chart shadow; this is the area behind the chart — click [...] (ellipsis) to display available colors.

#### shadow-x-offset

Property	Data Type	Description
shadow-x-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	= "http://www.google.com/im..."
tooltip-formula	= ["chart: key"]

#### shadow-y-offset

Property	Data Type	Description
shadow-y-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	= "http://www.google.com/im..."
tooltip-formula	= ["chart: key"]



### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
```

```

<font-family/>
<size/>
<is-bold/>
<is-italic/>
</legend-font>

```

#### legend-font-color

Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

#### legend-label-format

Property	Data Type	Description
legend-label-format	String	Determines the content of the legend labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents the value; and <b>{2}</b> represents the percentage value.

### Scripting

The following groups of properties are associated with the Scripting category for this chart type:

#### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.

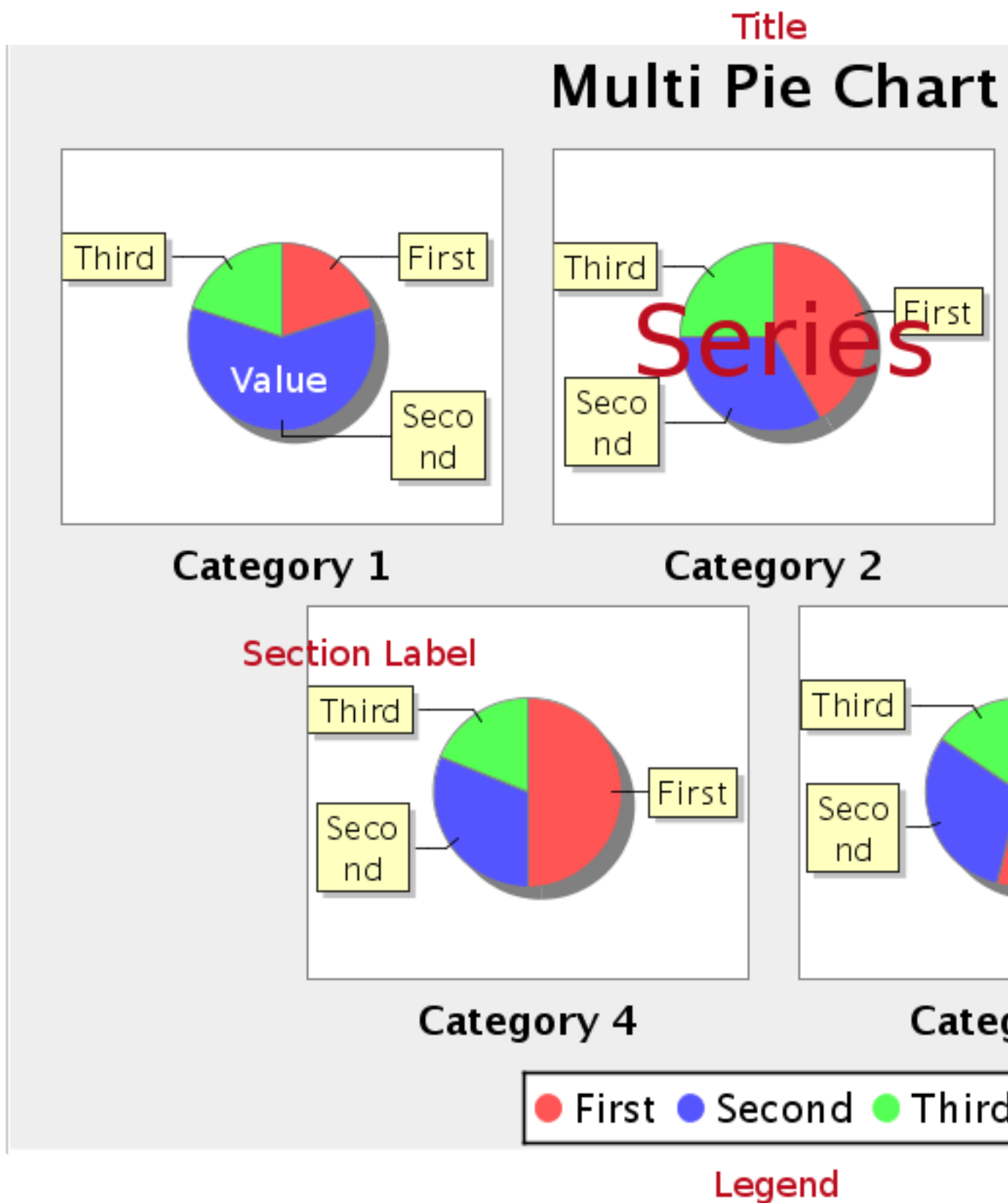


#### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Multi-Pie

Pie grid charts are useful for comparing multiple data points in a group. The group (series) items will display as multiple pie charts in one chart area.



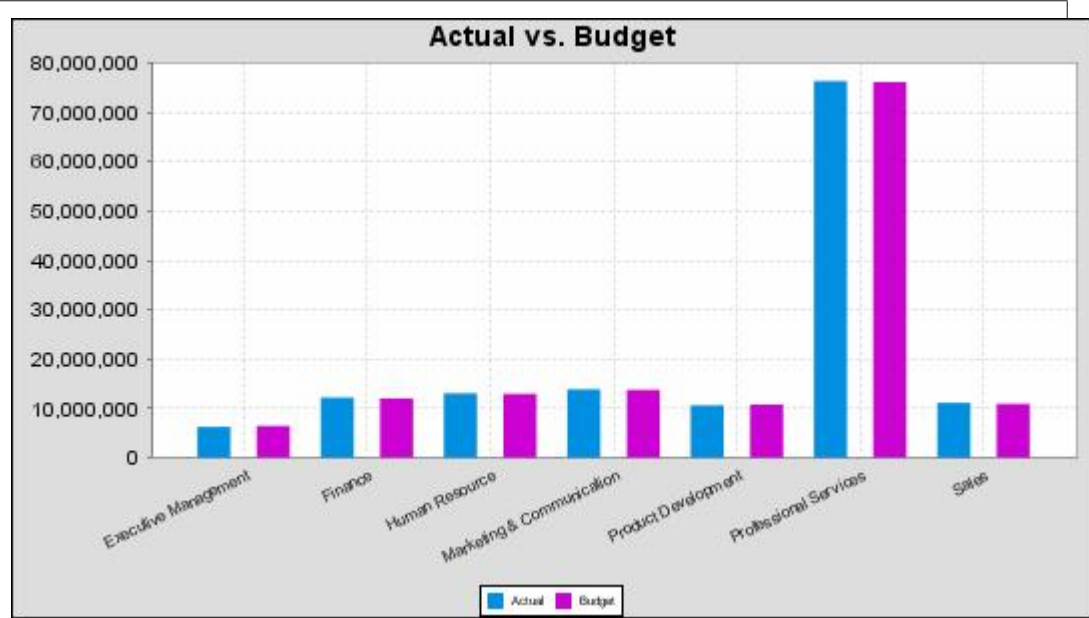
## Data Collectors

The following data collectors are associated with this chart type:

## CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



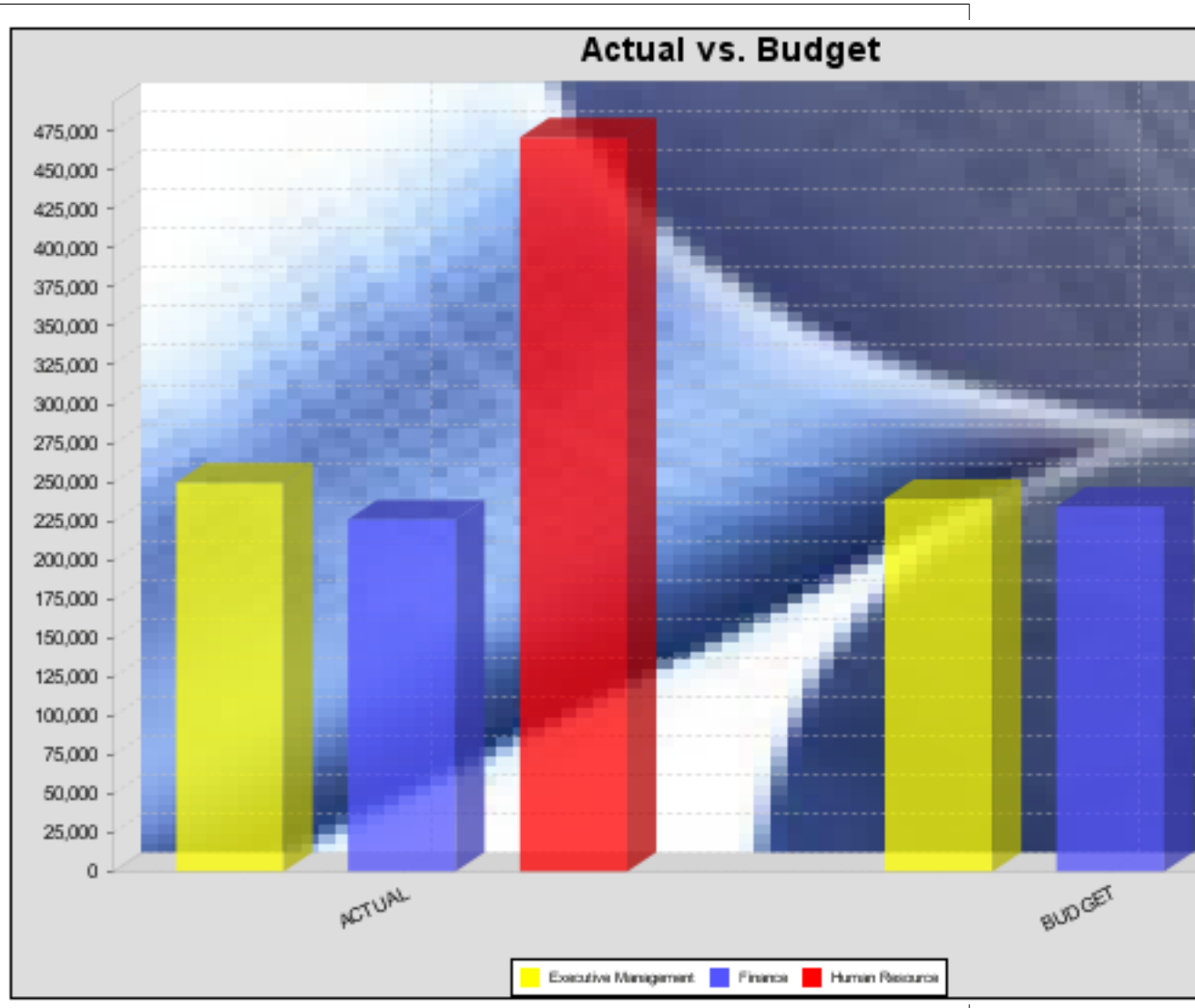
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

**PivotCategorySet**

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.

Property	Description
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
```

```

<font-family/>
<size/>
<is-bold/>
<is-italic/>
</title-font>

```

## Options

The following groups of properties are associated with the Options group for this chart type:

### by-row

Property	Data Type	Description
by-row	Boolean	Switches the category and series result sets

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```

<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>

```

### label-format

Property	Data Type	Description
label-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents the value; and <b>{2}</b> represents the percentage value.

## General

The following groups of properties are associated with the General category for this chart type:



### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient, texture or image specified as the plot background for the chart.

### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot

Property	Data Type	Description
		foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### shadow-paint

Property	Data Type	Description
shadow-paint	Selection	The color of the chart shadow; this is the area behind the chart — click [...] (ellipsis) to display available colors.

#### shadow-x-offset

Property	Data Type	Description
shadow-x-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	=["http://www.google.com/im..."]
tooltip-formula	=["chart:key"]

### shadow-y-offset

Property	Data Type	Description
shadow-y-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	= "http://www.google.com/im...
tooltip-formula	= ["chart: key"]

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background.

Property	Data Type	Description
		Default value is FFFFFF (white).

#### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

#### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

#### legend-font-color

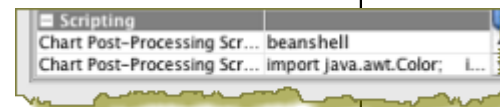
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

### Scripting

The following groups of properties are associated with the Scripting category for this chart type:

#### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



#### Chart Post Processing Script

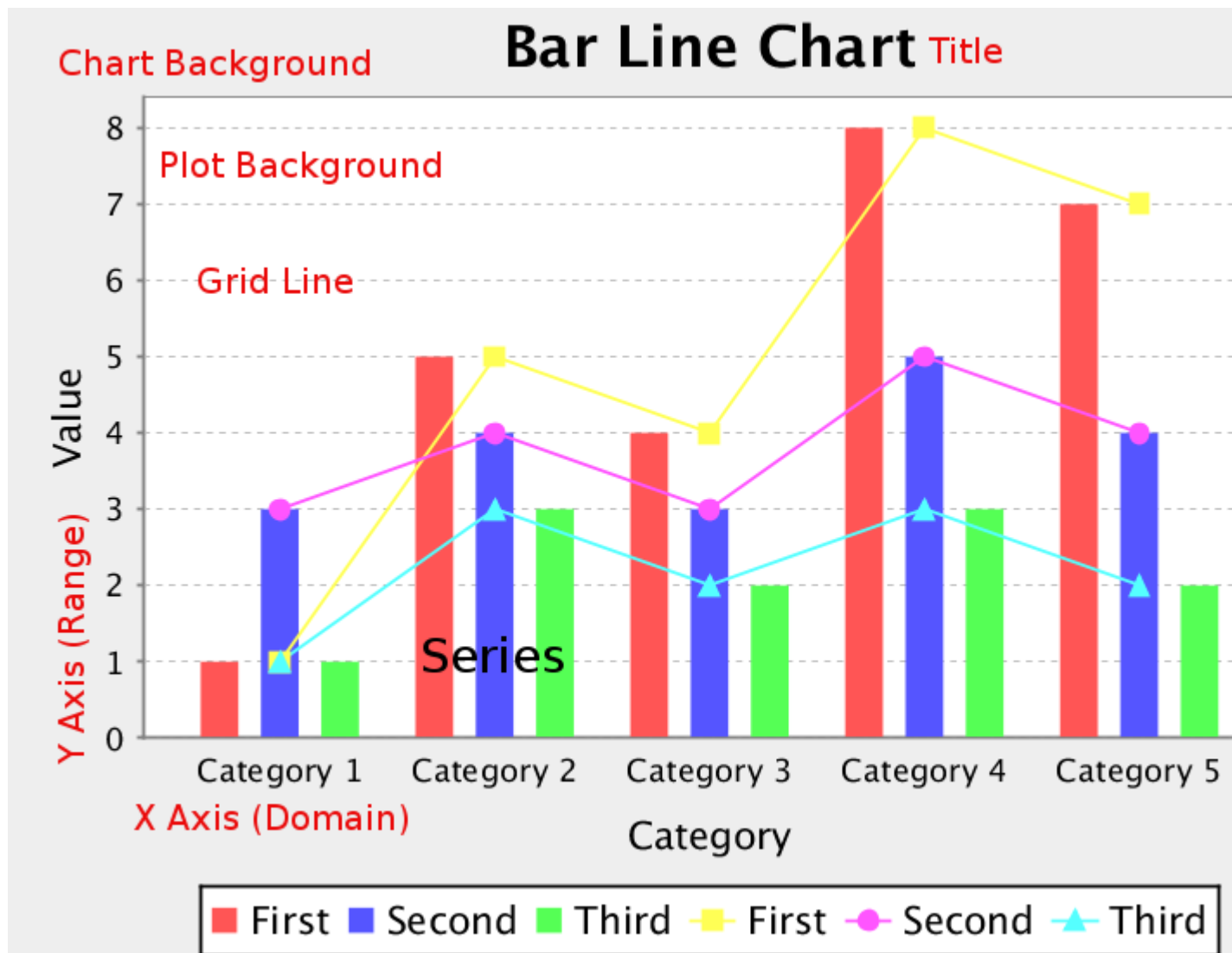
Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Bar Line Combination

Bar Line charts are useful for spotting trends and comparing items against one another as well as showing comparisons between metrics. For instance, you might have bars that represent the number of employees per department, and a line that indicates productivity; or bars that represent software product sales, and a line that represents the number of evaluation downloads. You cannot have more than one line per bar line chart, so if you need to compare more than one set of metrics, you will have to create multiple charts to show them.



**Note:** Bar Line charts require two data sources -- one for the bars, one for the line. These are set through the **Primary Datasource** and **Secondary Datasource** tabs at the top of the right half of the Bar Line properties window. In order to properly show a relationship between the two data points, you should use the same data source for both the bars and the line.



## Data Collectors

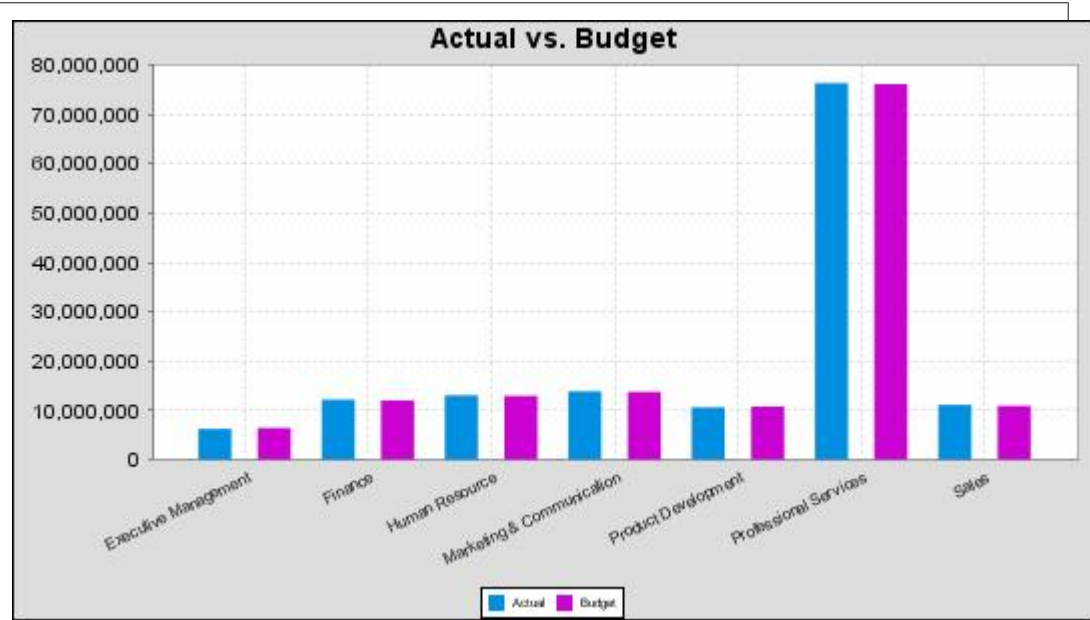
The following data collectors are associated with this chart type:

### CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar

charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



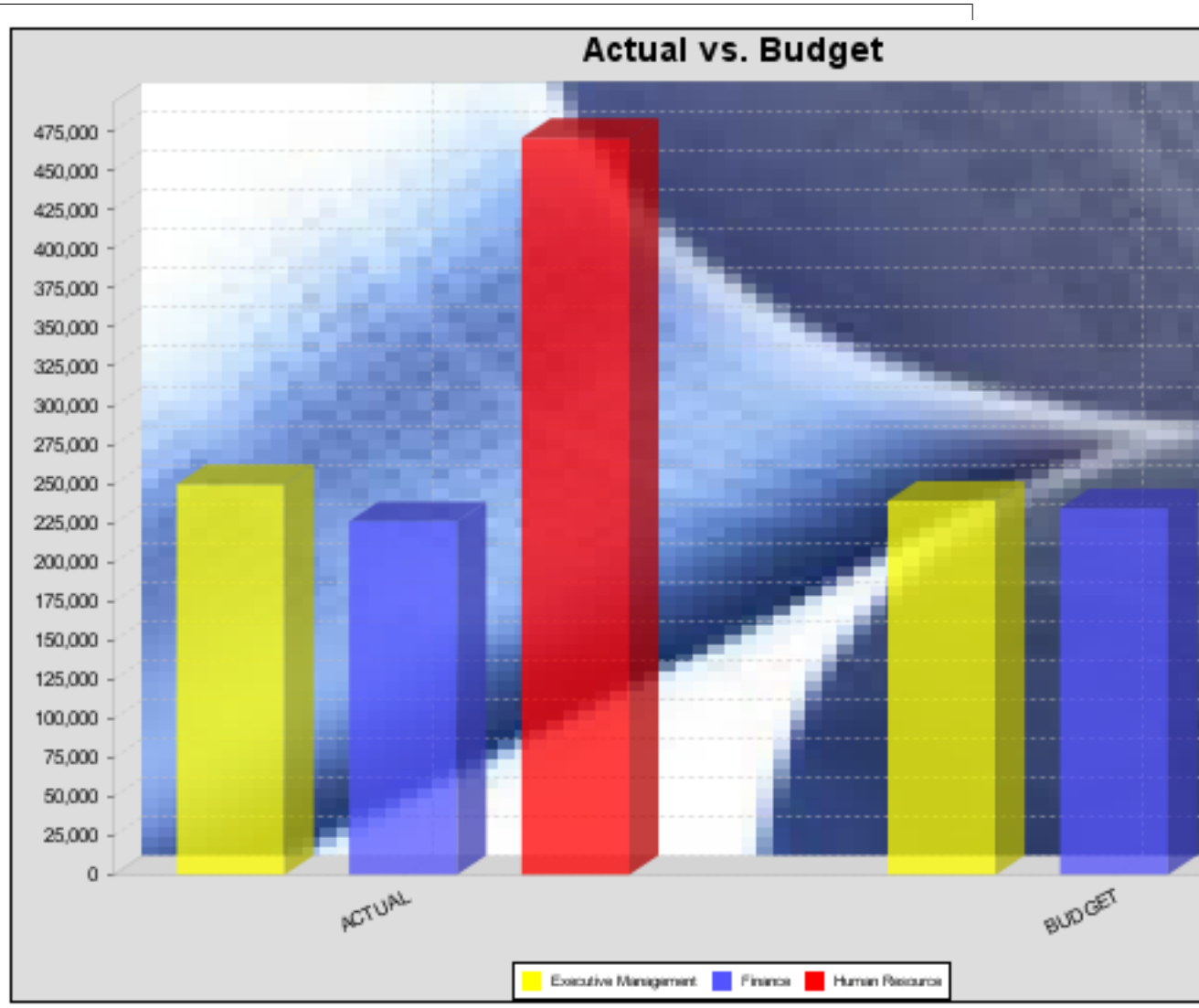
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

**PivotCategorySet**

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.

Property	Description
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### bar-data-source

Property	Data Type	Description
bar-data-source	String	The name of the established (in Report Designer) data source you intend to pull data from for the bar portion of the chart.

#### line-data-source

Property	Data Type	Description
line-data-source	String	The name of the established (in Report Designer) data source you intend to pull data from for the line portion of the chart.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### Options

The following groups of properties are associated with the Options group for this chart type:

#### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

#### stacked-percent

Property	Data Type	Description
stacked-percent	Boolean	If true, stacks the series of the chart, one on top of the other, where each bar represents a percentage of the sum of all bars in the series. Default value is <b>false</b> .

#### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### max-bar-width

Property	Data Type	Description
max-bar-width	Decimal	Sets the maximum bar width as a percentage of the axis length. For example, setting this to 0.05 will ensure that the bars never exceed five percent of the length of the axis. This can improve the appearance of charts where there is a possibility that only one or two bars will be displayed. Possible values are between <b>.01</b> and <b>1.0</b> .

### bar-borders

Property	Data Type	Description
bar-borders	Boolean	Draws a thin solid black border around each bar

### ctgry-tick-font

Property	Data Type	Description
ctgry-tick-font	String	Specifies the font of both the X axis category labels, and the Y1 (left side) tick labels

### line-style

Property	Data Type	Description
line-style	String	Sets the style of line series lines. Possible values are: solid, dash, dot, dashdot, dashdotdot. Default value is <b>solid</b> .

### line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

### show-markers

Property	Data Type	Description
markers-visible	Boolean	Sets the point markers visible in applicable charts. Default value is <b>false</b> .

### line-series

Property	Data Type	Description
line-series	Complex (see example below)	A list of names of the columns (series) in the dataset representing the series that will be drawn as a line.

```
<line-series>
  <series/>
</line-series>
```

### lines-label-font

Property	Data Type	Description
lines-label-font	String	Specifies the font of both the labels above the line at each data point

### line-tick-fmt

Property	Data Type	Description
lines-range-tick-format	String	Sets the format of the tick mark labels of the range axis for the line in a bar line chart. An example format for displaying percentages might be "0.00%". Does not affect the bar tick labels.

### line-tick-font

Property	Data Type	Description
lines-range-tick-font	Complex (see example below)	Sets the font for the tick mark labels of the range axis for the line in a bar line chart. Does not affect bar tick labels.

### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

## gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines that only show major scale values. Default value is <b>true</b> .

## bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

## bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

## show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

## border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

## anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

#### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

#### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

#### x-axis-label-width

Property	Data Type	Description
x-axis-label-width	Decimal	Limits the space (in pixels) occupied by the x axis labels. The invisible default value is <b>20.0</b> . If your labels are being truncated, try increasing this value.

#### x-axis-label-rotation

Property	Data Type	Description
domain-label-rotation	Integer	The degree of the angle of rotation for X axis labels. Possible values are from 0 to 360.

#### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

#### label-rotation

Property	Data Type	Description
label-rotation	Integer	The degree of the angle of rotation for the labels above the bars. Possible values are from 0 to 360.

#### numeric-format

Property	Data Type	Description
numeric-format	String	Determines the content of the domain plot labels. Must be in the Java number format.

### text-format

Property	Data Type	Description
text-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents category; <b>{2}</b> represents the plotted value.

### date-format

Property	Data Type	Description
date-format	String	Determines the content of the domain plot labels. Must be in the Java date format.

### category-margin

Property	Data Type	Description
category-margin	Decimal	Specifies the width (in pixels) between bars (categories)

### lower-margin

Property	Data Type	Description
lower-margin	Decimal	Specifies the space (in pixels) between the Y axis and the first bar in the chart

### upper-margin

Property	Data Type	Description
upper-margin	Decimal	Specifies the space (in pixels) between the last bar and the outer edge of the chart

### item-margin

Property	Data Type	Description
item-margin	Decimal	Specifies the space (in pixels) between the bars in a series

## Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically



Property	Data Type	Description
		the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

#### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

#### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

**y-tick-period**

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

**enable-log-axis**

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

**log-format**

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

**y2-same-as-y-axis**

Property	Data Type	Description
y2-same-as-y-axis	Boolean	Sets the Y2 axis (the right-side axis) to the same tick intervals as the Y1 (left-side) axis

**y2-axis-title**

Property	Data Type	Description
y2-axis-title	String	Sets the title for the Y2 (right-side) numeric data axis

**y2-font**

Property	Data Type	Description
y2-font	String	Sets the font for the Y2 (right-side) axis title

**y2-tick-interval**

Property	Data Type	Description
y2-tick-interval	Decimal	Controls the increments between Y2 (right-side) axis tick labels

**y2-tick-font**

Property	Data Type	Description
y2-tick-font	String	Sets the font for the labels on the tick marks of the Y2 (right-side) axis

### y2-min

Property	Data Type	Description
y2-min	Integer	Sets the lower bounding value on the Y2 (right-side) axis

### y2-max

Property	Data Type	Description
y2-max	Integer	Sets the upper bounding value on the Y2 (right-side) axis

### y2-tick-period

Property	Data Type	Description
y2-tick-period	Selection	Specifies the Y2 (right-side) axis tick intervals if the Y2 (line) data set returns date or time data

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

## legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

## legend-font-color

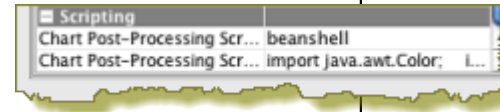
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



### Chart Post Processing Script

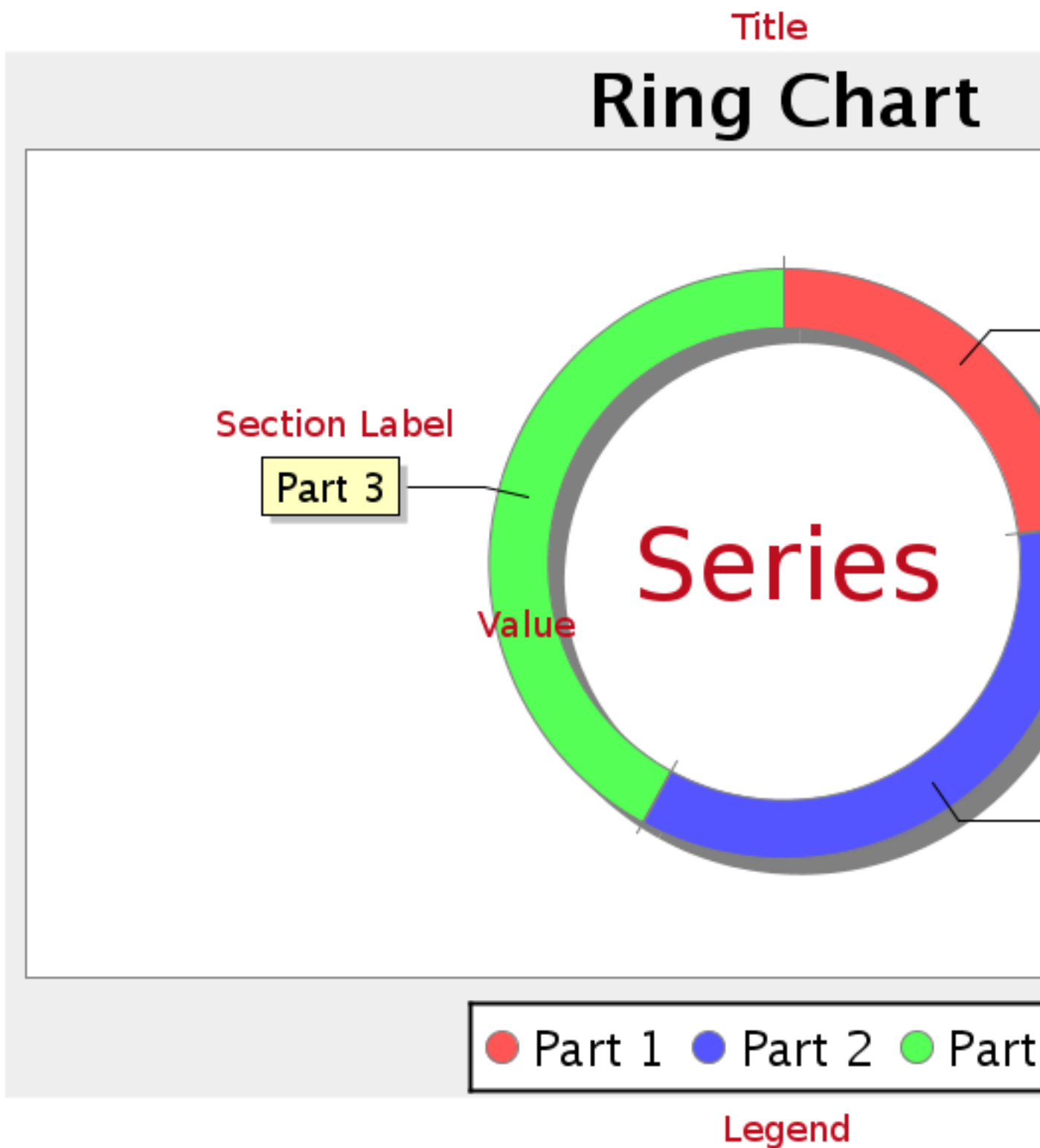
Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Ring



**Note:** This chart type is only available in Report Designer; it cannot be created through the BI Platform's ChartComponent.

Ring charts, like pie charts, are useful for comparing multiple data points. Pie charts are generally easier to read, so you should probably have a specific reason to choose a ring over a pie chart. A single ring slice can be "exploded" out from the rest of the chart to bring attention to the value it represents. If you need to compare related data sets in groups, you must use a pie grid chart instead.



## Data Collectors

The following data collectors are associated with this chart type:

## PieSet

Pie datasets require two and only two dimensions (columns) -- one for the pie piece names (the series) and one for the values that are used to calculate size of each pie piece. There are two chart types that work with Pie datasets: Pie and Ring.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
value-column	The data column that determines the chart values (or series items).
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

#### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

#### ignore-nulls

Property	Data Type	Description
ignore-nulls	Boolean	Specifies whether nonexistent data points should be referenced in the chart.

#### ignore-zeros

Property	Data Type	Description
ignore-zeros	Boolean	Specifies whether a data value of zero should be referenced in the chart.

#### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
```

```
</title-font>
```

## Options

The following groups of properties are associated with the Options group for this chart type:

### slice-colors

Property	Data Type	Description
line-data-source	Hexadecimal	A comma-separated list of hexadecimal color values. The colors are used in order, starting with the first value returned by the data set.

### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

### label-format

Property	Data Type	Description
label-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents the value; and <b>{2}</b> represents the percentage value.

### rotate-clockwise

Property	Data Type	Description
rotate-clockwise	Boolean	Specifies whether the values returned by the data set are ordered from left to right (clockwise) or right to left (counterclockwise). Default is <b>True</b> (clockwise).



## explode-slice



**Note:** This property is called **explode-slice** in Report Designer.

Property	Data Type	Description
explode-slices	Complex (see example below)	A list of series names to explode in the pie chart. Pie slices will not explode on a 3D pie chart. In Report Designer, the possible values are integers representing the data points returned by your data set, starting at 0.

## explode-pct

Property	Data Type	Description
explode-pct	Decimal	A decimal value that represents the percentage that you want to expand the radius of the chart to make room for the exploded pie piece. The larger the value, the further out the piece will be exploded. Possible values are between <b>0.0</b> and <b>100</b> .

## section-depth

Property	Data Type	Description
section-depth	Decimal	The percentage of the circle that will be filled with the ring chart. The larger the value, the less space there is in the center of the ring. Possible values are between <b>0.1</b> and <b>100</b> , where 100 is equivalent to a pie chart.

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area

Property	Data Type	Description
		behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot

Property	Data Type	Description
		background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### shadow-paint

Property	Data Type	Description
shadow-paint	Selection	The color of the chart shadow; this is the area behind the chart — click [...] (ellipsis) to display available colors.

#### shadow-x-offset

Property	Data Type	Description
shadow-x-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	= "http://www.google.com/im..."
tooltip-formula	= ["chart.key"]

#### shadow-y-offset

Property	Data Type	Description
shadow-y-offset	Integer	Coordinates relative to the chart for background shadow; negative values are acceptable — for example, a value of 10 creates a shadow on the lower right side of the chart. A value of -10, creates a

Property	Data Type	Description
		shadow on the upper left side of the chart.

plot-fg-alpha	1.0
plot-bg-alpha	1.0
plot-border	False
shadow-paint	
shadow-x-offset	-10
shadow-y-offset	-10
url-formula	= "http://www.google.com/im...
tooltip-formula	= ["chart_key"]

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

#### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

#### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

### legend-label-format

Property	Data Type	Description
legend-label-format	String	Determines the content of the legend labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents the value; and <b>{2}</b> represents the percentage value.

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



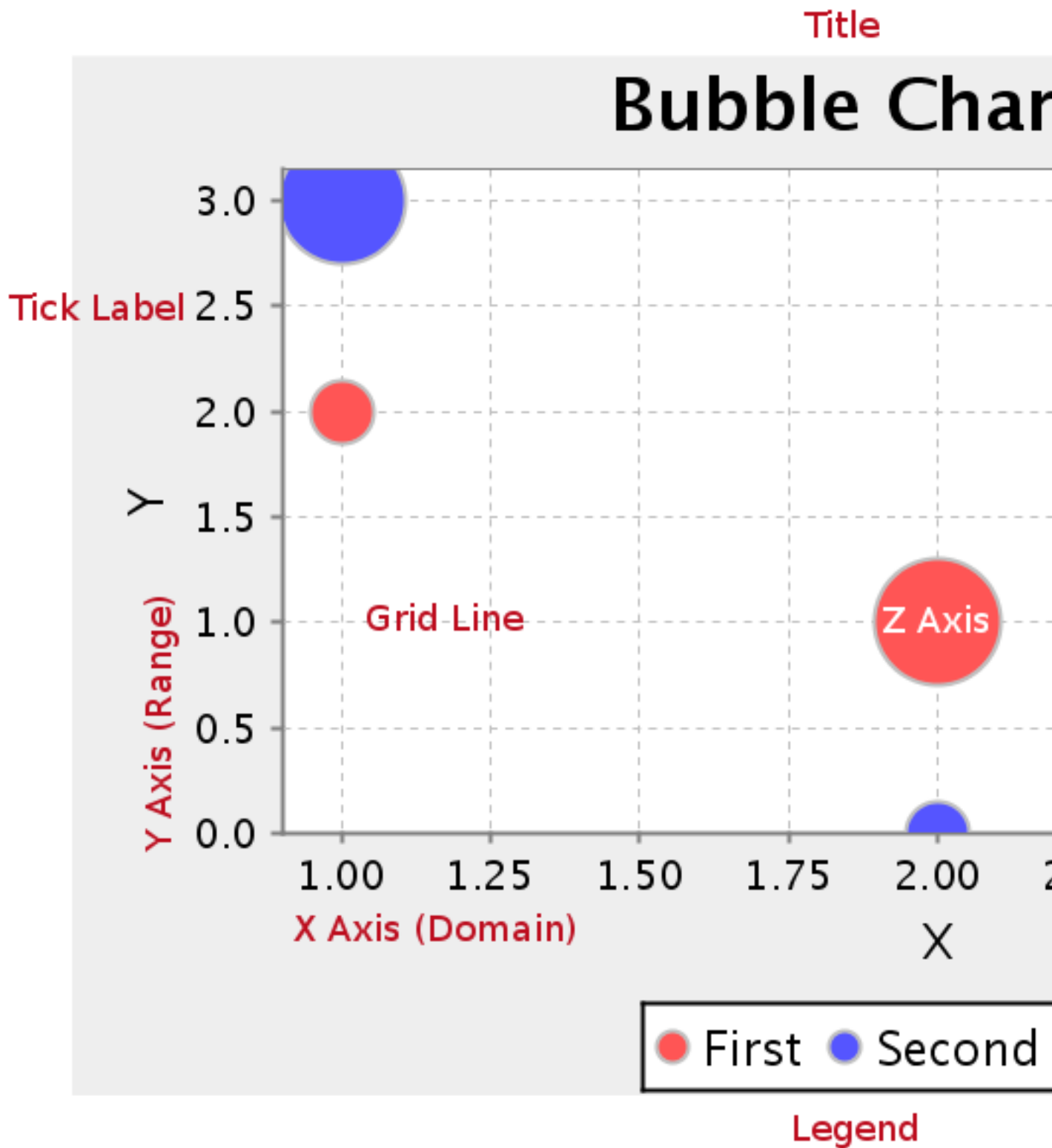
### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Bubble

---

Bubble charts are useful for spotting relationships between metrics and comparing specific data points. In terms of functionality and purpose, a bubble chart is similar to a bar line chart, but offers more specific visual cues for certain data sets. Each bubble represents a plotted XY point at its center, and the Z axis controls the diameter of the bubble. For example, a sales chart might have the top 5 bestselling product names for the X axis, number of units sold as the Y axis, and total sales revenue for each product for the Z axis.



### Data Collectors

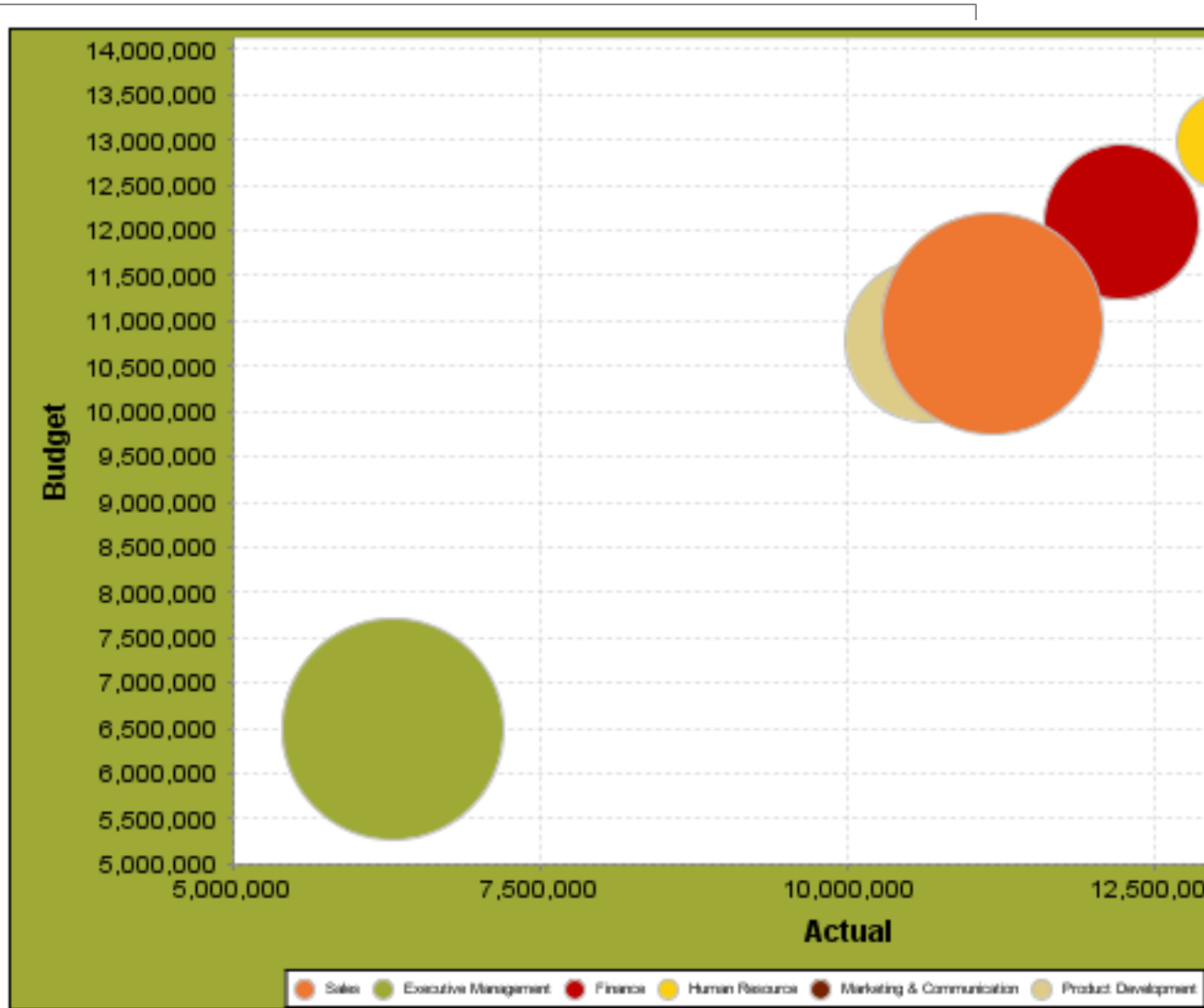
The following data collectors are associated with this chart type:

## XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





In the above chart, the x and y values determine the plot point of each bubble, and the z value determines the size of each bubble.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

## Options

The following groups of properties are associated with the Options group for this chart type:

## horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

## series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

## max-bubble-size

Property	Data Type	Description
max-bubble-size	Integer	The preferred maximum bubble size, as a percentage of the bubble value represented. Possible values are integers between 1 and 100.

## show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

## label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### x-incl-0

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

### x-min

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

### x-max

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis. Useful when the domain axis is numeric.

### x-tick-interval

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

### x-vtick-label

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

### x-tick-font

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

#### x-tick-fmt-str

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

#### x-tick-period

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

**y-min**

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

**y-max**

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

**y-tick-interval**

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

**y-tick-font**

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

**y-tick-fmt-str**

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

**y-tick-period**

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

**enable-log-axis**

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

**log-format**

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

**Legend**

The following groups of properties are associated with the Legend category for this chart type:



### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

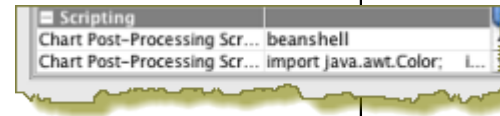
## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you

Property	Data Type	Description
		access to JFreeChart APIs so you can modify the chart after the report renders.



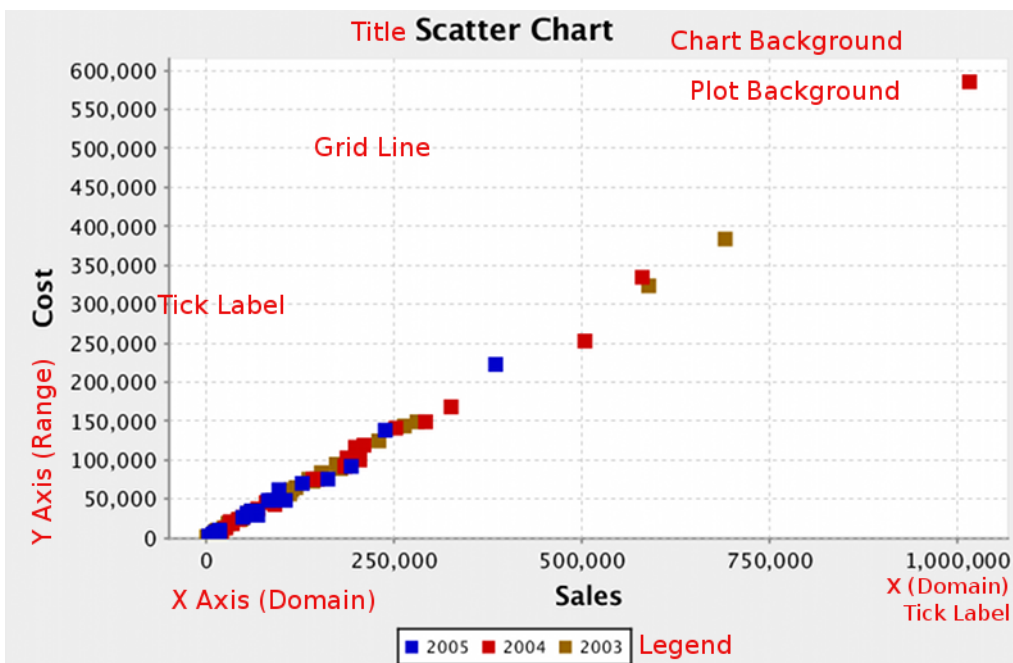
#### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Scatter Plot

 **Note:** This chart type is called **XY Dot** in the BI Platform's ChartComponent.

XY dot (scatter plot) charts are useful for showing trends for many individual exact data points over time. The plotted points show data trends in groupings; where the dots are most concentrated, the trend is most prevalent. If there are very few data points, an XY line or bar chart may be a more appropriate chart type than XY dot.



## Data Collectors

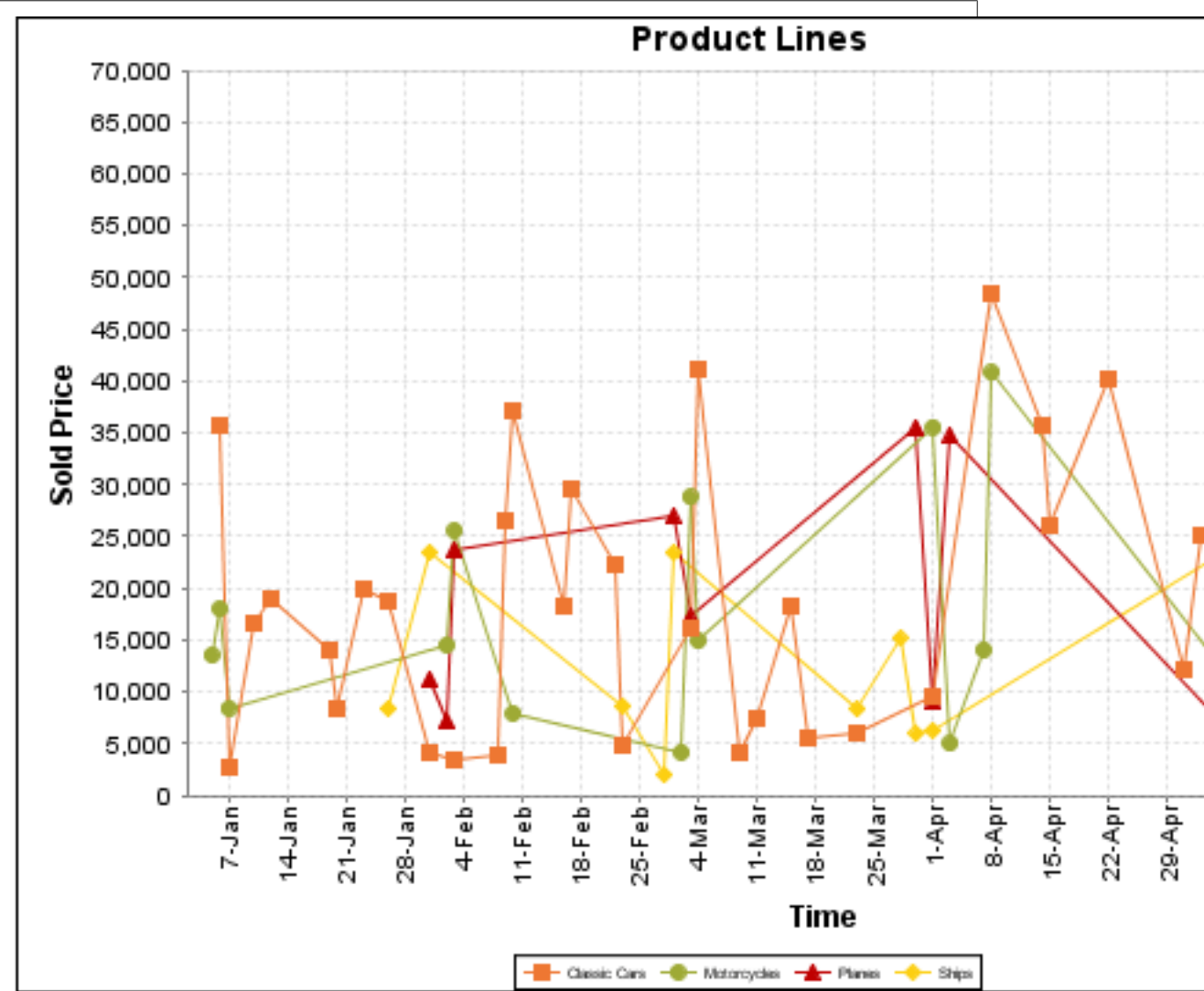
The following data collectors are associated with this chart type:

### TimeSeries

This collector builds a dataset that is compatible with JFreeChart XY charts that have one dimension that is time/date data. XY date/time based datasets have three dimensions or columns. The first column is the

series values. The next is the date column (typically the x-axis or domain values), and the last column has the numeric values to be plotted on the y-axis (range).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-time-column	The column that contains the time data.
time-period-type	Determines the interval to measure the time data by.
value-column	The data column that determines the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



On the above bar chart, Classic Cars, Motorcycles, Planes and Ships are the series. The sold price is plotted against the y-axis, and the order date is plotted against the x-axis.

**XYSeries**

An XY dataset plots pairs of values as points on the chart. The XY charts have two numeric axes. If the dataset is arranged by column, each row is expected to have three columns. Each row is assumed to represent one data point on the chart, ordered by the series name and domain value. The first column's values contain the name of the series. The second column is numeric, containing the domain value of the data point. The third column is numeric, containing the range value of the data point.

If the dataset is arranged by row, each row is expected to contain all the data points for the series. The first column's values contain the name of the series. It is assumed the other columns in the row consist of a collection of x/y data points (i.e. columns 2, 4, 6 etc. will be domain values, and columns 3, 5, 7 etc will be range values).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which

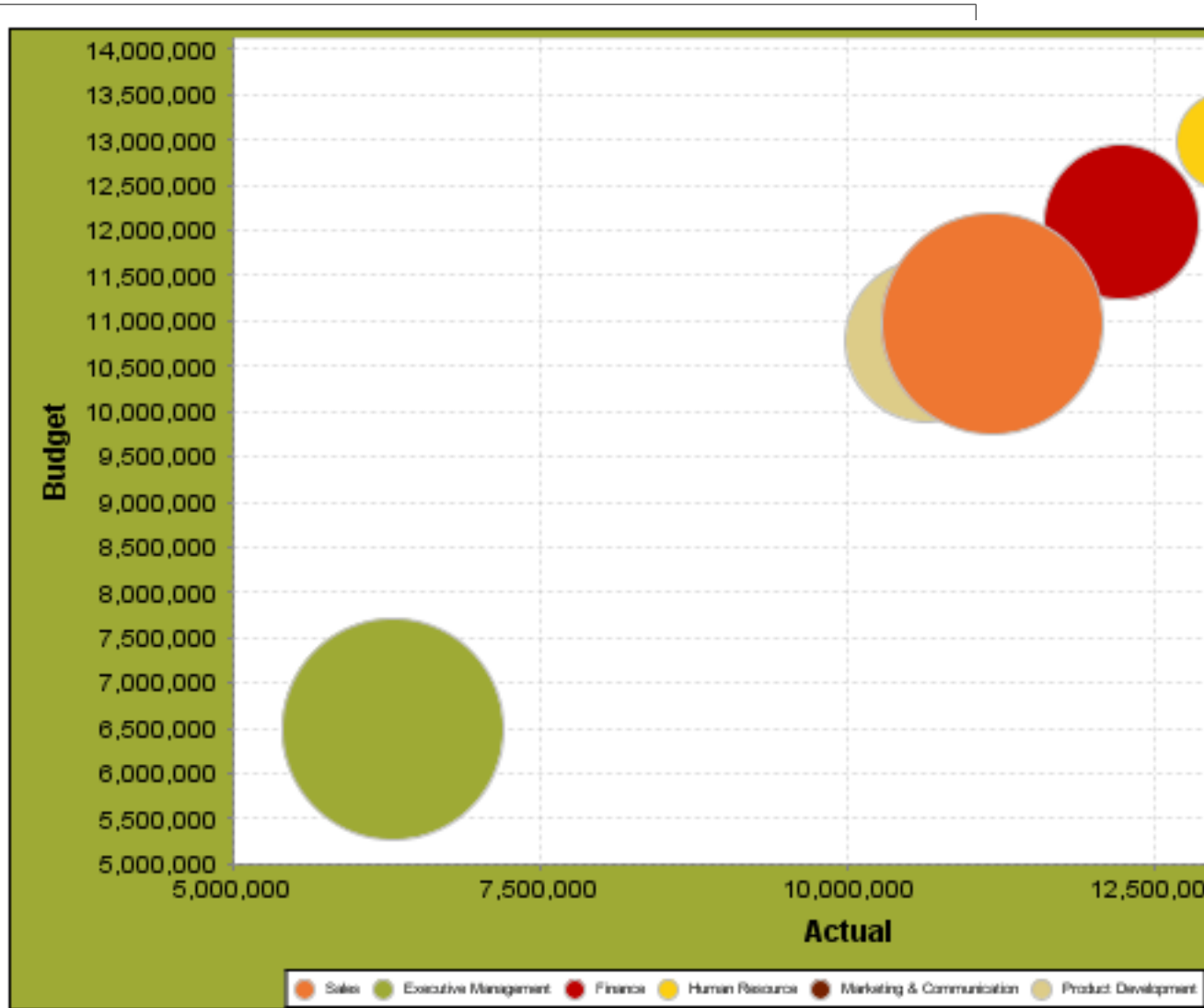
Property	Description
	case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the y (range) axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

### XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.

Property	Description
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above chart, the x and y values determine the plot point of each bubble, and the z value determines the size of each bubble.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

## Options

The following groups of properties are associated with the Options group for this chart type:



### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### dot-height

Property	Data Type	Description
dot-height	Integer	Sets the height of the marker that represents a series point on a chart (in pixels).

### dot-width

Property	Data Type	Description
dot-width	Integer	Sets the width of the marker that represents a series point on a chart (in pixels).

### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area

Property	Data Type	Description
		behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0

Property	Data Type	Description
		and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### show-labels

Property	Data Type	Description
display-labels	Boolean	If true, displays labels for pie sections. Default value is <b>true</b> .

#### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

#### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### x-incl-0

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

### x-min

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

### x-max

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis. Useful when the domain axis is numeric.

### x-tick-interval

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

### x-vtick-label

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

### x-tick-font

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

### x-tick-fmt-str

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

### x-tick-period

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

## Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying

Property	Data Type	Description
		percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

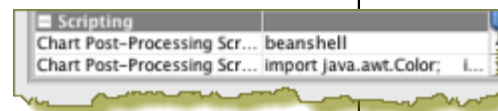
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



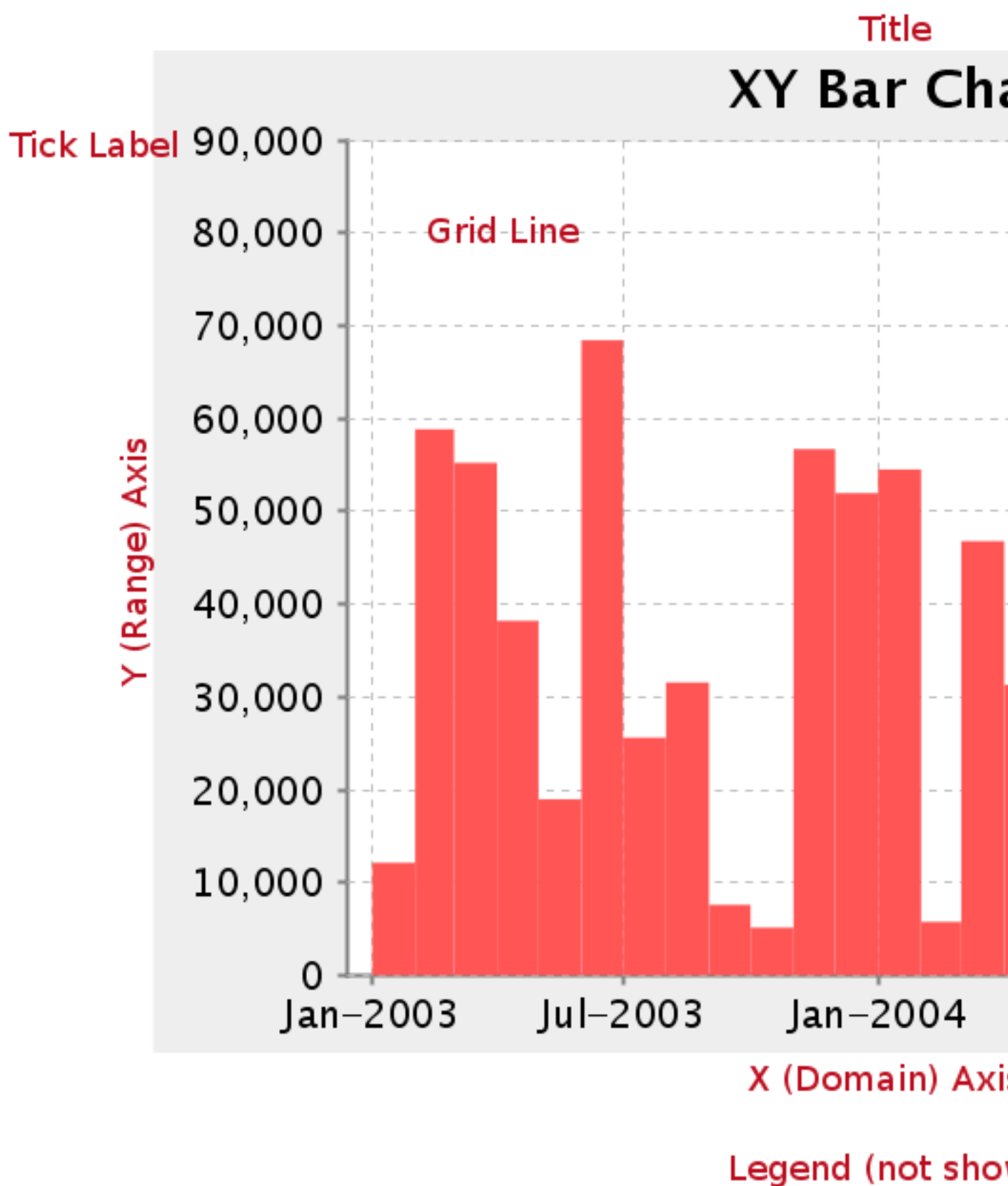
### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## XY Bar

XY bar charts are useful for showing data trends over time, where values tend to change after reasonably long intervals. An XY step chart is essentially a horizontal bar chart where the bars are segmented vertically whenever there is a change in value.





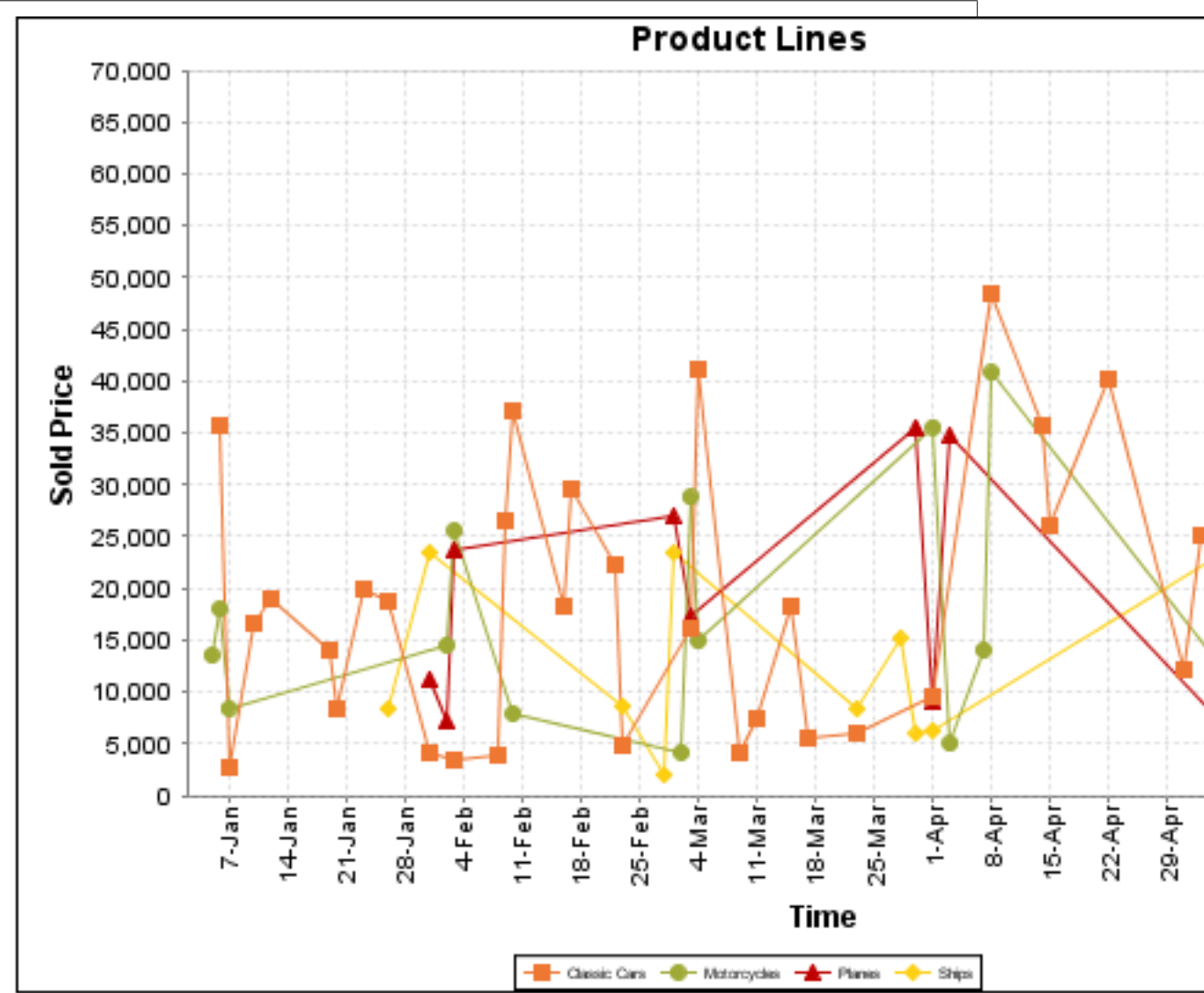
## Data Collectors

The following data collectors are associated with this chart type:

### TimeSeries

This collector builds a dataset that is compatible with JFreeChart XY charts that have one dimension that is time\date data. XY date\time based datasets have three dimensions or columns. The first column is the series values. The next is the date column (typically the x-axis or domain values), and the last column has the numeric values to be plotted on the y-axis (range).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-time-column	The column that contains the time data.
time-period-type	Determines the interval to measure the time data by.
value-column	The data column that determines the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



On the above bar chart, Classic Cars, Motorcycles, Planes and Ships are the series. The sold price is plotted against the y-axis, and the order date is plotted against the x-axis.

**XYSeries**

An XY dataset plots pairs of values as points on the chart. The XY charts have two numeric axes. If the dataset is arranged by column, each row is expected to have three columns. Each row is assumed to represent one data point on the chart, ordered by the series name and domain value. The first column's values contain the name of the series. The second column is numeric, containing the domain value of the data point. The third column is numeric, containing the range value of the data point.

If the dataset is arranged by row, each row is expected to contain all the data points for the series. The first column's values contain the name of the series. It is assumed the other columns in the row consist of a collection of x/y data points (i.e. columns 2, 4, 6 etc. will be domain values, and columns 3, 5, 7 etc will be range values).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which

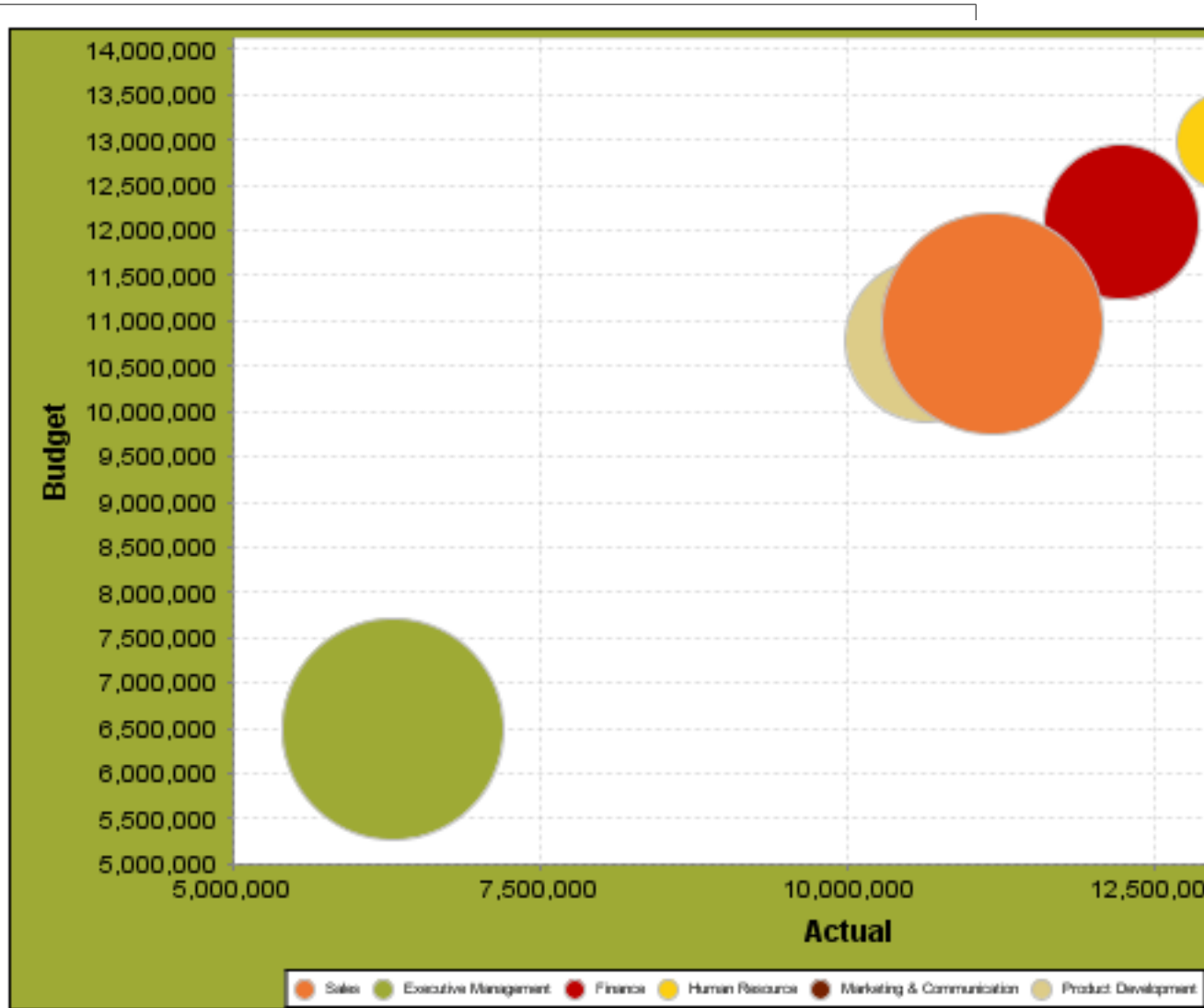
Property	Description
	case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the y (range) axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

### XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.

Property	Description
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above chart, the x and y values determine the plot point of each bubble, and the z value determines the size of each bubble.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

## Options

The following groups of properties are associated with the Options group for this chart type:

### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### bar-borders

Property	Data Type	Description
bar-borders	Boolean	Draws a thin solid black border around each bar

### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart



**show-border**

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

**border-color**

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

**plot-bg-color**

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient, texture or image specified as the plot background for the chart.

**plot-fg-alpha**

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

**plot-bg-alpha**

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

**plot-border**

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

**anti-alias**

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

**x-incl-0**

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

**x-min**

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

**x-max**

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis. Useful when the domain axis is numeric.

**x-tick-interval**

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

**x-vtick-label**

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

**x-tick-font**

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

**x-tick-fmt-str**

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

### x-tick-period

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

## location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

## legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

## legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

## legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

## legend-font-color

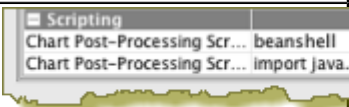
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.

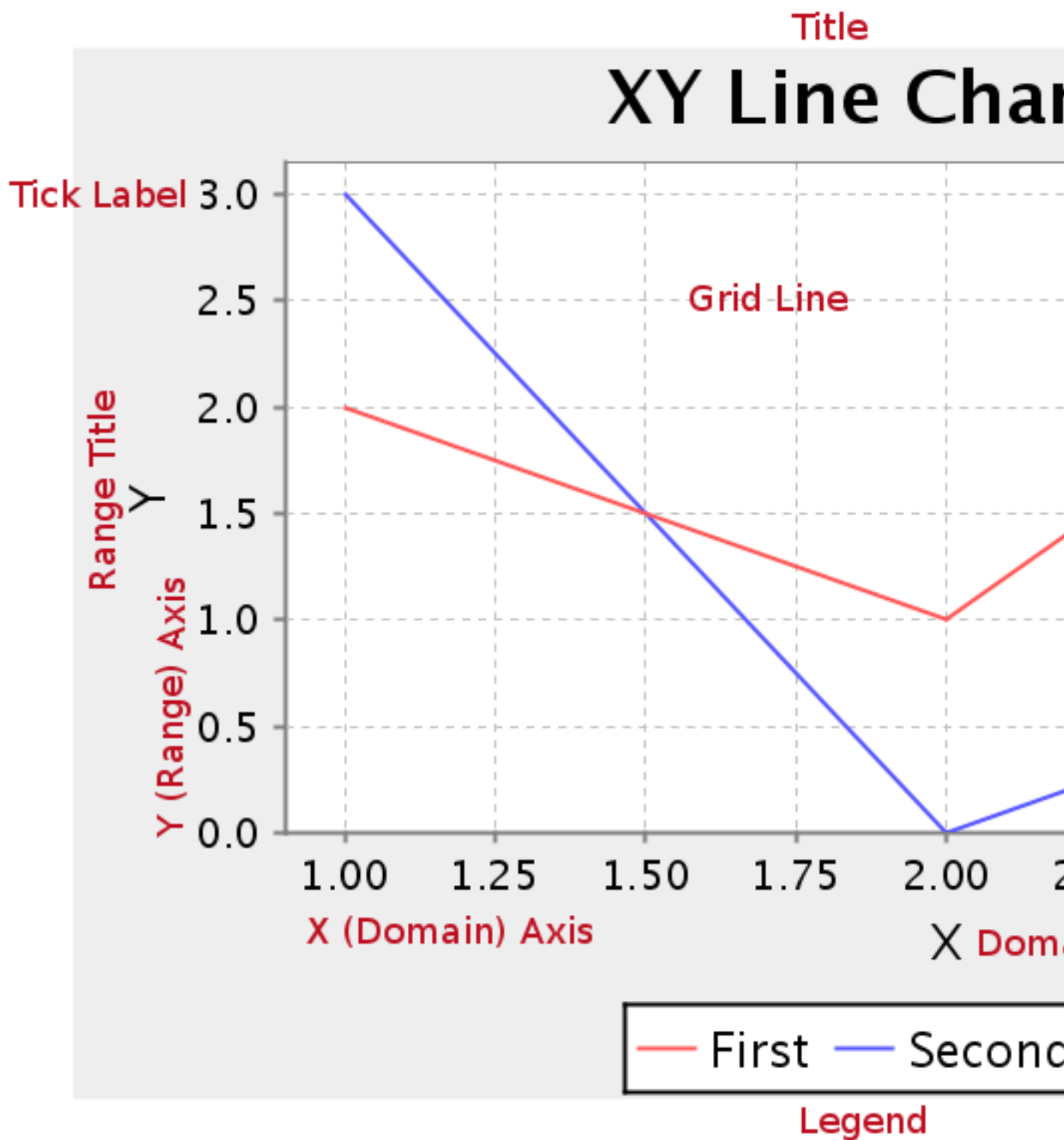
Property	Data Type	Description
		

#### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

### XY Line

XY line charts are useful for showing how multiple data trends relate to one another over time. It is essentially multiple line charts interposed over one another, and using data sets that are closely related and similar enough to share the same Y axis scale.



### Data Collectors

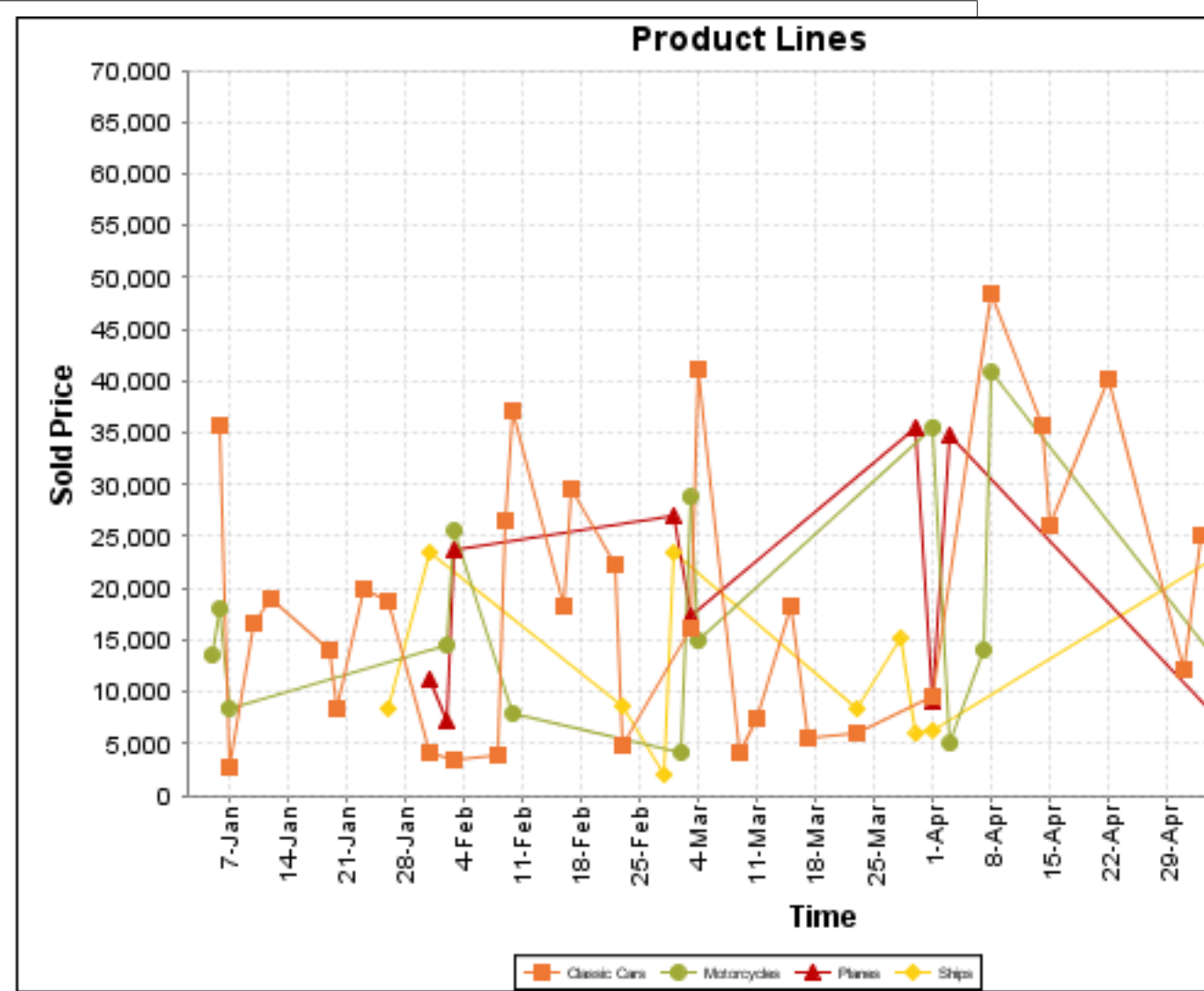
The following data collectors are associated with this chart type:



## TimeSeries

This collector builds a dataset that is compatible with JFreeChart XY charts that have one dimension that is time\date data. XY date\time based datasets have three dimensions or columns. The first column is the series values. The next is the date column (typically the x-axis or domain values), and the last column has the numeric values to be plotted on the y-axis (range).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-time-column	The column that contains the time data.
time-period-type	Determines the interval to measure the time data by.
value-column	The data column that determines the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



On the above bar chart, Classic Cars, Motorcycles, Planes and Ships are the series. The sold price is plotted against the y-axis, and the order date is plotted against the x-axis.

**XYSeries**

An XY dataset plots pairs of values as points on the chart. The XY charts have two numeric axes. If the dataset is arranged by column, each row is expected to have three columns. Each row is assumed to represent one data point on the chart, ordered by the series name and domain value. The first column's values contain the name of the series. The second column is numeric, containing the domain value of the data point. The third column is numeric, containing the range value of the data point.

If the dataset is arranged by row, each row is expected to contain all the data points for the series. The first column's values contain the name of the series. It is assumed the other columns in the row consist of a collection of x/y data points (i.e. columns 2, 4, 6 etc. will be domain values, and columns 3, 5, 7 etc will be range values).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which

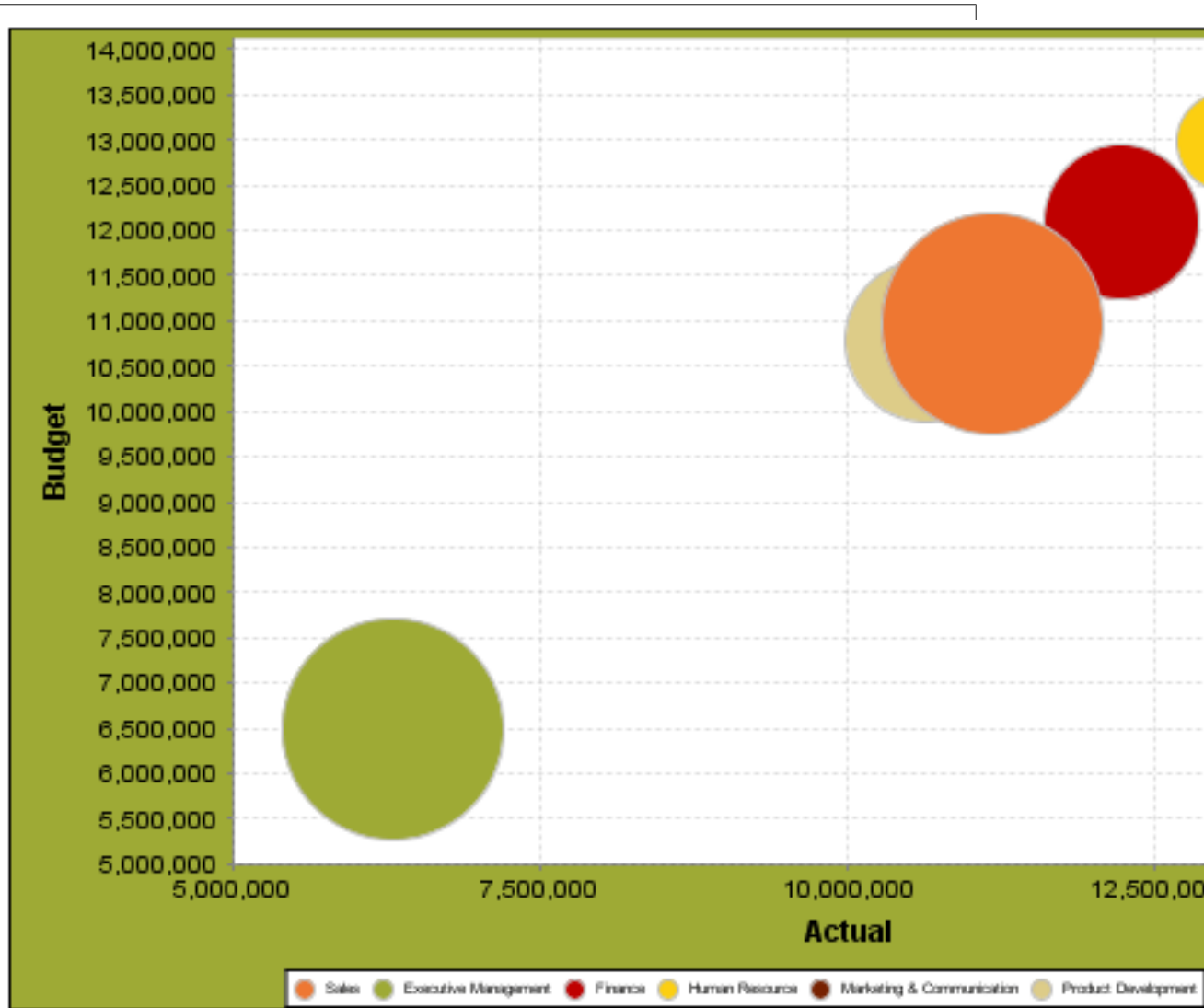
Property	Description
	case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the y (range) axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

### XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.

Property	Description
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above chart, the x and y values determine the plot point of each bubble, and the z value determines the size of each bubble.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

## Options

The following groups of properties are associated with the Options group for this chart type:

### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### line-style

Property	Data Type	Description
line-style	String	Sets the style of line series lines. Possible values are: solid, dash, dot, dashdot, dashdotdot. Default value is <b>solid</b> .

### line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

**bg-color**

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

**bg-image**

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

**show-border**

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

**border-color**

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

**plot-bg-color**

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient, texture or image specified as the plot background for the chart.

**plot-fg-alpha**

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

**plot-bg-alpha**

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot



Property	Data Type	Description
		background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is <b>1</b> .

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

#### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

#### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### x-incl-0

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

### x-min

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

### x-max

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis. Useful when the domain axis is numeric.

### x-tick-interval

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

### x-vtick-label

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

### x-tick-font

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

### x-tick-fmt-str

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

### x-tick-period

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

## Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying

Property	Data Type	Description
		percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

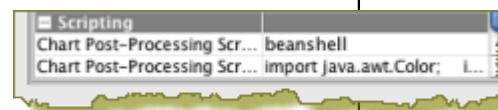
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.

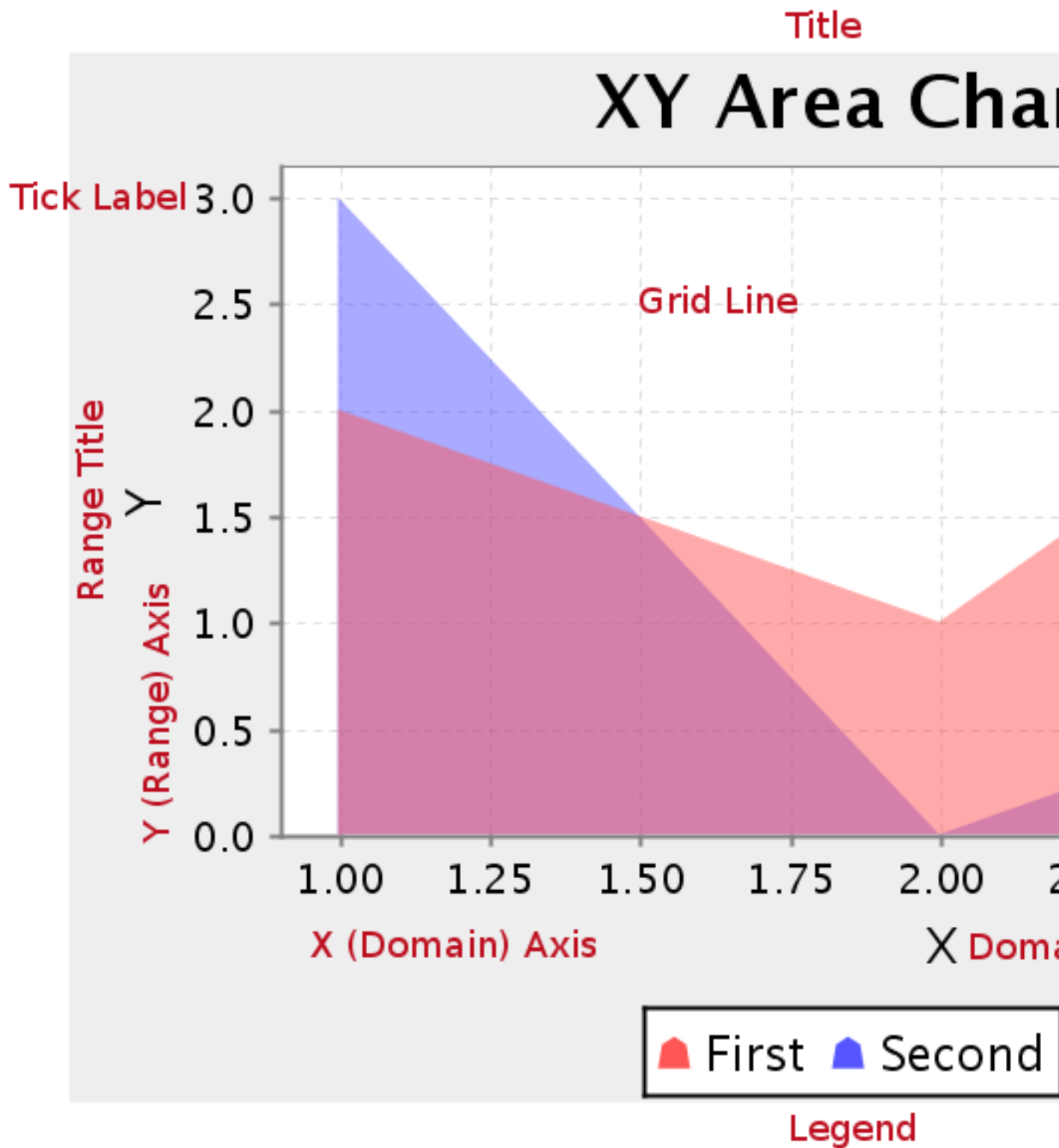


### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## XY Area

XY area charts are useful for comparing multiple related data sets over time, especially in zero-sum situations where you want to show how much of a part each data set has of the total.



## Data Collectors

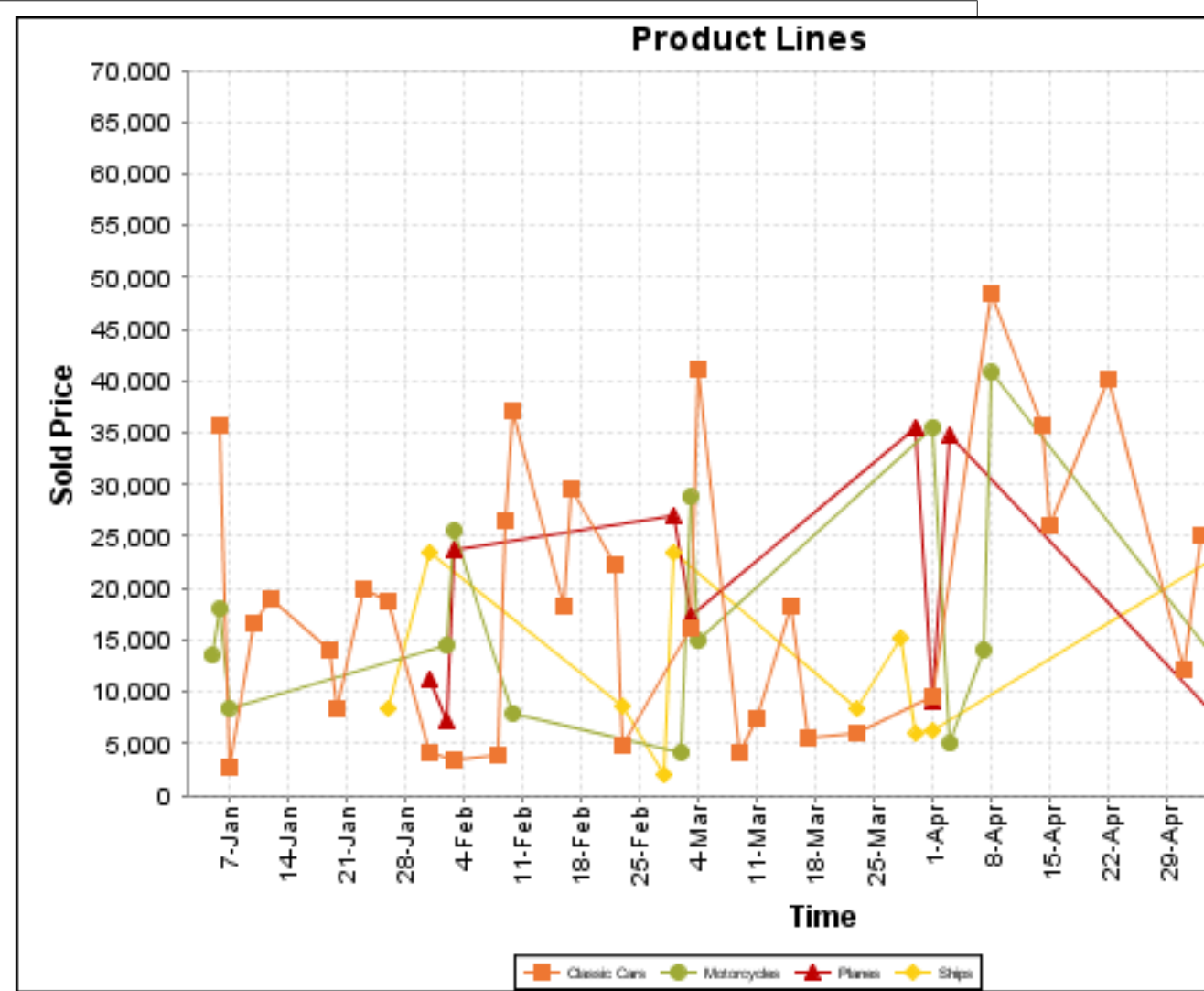
The following data collectors are associated with this chart type:

## TimeSeries

This collector builds a dataset that is compatible with JFreeChart XY charts that have one dimension that is time\date data. XY date\time based datasets have three dimensions or columns. The first column is the series values. The next is the date column (typically the x-axis or domain values), and the last column has the numeric values to be plotted on the y-axis (range).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-time-column	The column that contains the time data.
time-period-type	Determines the interval to measure the time data by.
value-column	The data column that determines the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





On the above bar chart, Classic Cars, Motorcycles, Planes and Ships are the series. The sold price is plotted against the y-axis, and the order date is plotted against the x-axis.

### XYSeries

An XY dataset plots pairs of values as points on the chart. The XY charts have two numeric axes. If the dataset is arranged by column, each row is expected to have three columns. Each row is assumed to represent one data point on the chart, ordered by the series name and domain value. The first column's values contain the name of the series. The second column is numeric, containing the domain value of the data point. The third column is numeric, containing the range value of the data point.

If the dataset is arranged by row, each row is expected to contain all the data points for the series. The first column's values contain the name of the series. It is assumed the other columns in the row consist of a collection of x/y data points (i.e. columns 2, 4, 6 etc. will be domain values, and columns 3, 5, 7 etc will be range values).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which

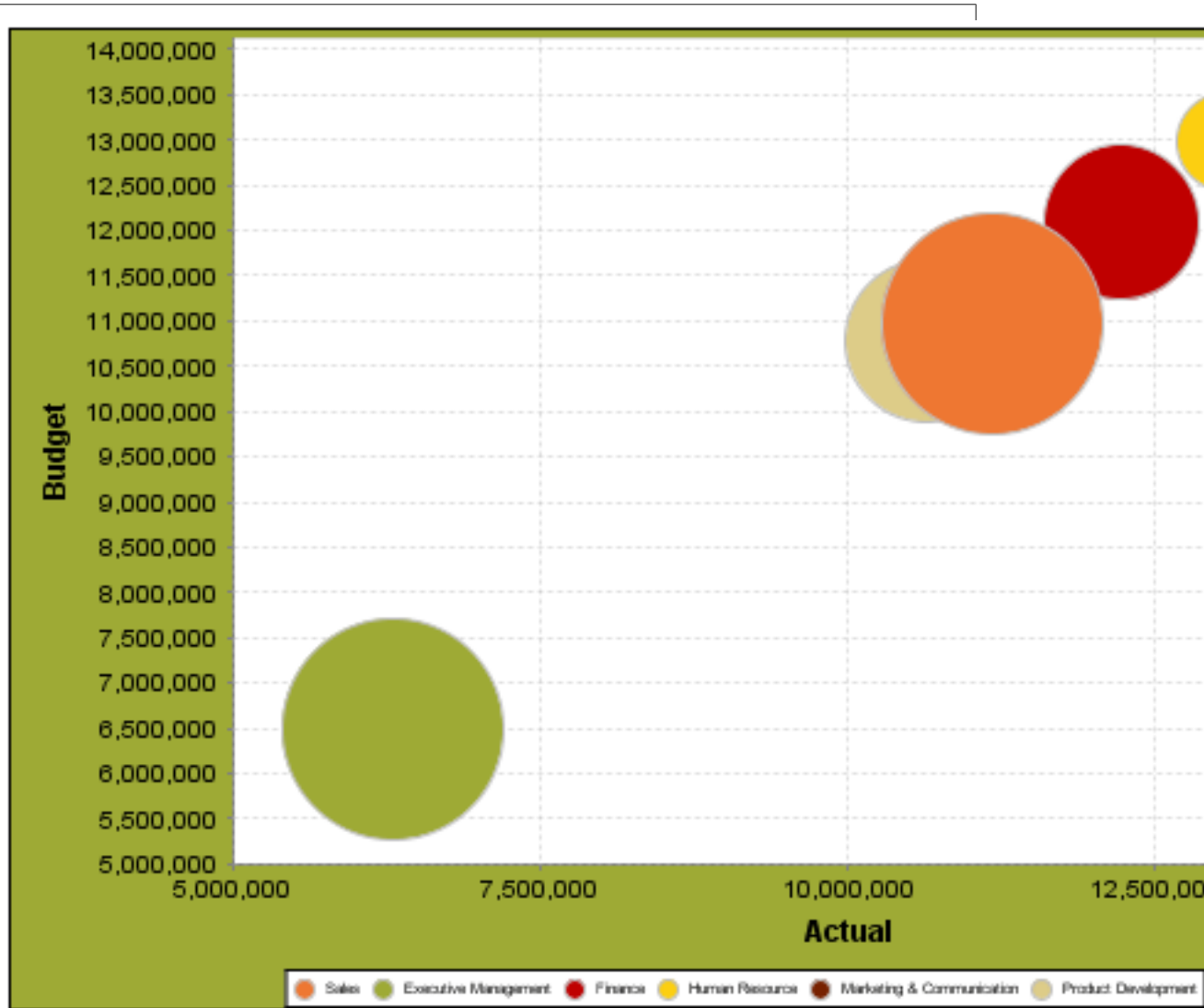
Property	Description
	case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the y (range) axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

### XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.

Property	Description
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above chart, the x and y values determine the plot point of each bubble, and the z value determines the size of each bubble.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

## Options

The following groups of properties are associated with the Options group for this chart type:

### stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### line-style

Property	Data Type	Description
line-style	String	Sets the style of line series lines. Possible values are: solid, dash, dot, dashdot, dashdotdot. Default value is <b>solid</b> .

### line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

### show-markers

Property	Data Type	Description
markers-visible	Boolean	Sets the point markers visible in applicable charts. Default value is <b>false</b> .

### General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient, texture or image specified as the plot background for the chart.

### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent,

Property	Data Type	Description
		and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</label-font>
```

#### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula



## url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### x-incl-0

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

### x-min

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

### x-max

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis.

Property	Data Type	Description
		Useful when the domain axis is numeric.

#### x-tick-interval

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

#### x-vtick-label

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

#### x-tick-font

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

#### x-tick-fmt-str

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

#### x-tick-period

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

### Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

#### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

#### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

#### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

#### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

#### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

#### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

#### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the

Property	Data Type	Description
		range axis. (An example format for displaying percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

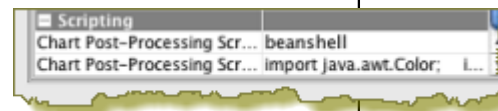
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



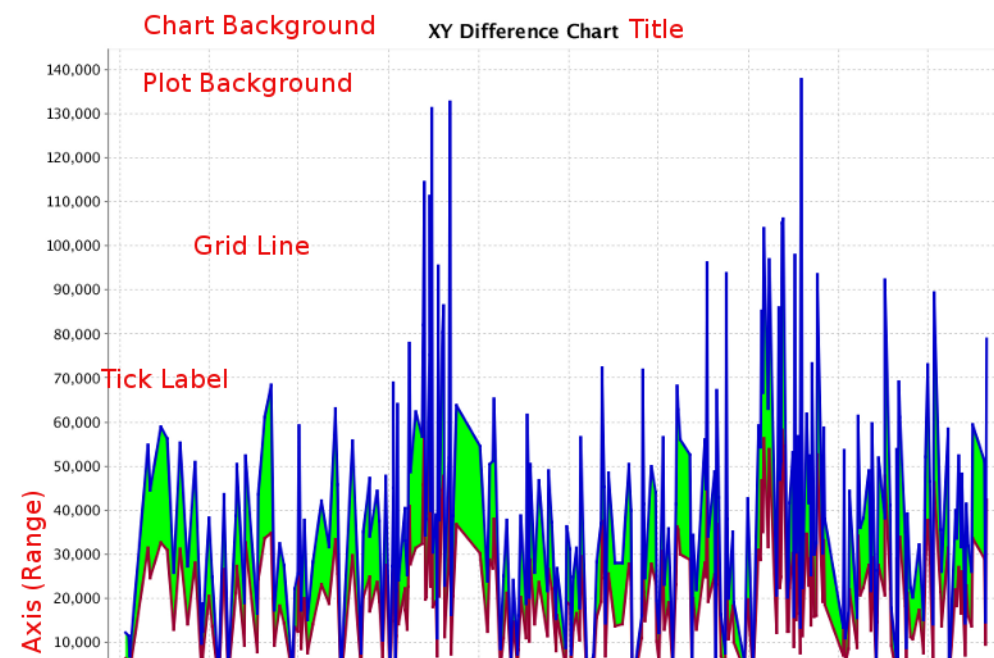
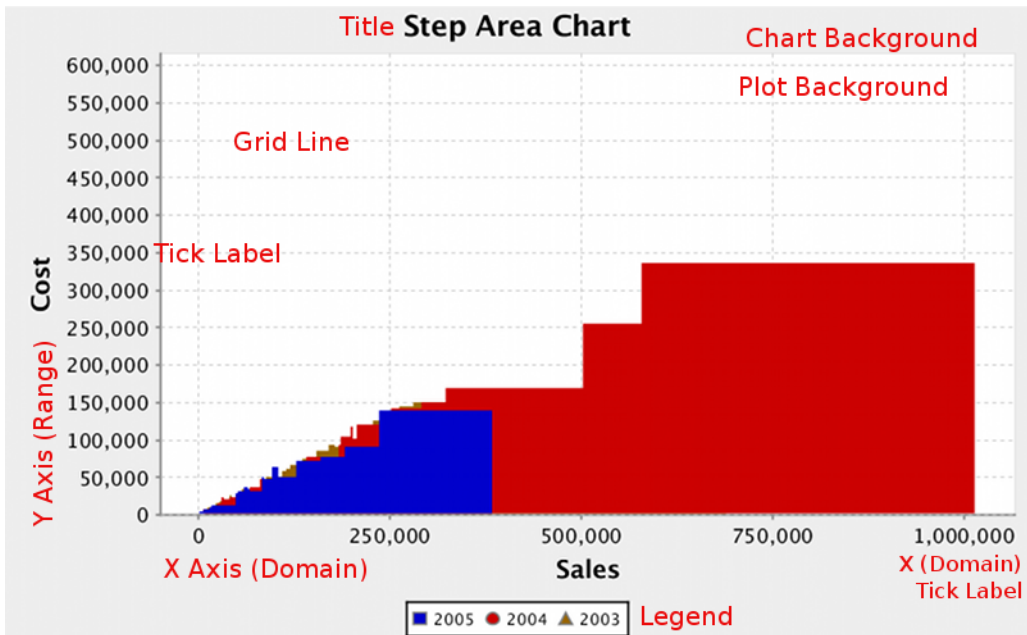
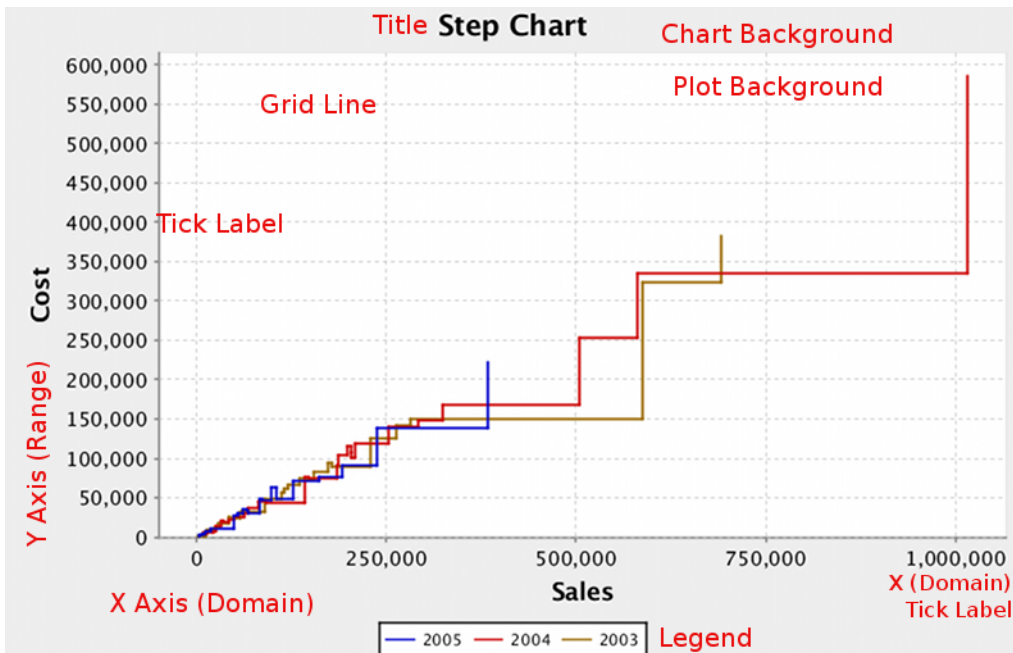
### Chart Post Processing Script

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## XY Extended Line (XY Step, XY StepArea, XY Difference)

There are three possible variations of the XY extended line chart: StepChart, StepAreaChart, and DifferenceChart. Passing these values to the **ext-chart-type** parameter in Report Designer, or the **chart-type** variable in an action sequence will determine which chart you will create. All three types share the same properties.

XY extended line charts are useful for showing how multiple data points change over time while also showing how each compares against the others.



## Data Collectors

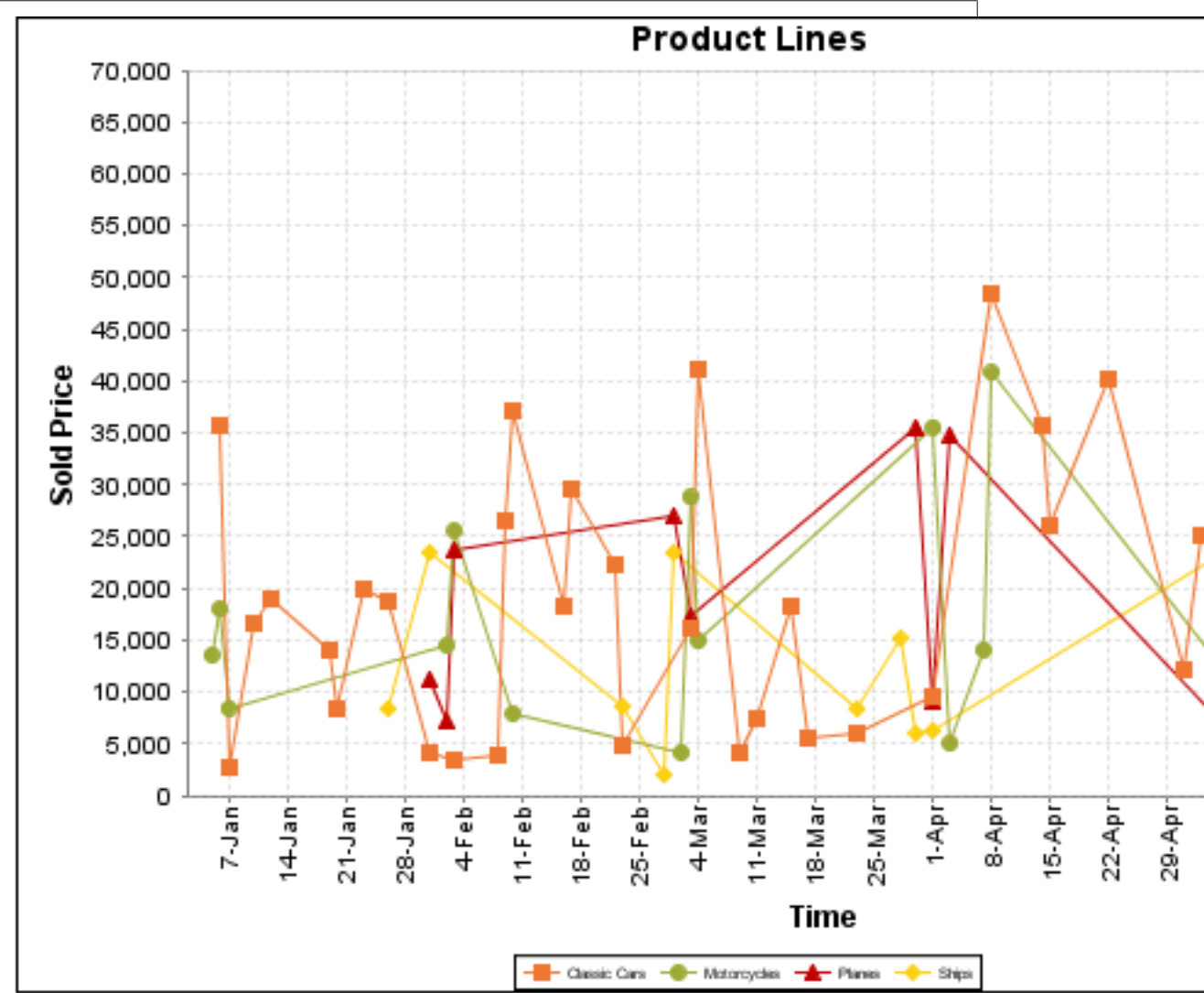
The following data collectors are associated with this chart type:

### TimeSeries

This collector builds a dataset that is compatible with JFreeChart XY charts that have one dimension that is time\date data. XY date\time based datasets have three dimensions or columns. The first column is the series values. The next is the date column (typically the x-axis or domain values), and the last column has the numeric values to be plotted on the y-axis (range).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-time-column	The column that contains the time data.
time-period-type	Determines the interval to measure the time data by.
value-column	The data column that determines the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





On the above bar chart, Classic Cars, Motorcycles, Planes and Ships are the series. The sold price is plotted against the y-axis, and the order date is plotted against the x-axis.

**XYSeries**

An XY dataset plots pairs of values as points on the chart. The XY charts have two numeric axes. If the dataset is arranged by column, each row is expected to have three columns. Each row is assumed to represent one data point on the chart, ordered by the series name and domain value. The first column's values contain the name of the series. The second column is numeric, containing the domain value of the data point. The third column is numeric, containing the range value of the data point.

If the dataset is arranged by row, each row is expected to contain all the data points for the series. The first column's values contain the name of the series. It is assumed the other columns in the row consist of a collection of x/y data points (i.e. columns 2, 4, 6 etc. will be domain values, and columns 3, 5, 7 etc will be range values).

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which

Property	Description
	case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the y (range) axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

### XYZSeries

This collector builds a dataset that is compatible with JFreeChart XYZ charts that have three numeric dimensions or columns. XYZ datasets have four dimensions or columns. The first column represents series values. The next is the domain numeric column (typically the x-axis values or domain values), and the third column has the numeric values to be plotted on the y-axis, commonly referred to as the range axis. The fourth column determines a relative size value for the points plotted by the domain and range values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
x-value-columns	The column that determines the x (domain) axis.
y-value-columns	The column that determines the x (range) axis.

Property	Description
z-value-columns	The column that determines the z axis.
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

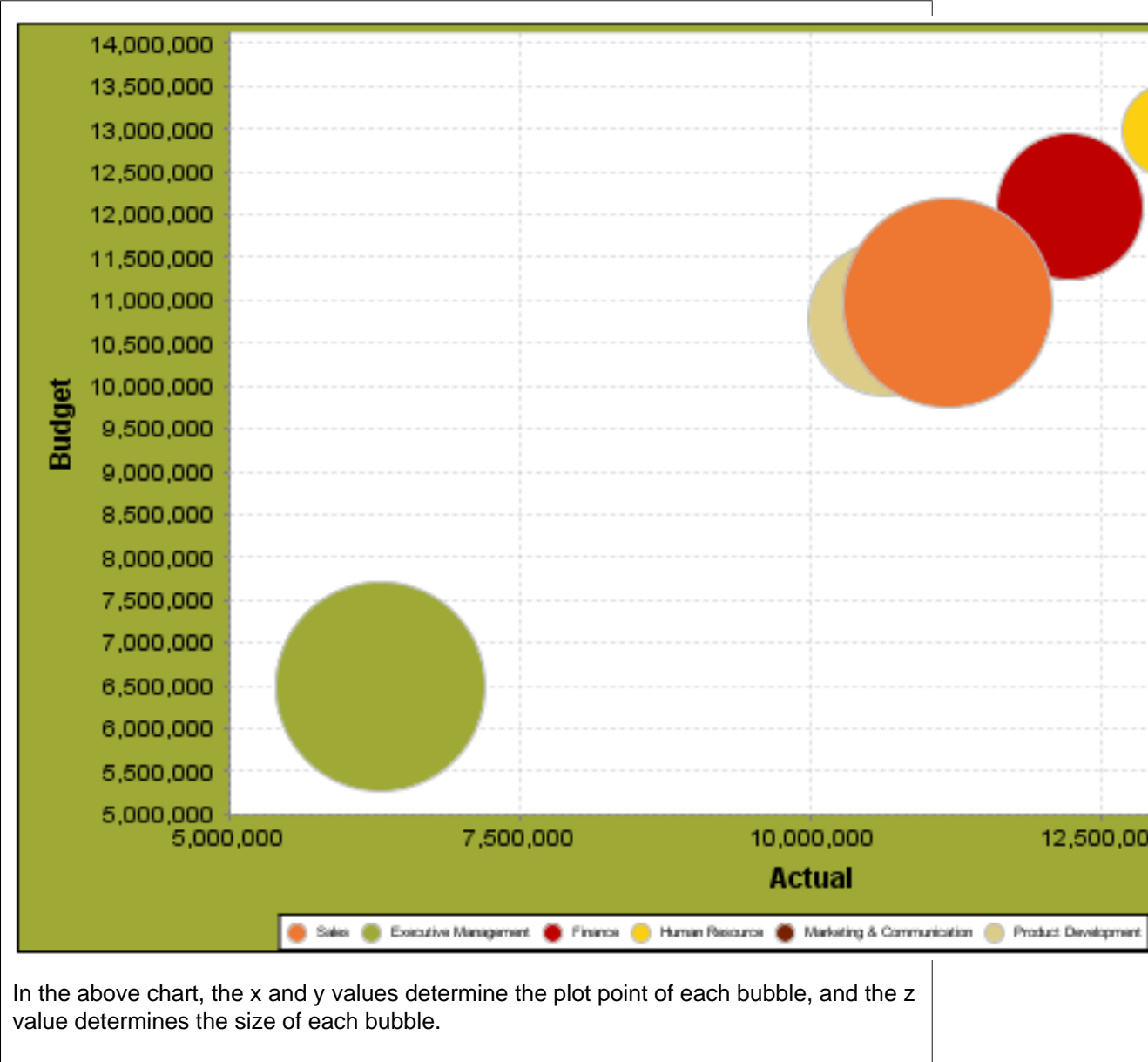


Chart Properties

The following groups of properties are associated with this chart type:

Required

The following groups of properties are associated with the Required group for this chart type:

name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### pos-title

Property	Data Type	Description
title-position	String	Sets the position to display the chart title. Possible values are: top, left, bottom, right.

## Options

The following groups of properties are associated with the Options group for this chart type:

## ext-chart-type



**Note:** This property is called **ext-chart-type** in Report Designer. Report Designer only uses this property for the XY Extended chart type, in which it determines whether the chart you are creating will be a step, step area, or difference chart. Possible values in Report Designer are only: **StepChart**, **StepAreaChart**, and **DifferenceChart**.

Property	Data Type	Description
ext-chart-type	String	Sets the type of chart you intend to generate. The dataset-type property and the chart-type property work together to tell the chart engine what kind of chart to build. Possible values are: StepChart, StepAreaChart, DifferenceChart

## stacked

Property	Data Type	Description
is-stacked	Boolean	If true, stacks the series of the chart, one on top of the other. Default value is <b>false</b> .

## horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

## series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

## line-style

Property	Data Type	Description
line-style	String	Sets the style of line series lines. Possible values are: solid, dash, dot, dashdot, dashdotdot. Default value is <b>solid</b> .

## line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

#### show-markers

Property	Data Type	Description
markers-visible	Boolean	Sets the point markers visible in applicable charts. Default value is <b>false</b> .

### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image

Property	Data Type	Description
		specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

#### label-font

Property	Data Type	Description
label-font	Complex (see example below)	Sets the font for the labels on the pie sections.

```
<label-font>
  <font-family/>
  <size/>
  <is-bold/>
```



```
<is-italic/>
</label-font>
```

#### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

#### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

### X Axis

The following groups of properties are associated with the X Axis category for this chart type:

#### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

#### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

#### x-sticky-0

Property	Data Type	Description
domain-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

#### x-incl-0

Property	Data Type	Description
domain-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the domain always includes zero.

#### x-min

Property	Data Type	Description
domain-minimum	Integer	Sets the lower bounding value on the domain axis. Useful when the domain axis is numeric.

**x-max**

Property	Data Type	Description
domain-maximum	Integer	Sets the upper bounding value on the domain axis. Useful when the domain axis is numeric.

**x-tick-interval**

Property	Data Type	Description
x-tick-interval	Decimal	Controls the increments between X axis tick labels

**x-vtick-label**

Property	Data Type	Description
domain-vertical-tick-labels	Boolean	Sets the orientation of the tick labels on the domain axis; true for vertical, false for horizontal. Default is <b>false</b> .

**x-tick-font**

Property	Data Type	Description
x-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the domain axis.

**x-tick-fmt-str**

Property	Data Type	Description
x-tick-fmt-str	String	Sets the format of the tick mark labels of the X (domain) axis. An example format for displaying percentages might be: "0.00%". This is particularly useful when the domain axis is numeric.

**x-tick-period**

Property	Data Type	Description
x-period-type	String	Specifies the time period interval the chart should expect for your time series data. For example, <b>Month</b> only works with data stored in monthly intervals, i.e.: Jan 2007, Feb 2007, etc. This property does not affect the displayed values on the range axis; it only defines the type of date information in the data set.

## Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

**y-tick-fmt-str**

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

**y-tick-period**

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

**enable-log-axis**

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

**log-format**

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

**Legend**

The following groups of properties are associated with the Legend category for this chart type:

**show-legend**

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

**location**

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

**legend-bg-color**

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

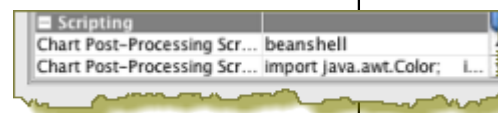
Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



### Chart Post Processing Script

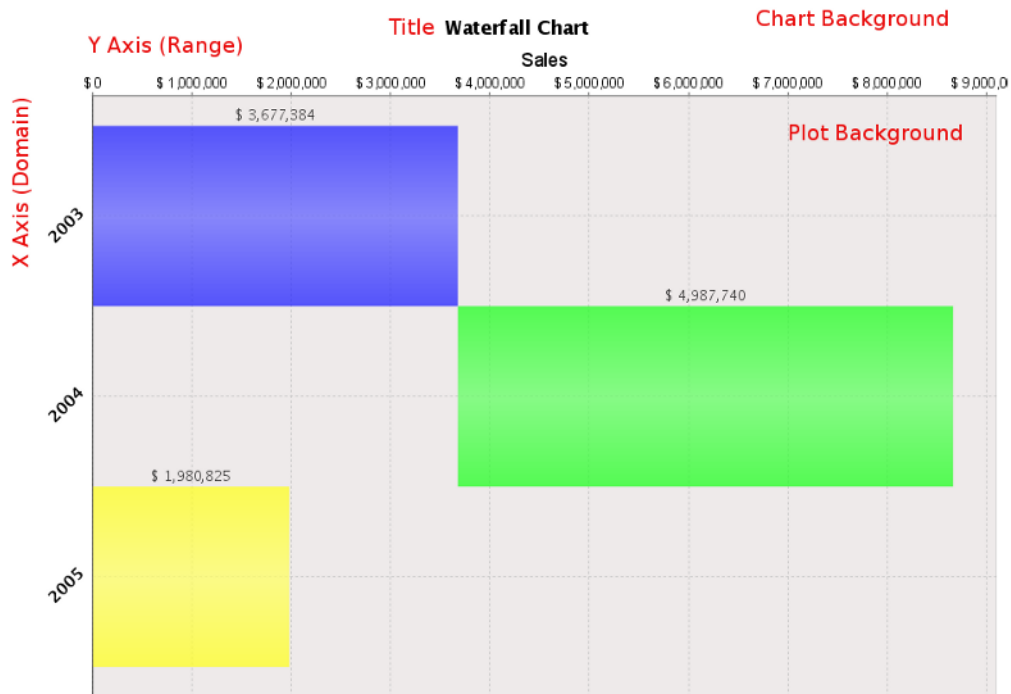
Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Waterfall



**Note:** Waterfall charts are only available in Report Designer; you cannot create a waterfall chart with ChartComponent.

A Waterfall chart is useful for showing the length of each specific portion of a trend.



## Data Collectors

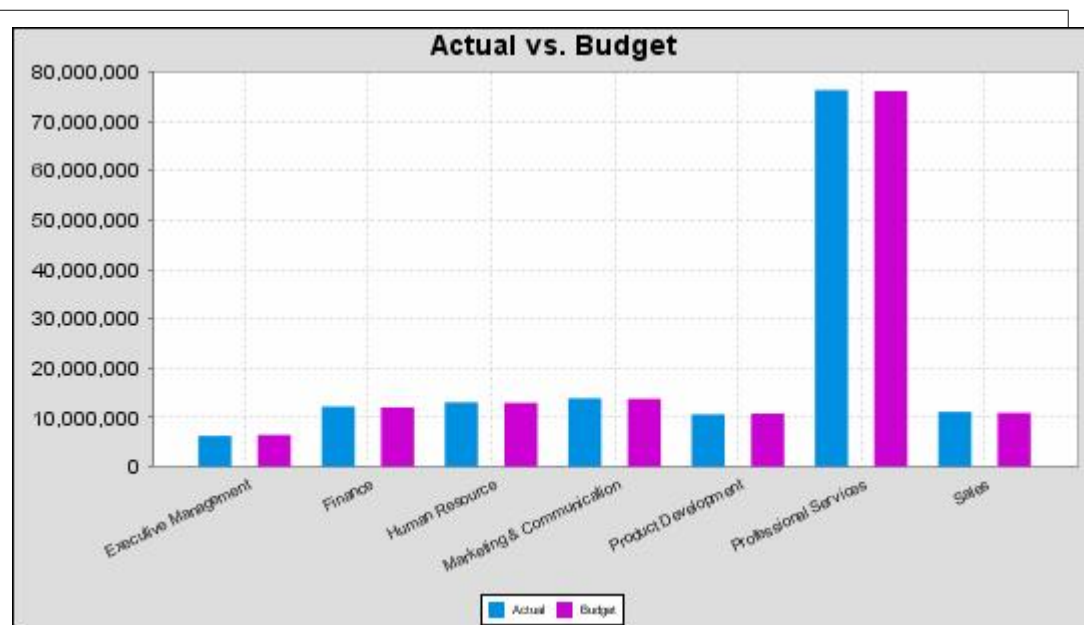
The following data collectors are associated with this chart type:

### CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value

Property	Description
	column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



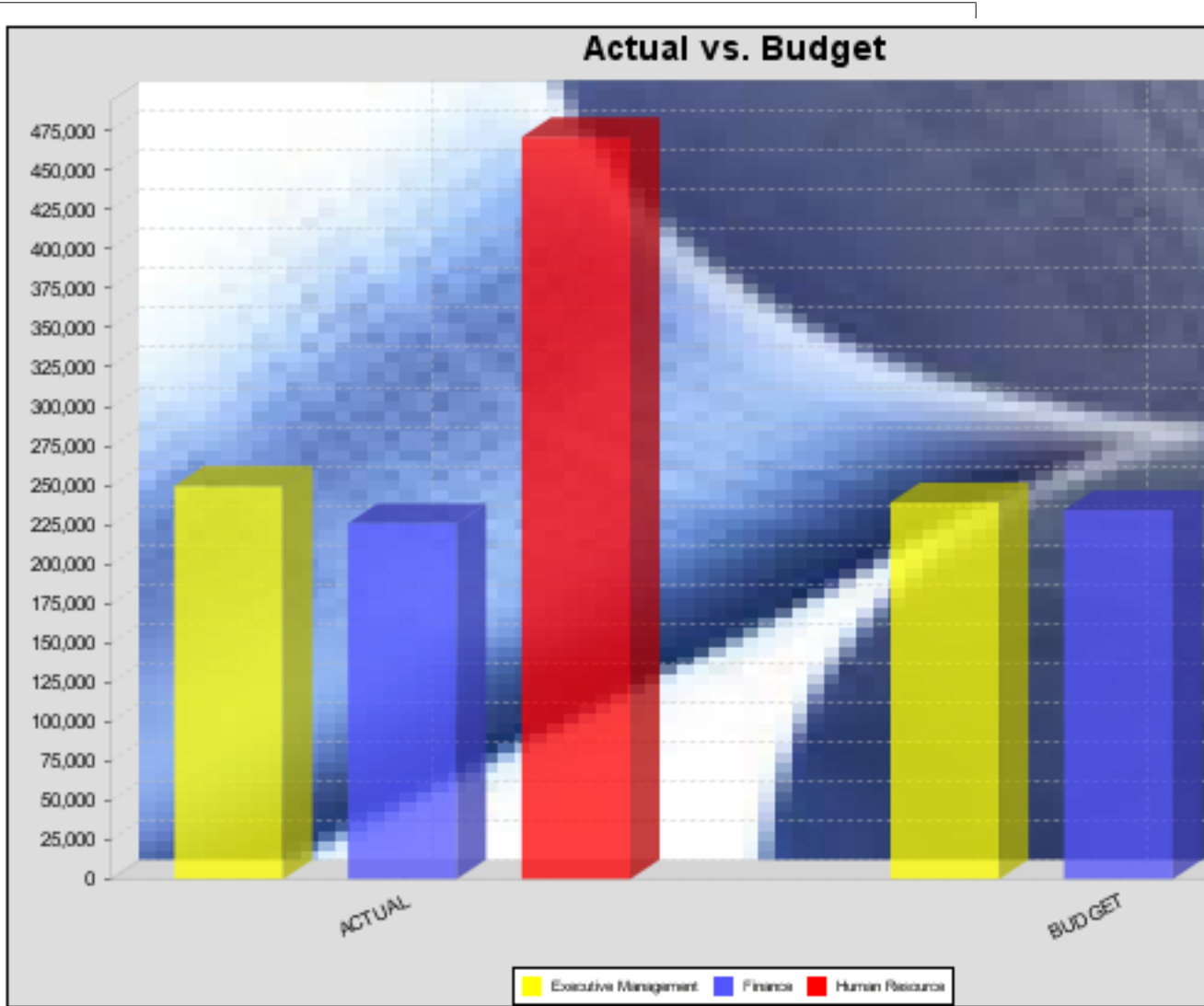
In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

### PivotCategorySet

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.





In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

Chart Properties

The following groups of properties are associated with this chart type:

Required

The following groups of properties are associated with the Required group for this chart type:

name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

### Title

The following groups of properties are associated with the Title group for this chart type:

#### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

#### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

#### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

### Options

The following groups of properties are associated with the Options group for this chart type:

#### horizontal

Property	Data Type	Description
orientation	String	Determines vertical/horizontal orientation for the chart. Possible values are <b>horizontal</b> and <b>vertical</b> . In Report Designer, this is a boolean that makes the

Property	Data Type	Description
		chart horizontal when set to <b>true</b> and vertical when set to <b>false</b> .

#### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

#### General

The following groups of properties are associated with the General category for this chart type:

#### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

#### gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines that only show major scale values. Default value is <b>true</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire

Property	Data Type	Description
		surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.

#### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

#### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

### url-formula

Property	Data Type	Description
url-formula	formula	Associates a link to the series key and category name. See also, <a href="#">URL Linking in Charts</a> on page 60.

### tooltip-formula

Property	Data Type	Description
tooltip-formula	formula	Defines the tooltip (hover text) for the url-formula

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-axis-title

Property	Data Type	Description
domain-title	String	Sets the title for the domain axis, if it exists. In a typical two-dimensional horizontal chart, this the categorical or X axis.

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### x-axis-label-width

Property	Data Type	Description
x-axis-label-width	Decimal	Limits the space (in pixels) occupied by the x axis labels. The invisible default value is <b>20.0</b> . If your labels are being truncated, try increasing this value.

### x-axis-label-rotation

Property	Data Type	Description
domain-label-rotation	Integer	The degree of the angle of rotation for X axis labels. Possible values are from 0 to 360.

### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

**label-rotation**

Property	Data Type	Description
label-rotation	Integer	The degree of the angle of rotation for the labels above the bars. Possible values are from 0 to 360.

**numeric-format**

Property	Data Type	Description
numeric-format	String	Determines the content of the domain plot labels. Must be in the Java number format.

**text-format**

Property	Data Type	Description
text-format	String	Determines the content of the domain plot labels. There are three possible values, any or all of which may be used: <b>{0}</b> represents the series name; <b>{1}</b> represents category; <b>{2}</b> represents the plotted value.

**date-format**

Property	Data Type	Description
date-format	String	Determines the content of the domain plot labels. Must be in the Java date format.

**category-margin**

Property	Data Type	Description
category-margin	Decimal	Specifies the width (in pixels) between bars (categories)

**lower-margin**

Property	Data Type	Description
lower-margin	Decimal	Specifies the space (in pixels) between the Y axis and the first bar in the chart

**upper-margin**

Property	Data Type	Description
upper-margin	Decimal	Specifies the space (in pixels) between the last bar and the outer edge of the chart

## Y Axis

The following groups of properties are associated with the Y Axis category for this chart type:

### y-axis-title

Property	Data Type	Description
range-title	String	Sets the title for the primary numeric data axis; typically the Y axis in a horizontally-oriented chart.

### y-font

Property	Data Type	Description
range-title-font	Complex (see example below)	Sets the font for the range axis title.

### y-sticky-0

Property	Data Type	Description
range-sticky-zero	Boolean	If <b>true</b> , truncates the axis margin at zero.

### y-incl-0

Property	Data Type	Description
range-includes-zero	Boolean	When an axis' values are auto-calculated, setting this flag to <b>true</b> ensures that the range always includes zero.

### y-min

Property	Data Type	Description
range-minimum	Integer	Sets the lower bounding value on the range axis.

### y-max

Property	Data Type	Description
range-maximum	Integer	Sets the upper bounding value on the range axis.

### y-tick-interval

Property	Data Type	Description
y-tick-interval	Decimal	Controls the increments between Y axis tick labels

### y-tick-font

Property	Data Type	Description
range-tick-font	Complex (see example below)	Sets the font for the labels on the tick marks of the range axis.

#### y-tick-fmt-str

Property	Data Type	Description
range-tick-format	String	Sets the format of the labels on the tick marks of the range axis. (An example format for displaying percentages might be "0.00%")

#### y-tick-period

Property	Data Type	Description
y-tick-period	Selection	Specifies the Y axis tick intervals if the Y (range) data set returns date or time data

#### enable-log-axis

Property	Data Type	Description
enable-log-axis	Boolean	Determines whether or not the Y axis scales logarithmically

#### log-format

Property	Data Type	Description
log-format	Boolean	Abbreviates large Y axis tick labels if they are numbers and no format is specified in y-tick-fmt-str

### Legend

The following groups of properties are associated with the Legend category for this chart type:

#### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

#### location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

#### legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).



### legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

### legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

### legend-font-color

Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs so you can modify the chart after the report renders.



### Chart Post Processing Script

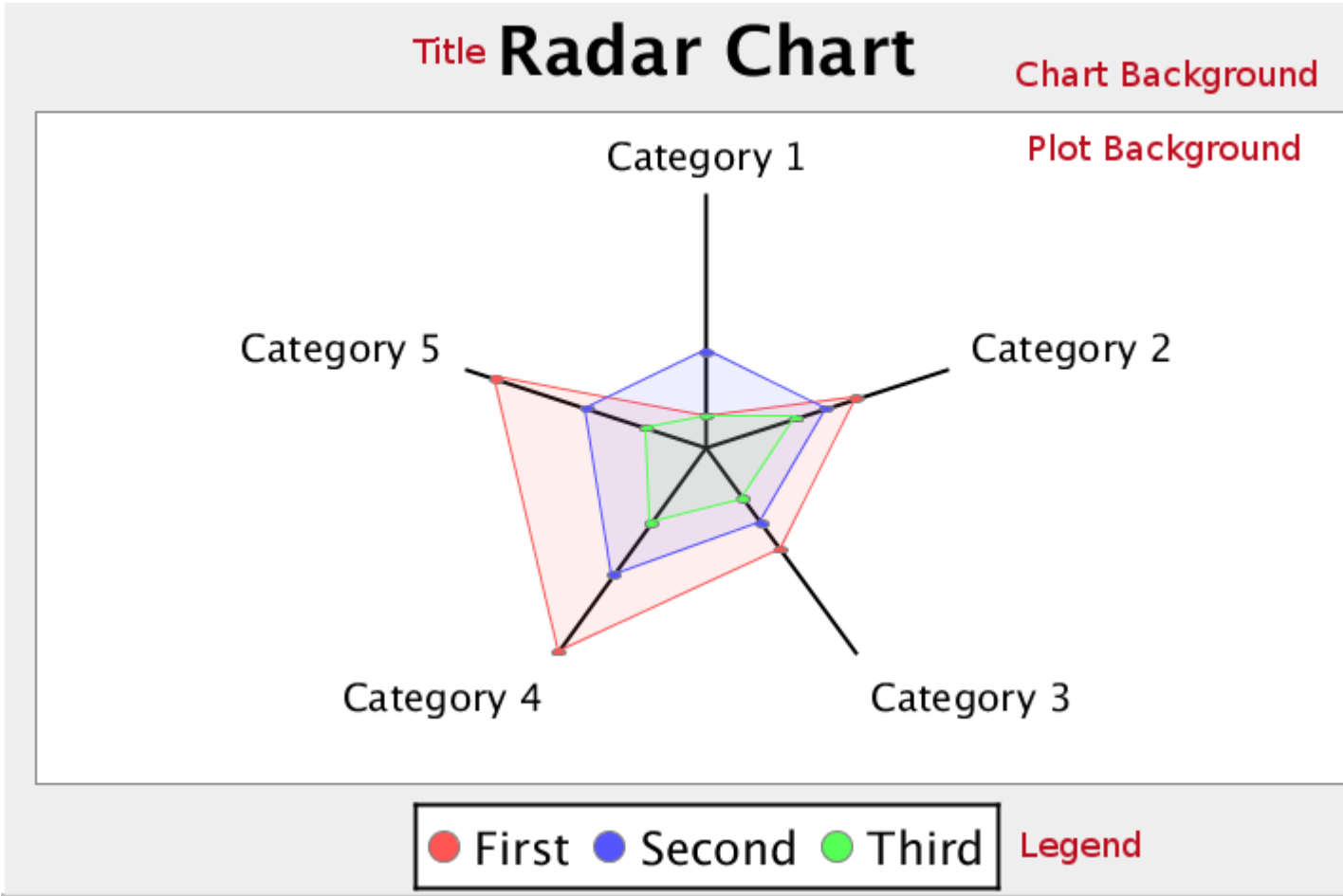
Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.

## Radar



**Note:** Radar charts are only available in Report Designer; you cannot create a radar chart with the BI Platform's ChartComponent.

A radar chart is useful for showing how two or more volume-related data points compare against one another, using a third related data point as a basis for comparison. For instance, you may want to show how sales dollar amounts compare among product lines across multiple territories.



Data Collectors

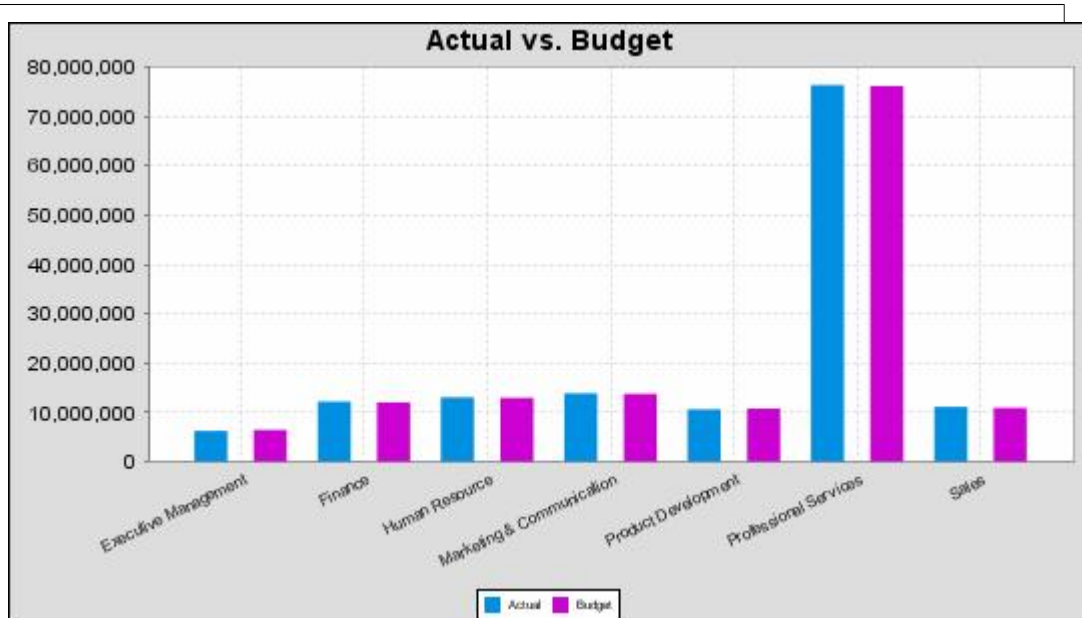
The following data collectors are associated with this chart type:

CategorySet

To generate categorical charts, you need a three-dimensional (three column) dataset. The first dimension is the **category** column, which defines the columns that contain the category names. The category can be considered a grouping of the bars (in a bar chart, for example). The next dimension is the **series**. In bar charts for example, you'll have one bar for each series. Finally, the **numerical** value being plotted is the third dimension.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-column	The column that you want to use to determine category names.

Property	Description
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.

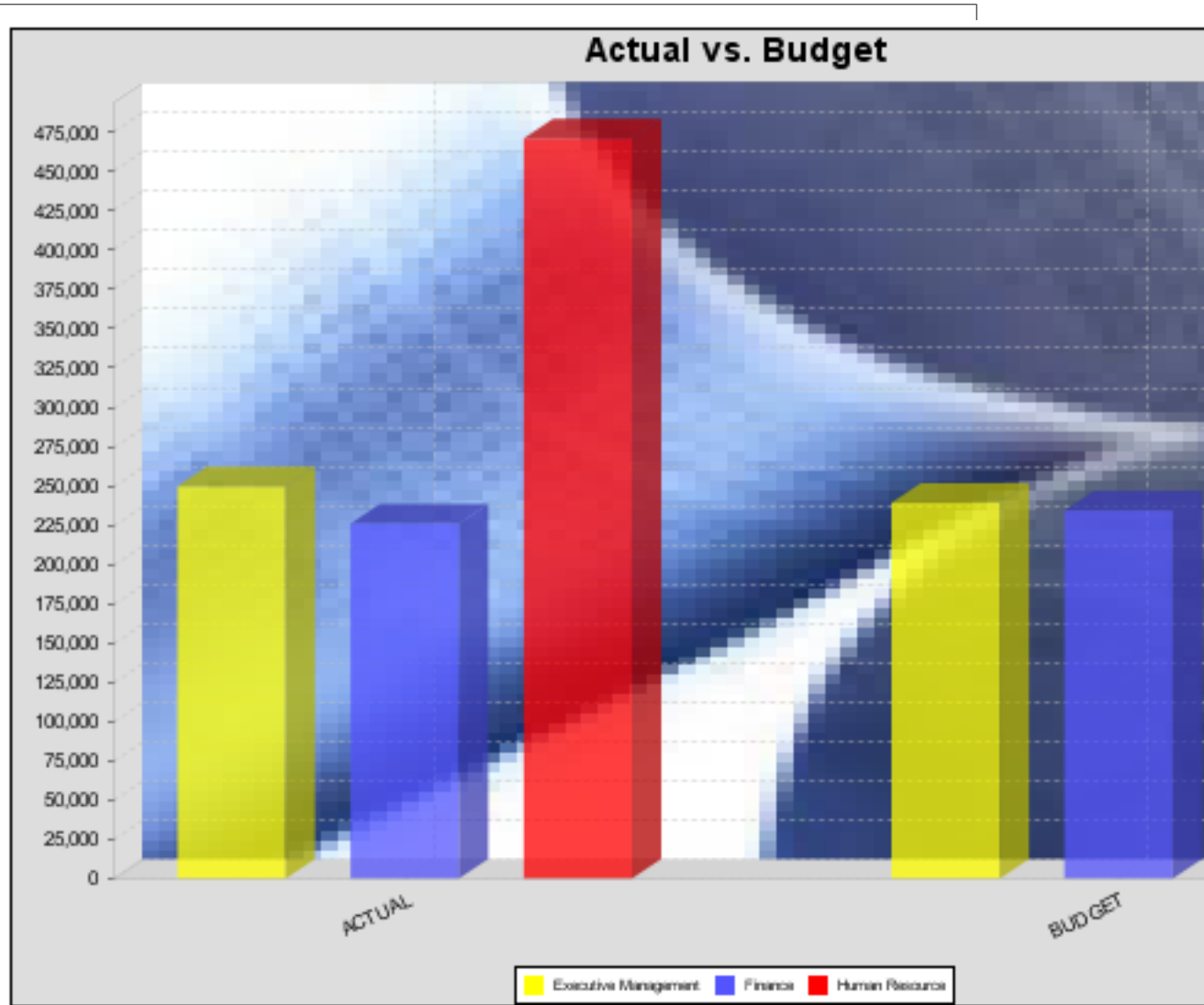


In the above chart, Executive Management, Finance, etc., are in the category column (department). The first series name is Actual (the blue bar), and the second series name is Budget (the purple bar).

## PivotCategorySet

The PivotCategorySet data collector is an extension of the CategorySet data collector that will pivot the data to use a column of values as series, rather than individual columns themselves. This means that at a minimum, you will need a column from which the collector will retrieve the series names, and any number of additional numeric data columns that will serve as categories. The data values to be plotted for each series are the category columns' values.

Property	Description
name	A title for this data collector configuration. Typically you will only have one data collector per chart, in which case this property is not particularly useful.
category-columns	The names of the columns you want to use to determine category names.
value-columns	The data columns that determine the chart values (or series items).
series-by-value	A static value that you want to use for the series name.
series-by-field	Uses the selected column to use for series names. This will cause the value column to be split into series groups.
group-by	This provides the name of the group that the chart is appearing in. If the chart contains detailed information, then this is not necessary.
reset-group	Specifies a group that will be used to create charts within a sub-group. For example, if charting one chart per region, and the chart is displaying data for departments within a region, the reset-group would be set to the region group, and the chart group would be set to department group.



In the above bar chart, Executive Management, Finance, and Human Resources (the yellow, blue, and red bars, respectively) are the series -- values taken from the series column DEPARTMENT. The categories Actual and Budget supply row-based data points for each series.

## Chart Properties

The following groups of properties are associated with this chart type:

### Required

The following groups of properties are associated with the Required group for this chart type:

#### name

Property	Data Type	Description
name	String	The name (in Report Designer) of this chart element. Does not appear in the published report.

### data-source

Property	Data Type	Description
data-source	String	The name of the established (in Report Designer) data source you intend to pull data from.

### no-data-message

Property	Data Type	Description
no-data-message	String	The text displayed on the plot background when the query produces no usable data

## Title

The following groups of properties are associated with the Title group for this chart type:

### chart-title

Property	Data Type	Description
title	String	Sets the main title for the chart

### chart-title-field

Property	Data Type	Description
chart-title-field	Selection	Specifies which field from your data set you would like to use for the chart title

### title-font

Property	Data Type	Description
title-font	Complex (see example below)	Sets the font for the main title for the chart.

```
<title-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</title-font>
```

## Options

The following groups of properties are associated with the Options group for this chart type:

### line-size



**Note:** This property is called **line-width** in the Radar chart property list.

Property	Data Type	Description
line-width	Decimal	Sets the width of line series lines. Default value is <b>1.0</b> .

### head-size

Property	Data Type	Description
head-size	Decimal	The size of the oval drawn where the value line and grid line intersect the category grid line

### series-color

Property	Data Type	Description
color-palette	String	List of colors to apply (in order) to the series in the chart.

### gridline-interval

Property	Data Type	Description
gridline-interval	Percentage	Determines how many grid lines are drawn, in terms of line spacing. For instance, 20% will show 5 grid lines; 10% will show 10 grid lines. Default is <b>25.0%</b> , or four lines.

### radar-web-filled

Property	Data Type	Description
radar-web-filled	Boolean	Determined whether the web layers are filled in with solid colors, or left as outlines

## General

The following groups of properties are associated with the General category for this chart type:

### 3-D

Property	Data Type	Description
is-3D	Boolean	If true, renders the chart three-dimensionally. Default value is <b>false</b> .

### gridlines

Property	Data Type	Description
gridlines	Boolean	If true, draws thick horizontal lines across the plot background that more easily show intervals between values. Not to be confused with tick lines, which are dotted plot lines

Property	Data Type	Description
		that only show major scale values. Default value is <b>true</b> .

#### bg-color

Property	Data Type	Description
bg-color	Selection	The color of the chart background; this is the area behind the chart, not the plot area. To set the plot area, use the <b>plot-bg-color</b> property instead

#### bg-image

Property	Data Type	Description
bg-image	String	Path to the graphic file you want to display in the area behind the chart

#### show-border

Property	Data Type	Description
border-visible	Boolean	If true, draws a border around the entire surrounding area for the chart. Default value is <b>false</b> .

#### border-color

Property	Data Type	Description
border-paint	String	Sets the color for the surrounding chart border. Possible values are hexadecimal color codes.

#### anti-alias

Property	Data Type	Description
anti-alias	Boolean	Determines whether the edges and curves of the element should be smoothed

#### plot-bg-color

Property	Data Type	Description
plot-background	Complex (see example below)	Renders either the color, gradient , texture or image specified as the plot background for the chart.



### plot-fg-alpha

Property	Data Type	Description
plot-fg-alpha	Decimal	Controls the alpha value (transparency) of the plot foreground. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-bg-alpha

Property	Data Type	Description
plot-bg-alpha	Decimal	Controls the alpha value (transparency) of the plot background. Possible values are between 0 and 1, with 0 being totally transparent, and 1 being totally opaque. Default is 1.

### plot-border

Property	Data Type	Description
plot-border	Boolean	Determines whether or not the plot area should have a border between it and the chart background

## X Axis

The following groups of properties are associated with the X Axis category for this chart type:

### x-font

Property	Data Type	Description
domain-title-font	Complex (see example below)	Sets the font for the domain axis title.

### show-labels

Property	Data Type	Description
show-labels	Boolean	Shows the plotted value. Default is <b>false</b> .

## Legend

The following groups of properties are associated with the Legend category for this chart type:

### show-legend

Property	Data Type	Description
include-legend	Boolean	When set to true, displays the legend in the chart. Default value is <b>true</b> .

## location

Property	Data Type	Description
location	Selection	Determines where the legend will be situated, relative to the plot area

## legend-bg-color

Property	Data Type	Description
legend-bg-color	String	Hexadecimal value of the color you intend to use for the legend background. Default value is FFFFFFFF (white).

## legend-border

Property	Data Type	Description
legend-border-visible	Boolean	If true, draws a border around the legend. Default value is <b>true</b> .

## legend-font

Property	Data Type	Description
legend-font	Complex (see example below)	Sets the font to use on the text in the legend.

```
<legend-font>
  <font-family/>
  <size/>
  <is-bold/>
  <is-italic/>
</legend-font>
```

## legend-font-color


Property	Data Type	Description
legend-font-color	String	Hexadecimal value of the color you intend to use for the legend font. Default value is 000000 (black).

## Scripting

The following groups of properties are associated with the Scripting category for this chart type:

### Chart Post Processing Script Language

Property	Data Type	Description
Chart Post Processing Script Language	Selection	The scripting language to use. This property gives you access to JFreeChart APIs

Property	Data Type	Description
		<p>so you can modify the chart after the report renders.</p> 

**Chart Post Processing Script**

Property	Data Type	Description
Chart Post Processing Script	Script	The script to use to modify chart object.