

MooD 15 General Chart

This guide covers how to implement the General chart. This is the most flexible chart in MooD.

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MooD 15 General Chart

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# Introduction

This guide is for MooD Business Architect users who want to include General charts in models. The General chart is highly configurable, for example, although by default it is a simple column chart, it can be converted to many other chart types including a pie chart. Also data series can use different but compatible chart types within the same chart area, for example, one series plotted by columns another by a line. The General chart can also be made to appear 3D.

This user guide contains the following sections:

* [About the General chart](#_bookmark2) (page [6](#_bookmark2))

A brief introduction to the General chart and what you can achieve using it.

* [Adding a General chart to a model](#_bookmark3) (page [7](#_bookmark3))

Covers adding a General chart and associating it with the elements it will illustrate.

* [Configuring General charts](#_bookmark6) (page [12](#_bookmark6))

Simple configuration is available on the chart’s flip side and directly on the ribbon. This includes common layout features, and the chart’s relationship with its model. At a deeper level, the General chart’s layout is highly configurable using the **Chart Layout Settings** dialog box that you access from the ribbon. This section outlines both.

* [Features](#_bookmark13) (page [17](#_bookmark13))

This section covers key features in detail and gives instruction on how to implement them in Business Architect.

* [Reference](#_bookmark33) (page [36](#_bookmark33))

Reference material on the General chart’s flip side, the ribbon, and the **Chart Layout Settings** dialog box and its various Collection Editors. This material is useful if you need to quickly find out about a dialog or setting.

* [Keywords](#_bookmark48) (page [47](#_bookmark48))

Reference material on the keywords you can use in data point labels and legends. Keywords are replaced at display time with their current value. Examples are included.

## Technical support and resources

MooD 15 is backed by a dedicated UK based technical support team. Contact details can be found on Repository Manager’s **File** tab.

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# About the General chart

The General chart is highly configurable. It is a simple column chart by default. However, by changing the **Chart Type** property, you can change it into many other formats. For example, all of the charts below are variants of the same chart (the last one uses different data). The **Chart Type** setting is only one of the things you can configure. Throughout this guide you’ll see examples of the features you can configure including secondary axis, data series, titles, legends and 3D (the last chart below demonstrates several features used together). This highly configurable nature is what makes the General chart one of the most useful charts in MooD.

 



The list of [*General chart features*](#_bookmark13) on page [17](#_bookmark13) gives an overview of key configuration possibilities.

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# Adding a General chart to a model

Adding a General chart is similar to adding any other panel. You place it onto a model, and then use its flip side and the ribbon to configure it.

**Task 1** To add a General chart to a model:

1. Open the model that you want to add the chart to.
2. On the **Home** tab, in the **Insert** group, click **Graphs**.

A gallery opens.

1. In the gallery, in the **Graphs** section, click **General Chart**.

As you move cursor over the model, Business Architect shows you that a General chart will be created.



1. Click to add the General chart to the model. A General chart is added on its flip side.

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By default, the panel (chart) is pinned to the model’s subject element.

1. If you want to use a different subject element, pin the panel to that element. The subject element must be on the same model as the chart.
2. Next to **Information shown**, click **click to select**.

A **Select Content** dialog box for the subject element is displayed.

1. Select the content from the subject element that will be the basis for the chart. For example:



As soon as you click something in the **Select Content** dialog box, it selects it and closes the dialog. On the **Content** tab, the **Information shown** setting shows the selected content, and the  icon indicates that the **Select fields** property is the remaining property that must be set to create a working chart.

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| **Setting Information shown to a query** |
| If you set **Information shown** to a query, an **Edit this query** link is added to the**Content** tab, and the **Inputs** tab will include fields for any query variables required. |

The **Results** tab lists the elements that will be included in the chart, as shown next:

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| **Manually adding elements** |
| This task described here lets Business Architect automatically add the elements associated with the selected content. However, you can add elements manually. On the **Select Content** dialog box, click **I want to add elements manually**.IWantToAddElementsManually.pngWhen this is selected, the **Content** tab changes to include an **Add and remove elements from this panel** link. This displays the **Results** tab with an **Add an element** button on it. See [*The Results tab*](#_bookmark37) on page [39](#_bookmark37) for details on manually adding the elements for your chart. |

1. If required, use the **Assign** drop-down to change the chart’s format. The choices are:
	* **Elements**. This is the default. The X axis plots elements and the Y axis plots field values. This type of chart can plot multiple data series against the elements on the X axis.
	* **Pivot**. The X axis plots fields and the Y axis plots the values of those fields. In this type of chart, the data series are items on the X axis.
	* **Historical**. For elements configured to store historical values (a change history), this type of chart plots dates/times on the X axis and field values on the Y axis. When selected, a **Configure settings** link is added immediately below. Use this to set the date range for the historical data. See [*Historical charts*](#_bookmark31) on page [33](#_bookmark31) for more details.
	* **Scatter**. Both the X and Y axis plot values. The density and location of plotted points can indicate the relationship (or lack thereof) between two items.
	* **Aggregation**. Content from an Aggregation matrix. This is set automatically when **Information shown** is set to an Aggregation matrix. See [*Using Aggregation matrices with General charts*](#_bookmark32) on page [33](#_bookmark32) for details.

The remaining steps assume you are adding the default **Elements** format.

1. Click **Select fields**.

The **Select Content** dialog box is displayed.

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1. Use the **Select Content** dialog box to search for and select the content you want to use as data series in the chart.

As you choose content for a series, a new empty series field is added.

1. When you have added the data series required, click **OK** to close the **Select Content**

dialog box.

You can return and edit the selected fields or add additional data series at any time.

1. On the **Content** tab, click **OK**.

The panel flips to display the General chart on the model.

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At any time you can configure it further. See [*Configuring General charts*](#_bookmark6) next for details and options.

**Note:** If you flip the general chart and no data is displayed on the model, it is usually because there are unset variables on the chart’s **Inputs** tab. Even if your chart is driven by session variables, if you want to configure it further, you need to set inputs so that you can see and verify the results of your changes.

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# Configuring General charts

You configure General charts at two levels:

* Accepting the chart’s current layout, configure its association with the model and how it generally behaves and appears within Business Architect and Active Enterprise.

Use the chart’s flip side and the ribbon to do this. See [*Configuring a General chart’s*](#_bookmark7)[*behaviour*](#_bookmark7) next for details.

* Change the underlying nature and layout of the chart itself. This is at a much finer level of detail.

Use the **Chart Layout Settings** dialog box to do this. You access this from the ribbon. From this dialog box you can shape the General chart in many ways, for instance, change the chart type, add secondary axis, and remove the background grid. See [*Configuring a General chart’s layout*](#_bookmark11) on page [14](#_bookmark11) for details.

Together, the ribbon, the chart’s flip side, and the **Chart Layout Settings** dialog box give you access to all available configuration options.

**Note:** Creating a General chart, including defining the elements it charts, is covered in

[*Adding a General chart to a model*](#_bookmark3) on page [7](#_bookmark3).

## Configuring a General chart’s behaviour

The General chart’s flip side includes three tabs that let you set chart wide features, and the ribbon lets you control data point labels (the **Style** tab in the **Panel** tab group) and the chart’s behaviour on Active Enterprise (the **Web** tab). These settings affect the chart in its current layout.

**Task 2** To configure chart wide settings using the flip side:

1. Flip the General chart’s panel. Press **F9** or click:

The panel flips to show three settings tabs. It opens at the last tab used.

1. Use the tabs to configure the chart.

The tabs and the configuration options they offer are:

* + [**Content**](#_bookmark35) (see page [37](#_bookmark35) for reference material) Defines the chart’s starting point and its basic format.
	+ [**Inputs**](#_bookmark36) (page [39](#_bookmark36))

Use this to configure refresh features on Active Enterprise. If the chart is based on a query that takes a variable, the **Inputs** tab will include fields for those variables.

**Note:** Additional Active Enterprise settings appear on the ribbon (the **Web**

tab). See the next task for details.

* + [**Results**](#_bookmark37) (page [39](#_bookmark37))

Use this to change the sequence of elements on the X axis, or to exclude individual

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elements. If, on the **Content** tab, **Information shown** is set to **Elements**, you also manually add the elements here.

1. Click **OK** when you have finished configuring the chart.

The panel flips back to show the General chart in its new configuration.

**Task 3** To set a chart’s web behaviour by means of the ribbon:

1. On the model, click the chart.

This selects the chart, and means that the settings on the **Web** tab relate to it.

1. Click the **Web** tab.
2. In the **Element Behaviour** group:
	* **Allow Navigation** makes the chart interactive when viewed in Active Enterprise.
	* **Allow Editing**. If selected, you can flip the chart in Active Enterprise and edit its values. For example:

The triangle icon within a cell indicates that that value has been changed but not saved. When you flip the chart back, it will update to reflect the updated values.

* + **Allow Scrolling** and **Fixed Headers** do not apply to General charts.

**Task 4** To set a chart’s data point labels by means of the ribbon:

1. On the model, click the chart.

This selects the chart, and adds the **Panel** tab group to the ribbon.

1. Click the **Style** tab.
2. In the **Points Labels** group, click **Show Labels**.

By default, Y axis values are added. The remaining **Show** settings are enabled to allow you to modify this.

1. Select one or more of the following to include in the data point label:
	* **Show Name** includes the element’s name.

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* + - **Show X Value** includes the X axis value. This is only relevant for charts that plot values along the X axis. If the chart plots elements, this will insert 0.
		- **Show Y Value** includes or excludes the item’s Y axis value. The chart updates itself as you select options.

**Note:** You can also manually configure data point labels. This give you more control, and lets you include keywords. See [*Manually creating data point*](#_bookmark27)[*labels*](#_bookmark27) on page [29.](#_bookmark27)

## Configuring a General chart’s layout

The General chart is highly configurable, and the **Chart Layout Settings** dialog box gives you access to additional dialog boxes that you can use to change or add to the default layout. This includes the chart type, the appearance of each data series, axis settings, titles, labels and legends.

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| **Template XML** |
| Chart layout settings that change the defaults are stored and applied as XML. When a General chart is selected, you can use the **Template XML** command on the ribbon (the **Style** tab) to look at this XML. This is a quick way to see what defaults, if any, have been changed. You can also edit this XML, and a quick way to restore a chart to its default formatting is to delete the XML. In both cases, you must exercise caution. See [*Chart template XML*](#_bookmark46) on page [45](#_bookmark46) for details. |

**Task 5** To configure a General chart’s layout:

1. On the model, click the chart.

This selects the chart, and adds the **Style** tab to the ribbon.

1. On the **Style** tab, in the **Chart** group, click **Layout**. The **Chart Layout Settings** dialog box is displayed.

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The key features of this dialog box are:

* + Property settings are grouped by default and sorted alphabetically within groups. You can use the **AZ** sort button to remove the groupings and list all settings alphabetically.
	+ ***Collection*** indicates that you can have more than one of these items. When you click one, a **(…)** button appears. Use this to open the ***Collection Editor*** for that type of item.
	+ The preview updates as you change the chart.

**Note:** As a general rule when configuring any chart, you should regularly confirm that the model shows what you want, and not rely entirely on the preview. Some functionality that is previewed is not supported in the actual model. Where possible, this is noted in this guide.

1. Configure the chart’s layout as required. The most common layout tasks are:
	* Add titles. Use **Titles** in the **Chart** group to open the **Titles Collection Editor**. See

[*Chart titles*](#_bookmark14) on page [17](#_bookmark14) for more details.

* + Change the chart from the default Column chart to another type, for instance a Pie chart. Use **Series** in the **Chart** group to open the **Series Collection Editor**. Then set the **Chart Type** property for each series. See [*Chart type*](#_bookmark15) on page [18](#_bookmark15) for more details.
	+ Configure the X and Y axis or add secondary axes. Use **Chart Areas** to open the

**Chart Areas Collection Editor**. Then, with the required chart area selected, in the

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**Axes** group, use **Axes** to open the **Axis Collection Editor** for that chart area. See

[*Axes*](#_bookmark16) on page [19](#_bookmark16) and [*Secondary axes*](#_bookmark17) (page [22](#_bookmark17)) for more details.

* + Remove the default grid lines. You do this with the **MajorGrid** settings in the **Axis Collection Editor**. See [*Grid lines*](#_bookmark19) on page [23](#_bookmark19) for more details.
	+ Change the data series labels that appear on an axis. These default to the element’s name, but you can use the **Custom Label Collection Editor** to change them. See [*Data series labels*](#_bookmark21) on page [24](#_bookmark21) for details.
	+ Change the colour or order of data series. Use **Series** to open the **Series Collection Editor**. See [*Data series order and colour*](#_bookmark22) on page [24](#_bookmark22) for details.

**Important:** Do not attempt to add data series in the **Series Collection Editor**.

Any data series added there will not appear in your model. The **Add** button, whilst appearing to work, does not. You must use the chart’s **Content** tab to add data series. See [*Data series*](#_bookmark20) on page [23](#_bookmark20) for more details.

* + Add default legends or manually create a legend table. Use **Legends** to open the **Legends Collection Editor**. Then click the **Add** button to add a default legend table. See [*Legends*](#_bookmark23) on page [25](#_bookmark23) for more details.
	+ Manually create data point labels. If the **Show Labels** setting on the ribbon is not sufficient, use **Series** to open the **Series Collection Editor**. Then, with the required series selected, set the **Label** property. See [*Data point labels*](#_bookmark25) on page [28](#_bookmark25) for details and [*Keywords*](#_bookmark48) (page [47](#_bookmark48)) for a list of keywords that you can use in this setting. Each time a chart is displayed or refreshed, keywords are updated to show their current value in the repository.
	+ Make the chart 3D. Use **Chart Areas** to open the **Chart Areas Collection Editor**. Then, in the **3D** group, set the **Enable3D** property to **True**. See [*3D charts*](#_bookmark28) on page [30](#_bookmark28) for more details.

See [*The Chart Layout Settings dialog box*](#_bookmark39) on page [42](#_bookmark39) for reference material on each layout possibility, or click on the individual links above to be taken to reference material on that particular feature. See [*General chart features*](#_bookmark13) on page [17](#_bookmark13) for a complete list of possibilities covered in this guide.

1. Click **OK** when you have finished configuring the layout. You return to the chart’s flip side.
2. Click **OK** to flip the panel and see the General chart’s updated layout within the model.

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# General chart features

This section covers aspects of the General chart in depth. It covers:

* [Chart titles](#_bookmark14)
* [Chart type](#_bookmark15) (page [18](#_bookmark15))
* [Axes](#_bookmark16) (page [19](#_bookmark16))
* [Secondary axes](#_bookmark17) (page [22](#_bookmark17))
	+ [Plotting a data series against a secondary Y axis](#_bookmark18) (page [22](#_bookmark18))
* [Grid lines](#_bookmark19) (page [23](#_bookmark19))
* [Data series](#_bookmark20) (page [23](#_bookmark20))
	+ [Data series labels](#_bookmark21) (page [24](#_bookmark21))
	+ [Data series order and colour](#_bookmark22) (page [24](#_bookmark22))
* [Legends](#_bookmark23) (page [25](#_bookmark23))
	+ [Manually creating a legend table](#_bookmark24) (page [26](#_bookmark24))
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	+ [The Show Labels setting](#_bookmark26) (page [29](#_bookmark26))
	+ [Manually creating data point labels](#_bookmark27) (page [29](#_bookmark27))
* [3D charts](#_bookmark28) (page [30](#_bookmark28))
* [Multiple chart areas](#_bookmark29) (page [31](#_bookmark29))
* [Crossing points](#_bookmark30) (page [32](#_bookmark30))
* [Historical charts](#_bookmark31) (page [33](#_bookmark31))
* [Using Aggregation matrices with General charts](#_bookmark32) (page [33](#_bookmark32))

## Chart titles

The default General chart does not include any titles. You can add one or more titles, for example, the following chart has two titles:

To do this, go to the **Title Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Title Collection Editor](#_bookmark45)

Then click the **Add** button to add the titles you require. For each title, the key properties are:

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* **(Text)** in the **Appearance** group. This is the text that will appear when **(Visible)** is set to

**True**. These are bracketed so that they appear first in the list of title properties.

**Note:** You cannot use keywords in titles. They can only be used in manually created data point labels and data series legends.

* The **Docking** group of properties lets you position each title.

As you add and configure titles, the preview in the **Chart Layout Settings** dialog box updates to show a representation of how they will appear in the chart on the model. As a general rule when configuring any chart, you should confirm that the model shows what you want and not rely entirely on the preview.

## Chart type

The **Chart Type** property sets the chart’s basic style, Column, Bar, Line, Pie etc. By default, the general chart is a Column chart.

A General chart can plot multiple data series. Each data series can be a different but compatible chart type; for example, one series could be the default Column type, while a second series could be plotted as a Line. Here is such a chart:

Because of this, the **Chart Type** property is found in the **Series Collection Editor**.

**Note:** Data series are plotted in order and overlap accordingly. You can see this in the preceding image. The Column chart of the first data series is behind the Line chart of the second series.

To set the **Chart Type** property, go to the **Series Collection Editor**: [**Chart Layout Settings** dialog box](#_bookmark39) **>** [**Series Collection Editor**](#_bookmark44)

Then, with the required series selected, set the **Chart Type** property in the **Chart** group of series properties to the required style.

Key points about setting **Chart Type** are:

* You must set each series listed in the **Series Collection Editor** to the same **Chart Type**, or to compatible **Chart Types**. Compatible types are types that can be plotted against the same X and Y axis. Hence, **Bar** charts and **Column** charts are incompatible.

**Note:** In the **Series Collection Editor**, you may get an error dialog saying that you have selected incompatible **Chart Types**. In some cases you can

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ignore this; for example, if you decide to change all the series from **Bar** to **Column**, you’ll get the error message until the last series has been changed to **Column** and the incompatibility removed. However, if you leave the **Series Collection Editor** and your chart is not rendered, you must check each of your **Chart Type** settings.

* The drop-down list of **Chart Types** is extensive. You should use trial and error to establish the best for your purposes. When doing this, it can be helpful to experiment with a single series chart.
* Most but not all of the **Chart Types** listed in the drop-down are supported. You should test your selection in your model to ensure it is supported before you spend time developing it further.

**Note:** The appearance of the selected **Chart Type** in the preview area of the **Chart Layout Settings** dialog box does not guarantee that the chart will appear correctly in a model.

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| --- |
| **Making the line in a Line Chart thicker** |
| The **Line Chart Type** property is often used to plot one or more data series as a line. The line’s thickness defaults to 1. To change this, in the **Series Collection Editor** for that series, in the **Appearance** group of properties, set the **BorderWidth** property.**Note:** If you want to change the line’s default colour, use the **Color** property in the same group. This is covered in more detail in the [*Data series order and colour*](#_bookmark22) section on page [24.](#_bookmark22) |

## Axes

The default General chart has one X axis and one Y axis. Typically, the X axis appears horizontally along the bottom of the chart area, and the Y axis appears vertically on the chart area’s left border.

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**Note:** An exception to this is the bar chart. By default, its axes are rotated 90 degrees. Pie and doughnut charts don’t use axes. See [*Chart type*](#_bookmark15) on page [18](#_bookmark15) for details on changing the General chart from its default column layout.

Y axes always plot values. Typically, X axes plot category data, such as elements, fields or date ranges, but can also be used to plot values, as in Scatter charts.

Axes present lots of configuration possibilities. To configure axes, go to the **Axis Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40) > [Axis Collection Editor](#_bookmark41)

Within the **Axis Collection Editor**, you can configure each axis independently. For example:

* Use the **Title** group of axis properties to add and format a title. For example, in the following, the title ***Projects*** is centred:

**Note:** You cannot use keywords in titles. They can only be used in manually created data point labels and data series legends.

Changes to the title font are not transferred to the chart. The font, including its size, is fixed.

See [*Data series labels*](#_bookmark21) on page [24](#_bookmark21) for information on changing the labels used for the actual elements on an axis.

* In the **Labels** group, use the **Angle** setting (in the **LabelStyle** subgroup) to alter the orientation of labels along an axis, for example, this is the effect of setting **Angle** to **90**:



Setting **Angle** to **-90** writes the text the other way:

* Add secondary axes. See [*Secondary axes*](#_bookmark17) on page [22](#_bookmark17) for details.
	+ You can plot a data series against a secondary Y axis. See [*Plotting a data series against a secondary Y axis*](#_bookmark18) on page [22](#_bookmark18) for details.
* Remove or modify the chart’s grid lines. See [*Grid lines*](#_bookmark19) on page [23](#_bookmark19) for details.
* Use the **Scale** group of axis properties to manually control the scale used on each axis. By default, these cater for the displayed information (the data series), but you can manually set them if required. Within the **Scale** group:

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* + Set the **IsMarginVisible** property to **False** to remove the space padding either side of the data series on the X axis. For example, the next image shows the same chart, but the second chart has its X axis **IsMarginVisible** property set to **False**.
	+ Use the **Crossing** setting to move the primary X axis to a point on the Y axis. See [*Crossing points*](#_bookmark30) on page [32](#_bookmark30) for details.
	+ Use the **IsReversed** setting to reverse the origin of the chart from the bottom left corner to the bottom right corner, for example:



* Use the **ScaleBreakStyle** group of axis properties to help cater for charts that plot large differences between the high and low values. When enabled, this changes the scale used on the Y value axis at a certain point. By default, this point is automatically calculated based on the data being plotted, but you can control this. The chart adds a ragged line to draw attention to the change in scale as shown in the following image. Again, you can change this if necessary.



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## Secondary axes

Charts can have secondary axes. By default, the secondary X axis appears at the top of the chart, and the secondary Y axis appears on the chart’s right border, for example:

To enable secondary axes, go to the **Axis Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40) > [Axis Collection Editor](#_bookmark41)

By default, the **Axis Collection Editor** includes disabled secondary axes. To enable either, in its **Misc** group of axis properties, set **Enabled** to **True**.

By default, secondary axes have the same axis properties as their primary counterparts. You can configure them independently as required.

### Plotting a data series against a secondary Y axis (different scales)

A secondary Y axis can plot a different data series from the primary Y axis. For example, in the following, the **Days** data series is plotted against the secondary Y axis. Because of this, the scale has automatically become appropriate for that data series. If **Days** were plotted against the primary Y axis, it would barely register on the chart, and having two axes allows you to put sensible labels on them.

The axis that a data series is plotted against is a property of the data series. Hence, you need to go to the **Series Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Series Collection Editor](#_bookmark44)

Select the data series, and then, in the **Axis** group of properties, set **YAxisType** to **Secondary**.

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Some of the best uses of the General chart come from mixing the various features to get exactly what you want. The preceding image also demonstrates these other features:

* The **Days** data series is displayed using the **Bubble** chart type (the other two data series are set to **Column**). See [*Chart type*](#_bookmark15) on page [18](#_bookmark15) for details.
* A legend has been added. See [*Legends*](#_bookmark23) on page [25](#_bookmark23) for details.
* Titles have been added against the axes. This can be particularly helpful when the axes use different scales. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for details (the **Title** properties).

## Grid lines

By default, the General chart is shown on a grid. The grid’s interval and tick mark settings are automatically determined by the data series being plotted.

You can alter or remove these grid lines. To do this, go to the **Axis Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40) > [Axis Collection Editor](#_bookmark41)

You can:

* Remove the grid completely. In the **MajorGrid** axis properties group, set **Enabled** to

**False** for each axis.

**Note:** The tick marks at which grid lines (whether shown or not) transect the axis are independent of the grid lines. To remove these, in the **MajorTickMark** axis properties group, set **Enabled** to **False**.

* Use the **Interval** group of properties to alter the interval between grid lines.

**Note:** The General chart’s default grid is known in the **Axis Collection Editor** as the **MajorGrid**. Charts also have a **MinorGrid** that appears within the **MajorGrid**. By default, this is disabled, but the same general formatting principles apply.

## Data series

A data series is a piece of information plotted on a chart for each element on the X axis. Charts can include more than one data series, for example, estimated costs and actual costs could be two series that appear in a chart like the following:

When you add a General chart to a model, you specify each data series in the **Select Content**

dialog box ([step 10](#_bookmark5) in the set of instructions starting on page [10](#_bookmark5)). You can return to this dialog

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box and add any further data series required. To access this, click the **Select Fields** link on the

**Content** tab (on the chart’s flip side).

**Important:** Do not attempt to add data series in the **Series Collection Editor**. Any data series added there will not appear in your model. The **Add** button, whilst appearing to work, does not. You must use the chart’s **Content** tab to add data series.

### Data series labels

By default, data series are labelled by name on their axis. To change these without renaming the actual elements, go to the **Custom Label Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40) >[Axis Collection Editor](#_bookmark41) > Custom Label Collection Editor

Then, in the **Appearance** group of custom label properties, set **Text** to the required label. You may also need to adjust the **To Position** property to set the label’s location.

### Data series order and colour

Data series are plotted in order. This means that, depending on **Chart Type**, the second data series can overlap the first data series and so on. The chart shown next illustrates this. It is the same chart shown in the preceding image, but its **Chart Type** is set to **Line** for both data series.

You can change the order of data series. To do this, go to the **Series Collection Editor**: [**Chart Layout Settings** dialog box](#_bookmark39) **>** [**Series Collection Editor**](#_bookmark44)

Then use the **Up** and **Down** buttons to change the order.

When you flip the chart back, it will show the data series in their new order, as shown next. This is the previous chart with its data series order reversed.

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As can be seen in the two chart images above, the default colours are also applied in order. You can manually set the colours for each data series. Use the **Color** series property in the **Appearance** group. Manually set properties are preserved when a data series is moved.

**Note:** If you want to change the order of elements on the X axis, use [the **Results** tab](#_bookmark37) to manually sort the chart’s elements.

|  |
| --- |
| **Tip – Colour transparency** |
| In the **Chart Layout Settings** dialog box and its various Collection Editors, you can set colours. The **Color** setting can be manually entered as four comma separated numbers. The first number sets the colour’s opacity. This is a number between 0 (transparent) and 255 (solid colour). The final three numbers are Red, Green, Blue values again in the range 0 to 255.Hence, setting a colour to **100, 255, 255, 0** gives yellow with some transparency while **255,****255, 255, 0** give a solid yellow. |

## Legends

Legends identify each data series plotted on a chart. When switched on, legends, by default, appear to the top right of the chart and reduce the chart area, for example:

**Note:** As illustrated above, the default legend is a two column table listing each symbol and data series in the chart. This section covers this basic format. However, you can modify the format and content of this table, for example, to include a column showing the percentage of the total a data series represents. See [*Manually*](#_bookmark24)[*creating a legend table*](#_bookmark24) on page [26](#_bookmark24) for details on this more advanced configuration.

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The **RightToLeft** property in the **Appearance** group of properties in the **Chart Layout Settings** dialog box does not alter the default legend order in the model. The dialog box preview is incorrect. The setting has no actual effect. If you wanted to change the order, you should manually create the column order. Again, see [*Manually creating a legend table*](#_bookmark24) (page [26](#_bookmark24)) for guidance.

To add a legend, go to the **Legend Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Legend Collection Editor](#_bookmark42)

Then, click the **Add** button.

**Note:** The text used for each legend (***Estimated*** and ***Actual*** in the preceding image) is a property of each data series. To change this, in the [**Series Collection Editor**](#_bookmark44), set the **LegendText** property (in the **Legend** group).

In the **Legend Collection Editor**:

* Use **Title** to add a text title to the text box that holds the legend. As noted above, the text used in the legend is a property of each data series.
* To control the amount of chart area that is available to the legend, set

**MaximumAutoSize** in the **Docking** group of legend properties to a percentage.

* To locate the legend within the chart area, in the **Docking** group of legend properties, set **DockedToChartArea** to **Default** and **IsDockedInsideChartArea** to **True**. You can then use other **Docking** properties to control its position within the chart area. This increases the available chart area. For example, the following shows the same chart as before, but with the legend displayed within the chart area.

**Note:** If you do this, to minimize the possibility of your legend obscuring the chart’s content, you can set **BackColor** to **Transparent** (in the **Appearance** group of legend properties). You might also want to remove the default grid lines. See [*Grid lines*](#_bookmark19) on page [23](#_bookmark19) for details.

### Manually creating a legend table

The default legend uses a two column table and no titles. This can be seen in the images above. You can manually configure more complex legends. For example, the following shows a legend with a three column table. The third column uses the **#AVG** keyword to show the

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average of the Y values in that series. Each time a chart is displayed or refreshed, keywords are updated to show their current value in the repository. The legend table also includes titles.

To configure a legend like this, you need to:

* Use the **Legend Collection Editor** to add a legend. This adds a default legend that you then configure into the required format.
* In the **Legend Collection Editor**, in the **CellColumns** group, select the **CellColumns**

legend property, and then click the **(…)** button as shown here:

This opens the **Legend Cell Column Collection Editor**. It will have no members. The next image shows it with the three columns used in the example.

* Use the **Legend Cell Column Collection Editor** to add each of the columns you want in the table. The important cell properties for each column are:
	+ The **ColumnType** property in the **Series Items** group. This can be set to **Text** or **SeriesSymbol**. In the example, the first and third columns are set to **Text**, while the second column is set to **SeriesSymbol**.
	+ The **Text** property also in the **Series Items** group. This can be text, or more likely, a keyword. In the example, the first column uses **#LEGENDTEXT** to get the name of the data series (from the **LegendText** property in the **Series Collection Editor**). The third column sets this to the **#AVG** keyword to include the average value for that series (**#AVG{N2}** would restrict this to 2 decimal places). See [*Keywords*](#_bookmark48) on page [47](#_bookmark48) for a list of keywords and formatting options.
	+ If you want to add a title to a column, use the **HeaderText** property in the

**Header** group. In the example, this is set to ***Average*** for the third column.

The image here shows the third column being configured.

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Once you have added and configured the required columns, click **OK** to return to the

#### Legend Collection Editor.

* Back in the **Legend Collection Editor**, add any other formatting properties required. In the example, **Title** and **TitleSeparator** in the **Title** group are set, as is **HeaderSeparator** in the **CellColumns** group.

The above outlines the process you need to follow to create a legend manually. You can design as complex or as simple a legend as required. The **Legend** and **Legend Cell Column Collection Editors** include many configuration and formatting settings not covered here.

## Data point labels

You can have labels on each data point, as shown below.

You can implement data point labels in two ways:

* Select the chart on the model, and then, on the ribbon, on the **Style** tab, in the **Point Labels** group, select **Show Labels**. Then select the format you want. This is the

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simplest way. It offers minimal configurability. See [*The Show Labels setting*](#_bookmark26) next for details.

* Use the **Label** series properties in the **Series Collection Editor** to manually configure how the labels appear for each data series. This allows you to use keywords that are replaced at display time with their current value. See [*Manually creating data point labels*](#_bookmark27)on page [29](#_bookmark27) for details.

**Note:** You cannot use a combination of these methods. If **Show Labels** is selected on the ribbon, any manual data point label configuration is ignored.

### The Show Labels setting



When **Show Labels** is selected on the ribbon, Y values are shown by default, and you can configure the data point label by selecting any combination of:

* **Show Name**. The item’s name. For example, the element’s name if the X axis shows elements.
* **Show X Value**. The X axis value. This is only relevant for charts that plot values along the X axis. If the chart plots elements, this will insert 0.
* **Show Y Value**. Include or exclude the Y axis value.

### Manually creating data point labels

To manually configure data point labels, ensure that **Show Labels** on the ribbon is not selected, and then go to the **Series Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Series Collection Editor](#_bookmark44)

Then, with the required series selected, set the **Label** setting in the **Label** group of series properties to the required text. You can combine text and keywords. Keywords will be replaced by their current value. For example, **#VAL** adds the Y value, and **#PERCENT** gives its value as a percentage of the total Y series. See [*Keywords*](#_bookmark48) on page [47](#_bookmark48) for a list of keywords and additional examples.

The **Label** and **Label Appearance** groups of series properties give you additional formatting options, for example, colours used.

You do not have to add labels to every data series.

**Note:** Although you can access a **Data Point Collection Editor** from the **Series Collection Editor**, it is not functional. Any changes you make in the **Data Point Collection Editor** will not appear in your model, regardless of whether they appear in the preview shown on the **Chart Layout Settings** dialog box.

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## 3D charts

By default, the General chart is 2-dimensional. To make it 3-dimensional, go to the **Chart Area Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40)

Then, in the **3D** group of chart area properties, set **Enable3D** to **True**.

You can then use the **Chart Area Collection Editor** to configure other properties in the **3D**

group. For example, use:

* **Inclination** to rotate the chart around the X axis. By default, this is set to **30**. Valid values are **-90** to **90**. Negative values rotate clockwise.
* **Rotation** to rotate the chart around the Y axis. By default, this is set to **30**. Valid values are **-180** to **180**. Negative values rotate counter clockwise.
* **IsClustered** to cluster the data series into a single plain on the X axis. For example, the first image shows a 3D chart with **IsClustered** set to **True**, while the second shows it set to **False** (the default).



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## Multiple chart areas

By default, the General chart uses a single chart area. However, it can have multiple chart areas. For example, you can add a single General chart that includes a chart area for each data series:

To create additional chart areas, go to the **Chart Area Collection Editor**: [**Chart Layout Settings** dialog box](#_bookmark39) **>** [**Chart Area Collection Editor**](#_bookmark40)

Then, click the **Add** button to add a new chart area. You can then configure it as required. Once you have additional chart areas, you can add data series to them. To do this, go to the

#### Series Collection Editor:

[**Chart Layout Settings** dialog box](#_bookmark39) **>** [**Series Collection Editor**](#_bookmark44)

Then, with the required series selected, set the **ChartArea** property in the **Chart** group of series properties to the required area. There is a drop-down list of available areas.

**Note:** If you use this feature with the intention that your users can quickly compare like information, note that the default settings scale the Y axis according to its content. You may want to manually set the Y axis in each chart area to the same maximum scale. For example, by default, the preceding chart would look like the next image:



A cursory glance at the columns alone could give the wrong impression as the size of the chart area remains the same. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for more information on setting the Y axis scale.

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## Crossing points

An axis crossing point lets you move the primary X axis to a point on the Y axis. Values that exceed the crossing point are plotted above the crossing point (in **Column** charts) or to the right (in **Bar** charts). Values that don’t reach the crossing point are plotted below or to the left of the threshold. The images below show **Column** and **Bar** charts with the crossing point set to **20** on the Y (value) axis. The first item, at **15**, falls short of the crossing point and is therefore plotted in the opposite direction to the other items whose values exceed **20**.

Crossing points can be useful in charts where you want to quickly convey where items have exceeded, or fell short of, some threshold or target, for example, project costs per month against a budget.

To move the X axis to a crossing point, go to the **Axis Collection Editor**:

#### [Chart Layout Settings dialog box](#_bookmark39) > [Chart Area Collection Editor](#_bookmark40) > [Axis Collection Editor](#_bookmark41)

Then, with the primary Y axis selected, use the **Crossing** axis property in the **Scale** group to set the crossing point to a point on the Y axis. The primary X axis will be located at that point.

**Note:** When **Crossing** is set, the axis labels and cross marks move with the axis. To move them back to the edge of the chart area, for the axis concerned (that is, ***not*** the axis that you set the **Crossing** property for), set the **IsMarksNextToAxis** setting in the **Appearance** group to **False**. You may also want to set the **LineWidth** setting (also in the **Appearance** group) to **zero** to remove the line that appears at the crossing point.

For clarity this section has covered moving the primary X axis. However, all axes can have crossing points.

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## Historical charts

Element fields can be configured to store their historical values (a change history). The **Assign**

setting on a General chart’s **Content** tab can be set to **Historical**. This lets you plot this history. When you set **Assign** to **Historical**, a **Configure settings** link is added to the **Content** tab.

Use this to configure what is shown, and the date range to use.

**To record historical values for a field**

Open an element, click the down arrow next to a value, and then click **View History**. This displays the **View History** dialog box where you can configure this.

## Using Aggregation matrices with General charts

You can use General charts to display information from Aggregation matrices. To do this, on the General chart’s flip side, set **Information shown** to an Aggregation matrix. When you do this, the **Assign** setting automatically sets itself to **Aggregation**. You then have to decide whether the chart’s data series are taken from the Aggregation matrix rows or columns. This is the **Series taken from** setting. It defaults to **Rows**.

As the content and structure of Aggregation matrices can vary greatly, you will need to experiment with your General chart’s settings and configuration to get the best representation of your data. For example, as an illustration, consider a chart based on the following Aggregation matrix:

This has:

* Elements as rows (**Athena**, **Minerva**, and **Porus**)
* Facts as columns (**Cost**, **Revenue**, and **Profit per day**) On a General chart, you get:

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|  |  |
| --- | --- |
| **Series taken from** set to **Rows**: | **Series taken from** set to **Columns**: |



A legend has been added to these examples to show you what the data series are. In the first chart, they are the elements. In the second, they are the facts.

These charts also illustrate another consideration you might have when choosing a format, that is, the scale. In both charts, **Profit per day** is miniscule compared to **Cost** and **Revenue**, and barely registers on either chart. One solution is to use a secondary Y axis. However, this solution is only viable for the second chart. This is because secondary axes plot data series, and only the second chart has **Profit per day** as a data series. Doing this, you could get a chart like the following:

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See [*Plotting a data series against a secondary Y axis (different scales)*](#_bookmark18) on page [22](#_bookmark18) for instructions on doing this.

The preceding image also demonstrates these other features:

* Grid lines have been removed. See [*Grid lines*](#_bookmark19) on page [23](#_bookmark19) for details.
* A legend has been added. See [*Legends*](#_bookmark23) on page [25](#_bookmark23) for details.
* Titles have been added against the axis. This can be particularly helpful when the axes use different scales. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for details (the **Title** properties).
* The column appearance has been set to **Cylinder**, as shown in the image next.

This is an example of one of the many settings available within the **Chart Layout Settings** dialog box that you might want to experiment with.

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# Reference

This section provides reference material on:

* The [General chart’s panel.](#_bookmark34) The chart’s flip side has three settings tabs.

#### [Content](#_bookmark35)

* + [**Inputs**](#_bookmark36)
	+ [**Results**](#_bookmark37)
* The [**Style** and **Web**](#_bookmark38) tabs on the ribbon.
* [The **Chart Layout Settings** dialog box](#_bookmark39) available from the ribbon. Use this to more closely configure the chart itself. It includes a representation of how a chart is likely to appear on the model.

**Note:** As a general rule when configuring any chart, you should regularly confirm that the model shows what you want and not rely entirely on the preview. Some functionality that is previewed is not supported on the actual model.

Configuring layout can involve Collection Editor dialog boxes which, in turn, can lead to others (shown nested). The following are covered:

#### [Chart Area Collection Editor](#_bookmark40)

* + - [**Axis Collection Editor**](#_bookmark41)
	+ [**Legend Collection Editor**](#_bookmark42)
		- [**Legend Cell Column Collection Editor**](#_bookmark43)
	+ [**Series Collection Editor**](#_bookmark44)
	+ [**Title Collection Editor**](#_bookmark45)

**Note: *Collection*** indicates that you can have more than one of these items. When you click the item, a ***More*** button appears (the **…** button). Use this to open the Collection Editor.



Only the widely used Collection Editors are covered in this guide.

## The General chart’s panel

When you flip a General chart, it has three settings tabs:

#### [Content](#_bookmark35)

* [**Inputs**](#_bookmark36)
* [**Results**](#_bookmark37)

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### The Content tab

Use this to set the chart’s starting point and initial layout.

|  |  |
| --- | --- |
| **Content** |  |
| **Subject of panel** | Drag the pin to the subject element that the chart will get its content from. Once pinned to an element, this property shows its name. To unpin the chart, drag the pin onto white space. When unpinned, the subject element is the model’s element. This is also the default. |
| **Information shown** | Specifies what content from the subject element will be included in the chart. This opens a **Select Content** dialog box for the subject element. Use this to select the required content.Once set to content that includes a number of elements, the [**Results** tab](#_bookmark37) lists the individual elements that will appear in your chart. You can use this tab to remove elements and change their sequence, for example, to ensure that certain elements appear side by side. If the selected content makes the **Results** tab irrelevant, it displays a message saying so. For example, the **Results** tab won’t show anything when **Information shown** is set to an Aggregation matrix.The **Select Content** dialog box includes a setting **I want to add elements manually**. If selected, **Information shown** is set to **Elements** and an **Add and remove elements from this panel** link is added.If you set **Information shown** to a query or Aggregation matrix, an **Edit this** link is added, and the [**Inputs** tab](#_bookmark36) will include fields for any variables required. |
| **Show data table** | Use this to see a table of the data that will be used in the chart. This helps you select the correct content. |
| **Data Filter – *May not appear*** |
| **Select a filter** | If you have this section on your tab, you have an optional component that allows you to use SQL to filter the input to a chart. This advanced usage is not documented here. For most users, using a query to filter the content, or the **Results** tab to exclude content, will be sufficient. |
| **Assign elements to the graph** |
| **Assign** | Use this to set the chart’s basic column layout. This defines what is plotted against each axis. Choose from:* **Elements**. The X axis plots elements and the Y axis plots field values. This type of chart can plot multiple data series against the elements on the X axis.
* **Pivot**. The X axis plots fields and the Y axis plots the values of those fields. In this type of chart, the data series are items on the X axis.
* **Historical**. For elements configured to store historical values (a

change history), this type of chart plots dates/times on the X axis and field values on the Y axis. When selected, a **Configure** |

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|  |  |
| --- | --- |
|  | **settings** link is added immediately below. Use this to set the date range for the historical data. See [*Historical charts*](#_bookmark31) on page [33](#_bookmark31) for more details.* **Scatter**. Both the X and Y axis plot values. The density and location of plotted points can indicate the relationship (or lack thereof) between two items.
* **Aggregation**. Plots content from an Aggregation matrix. If **Information shown** is set to an Aggregation matrix, this is selected automatically. See [*Using Aggregation matrices with the General chart*](#_bookmark32) on page [33](#_bookmark32) for more details.

**Note:** Once the basic chart is defined, you can use the [**Chart**](#_bookmark39)[**Layout Settings**](#_bookmark39) dialog box to customize this starting layout. This can be minor changes, or a fundamental reworking. |
| **Series taken from** | When **Information shown** is set to an Aggregation matrix, use this to specify what is used as data series in the chart.When this field appears and you are not using an Aggregation matrix, the setting relates to the name of the series. The default is **Element names**. If you set this to **Column values**, when you click **Select fields**, the **Select Content** dialog box lets you set a name for each data series. |
| **Select fields...** | Opens the **Select Content** dialog box. Use this to set the data series that will be plotted on the chart. This is content from the subject element. For example, if your chart shows projects, this could be the fields that hold project costs such as estimated cost and actual cost. These fields would then appear as data series on the chart.The **Select Content** dialog box will vary slightly depending on the **Assign** and **Series taken from** settings. For example, if **Assign** is set to **Scatter**, the **Select Content** dialog box lets you set the source for the X and Y values in each series. |
| **Publishing — Active Enterprise only** |
| **Published tooltips...** | Use this to enable and format data point tooltips when displayed in Active Enterprise. For example:PublishedTooltips.pngThis opens the **Published Tooltips** dialog box, shown next: |

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|  |  |
| --- | --- |
|  | PublishedTooltipsDialog.png |

### The Inputs tab

Use this to configure refresh options in Active Enterprise.

|  |  |
| --- | --- |
| **Inputs** |  |
| **Refresh when the pinned Action Panel is clicked** | If pinned to a button, only refresh the chart when that button is used. Any input value changes are not applied to the chart until the button is used. You can only pin this to a button. |
| **Refresh when the page loads** | By default, this is always set and can only be unset when you have a pinned **Refresh** button. When unset, the page will not refresh on load, and is only refreshed when the **Refresh** button is clicked. |
| **Refresh when any input changes** | By default, this is always set and can only be unset when you have a pinned **Refresh** button. When unset, the page will not refresh when an input to the chart changes, and is only refreshed when the **Refresh** button is clicked. |
|  |

**Note:** If your chart is based something that takes a variable, the **Inputs** tab will include additional **Variable** fields.

### The Results tab

Use this to manually control the elements that appear on the chart’s X axis, and their sequence. This tab’s appearance depends on whether elements are manually or automatically added (the **Information shown** setting on [the **Content** tab](#_bookmark35)). If automatically added content means that the **Results** tab is irrelevant, the tab displays a message saying so.

|  |  |
| --- | --- |
| **Results** |  |
| **Sort results manually** | If selected, the elements have been manually sorted. You can drag elements and change their position within the sequence. This is their order on the chart’s X axis.If you clear **Sort Results Manually**, the original sort order is restored. |
| **Add an element** | Use this to manually add elements. This is only available when**Information shown** on the **Content** tab is set to **Elements**. |

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|  |  |
| --- | --- |
|  | 15ResultsTabAddAnElement.pngClick the **Plus** button to get a list of elements. You can only add elements one by one. |
| *Result list* | This area lists the elements that will be included in the chart. Its appearance depends on how the elements were added:* Elements added automatically appear with checkboxes next to them:

ResultsAutomatic.png* Manually added elements have a **Delete** button:

ResultsManual.pngIf you clear or delete an element, it won’t be shown in the chart. **Delete**only removes the element from the list.You can drag elements up and down the list. This changes their position on the chart’s X axis. To reset the sequence, clear the **Sort Results Manually** checkbox. |

## The Style, Settings and Web tabs (on the ribbon)

Specific General chart settings appear on the ribbon, under **Panel**, on the **Style** and **Settings**

tabs, and for Active Enterprise, on the **Web** tab.

|  |  |
| --- | --- |
| **Style** |  |
| **Chart group** |
| ChartCommandGroupRibbon.png |
| **Layout** | Use this to open the [**Chart Layout Settings**](#_bookmark39) dialog box. |
| **Template XML** | Use this to open the **Configure Chart XML** dialog box. See [Chart](#_bookmark46) [template XML](#_bookmark46) on page [45](#_bookmark46) for details. |
| **Point Labels group** |
| PointLabelsCommandGroupShowLabelsSelected.png |
| **Show Labels** | Select this to add data point labels. Y values are shown by default, but you can use the remaining three settings to alter this. |

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|  |  |
| --- | --- |
| **Show Name** | Includes the item’s name. For example, the element’s name if the X axis plots elements. |
| **Show X Value** | Includes the X axis value. This is only relevant for charts that plot values along the X axis. If the chart plots elements, this will insert 0. |
| **Show Y Value** | Include or exclude the Y axis value. |

The **Settings** tab contains a single command called **Style**:

Use the top half of this button to display the **Naming Conventions** dialog box. Use the bottom half to also display this dialog box, or to turn the display of element names on and off.



|  |  |
| --- | --- |
| **Web** |  |
| **Element Behaviour group** |
| **Allow Navigation** | Makes the General chart interactive when viewed in Active Enterprise. |
| **Allow Editing** | If selected, users can flip the chart in Active Enterprise and edit its values. For example:EditableWhenPublished.pngThe triangle icon within a cell indicates that that value has been changed but not saved. When the chart is flipped back, it updates to reflect the updated values. |
| **Allow Scrolling** and **Fixed Headers** | Do not apply to the General chart. |

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## The Chart Layout Settings dialog box

Opened from the **Layout** command on the ribbon:

Use this to manually configure the appearance of the selected General chart. This dialog box lets you access a series of ***Collection Editors*** that allow you to configure the appearance of specific chart components, such as titles and legends.

**Note:** The **Chart Layout Settings** dialog box is highly detailed. Only significant or problematic properties and settings are included in the reference material below.

|  |
| --- |
|  |
| **Chart Layout** |
| This area shows a preview of how your chart is likely to appear on your model. As you configure the chart this preview updates itself (when you click out of a setting field).As a general rule when configuring any chart, you should regularly confirm that the model shows what you want, and not rely entirely on the preview. Some functionality that is previewed is not supported on the actual model. Where possible, this is noted. |
| **Appearance** |
| This collection of settings affects the appearance of the chart as a whole. |
| **Cursor** | Not implemented. Regardless of this setting, the default cursor is used. |
| **RightToLeft** | Not implemented. To change the order of items in a legend, you need to manually create the legend table. See [*Manually creating a legend table*](#_bookmark24)on page [26](#_bookmark24) for details. |
| **Text** | Not implemented. If you want to change the chart’s titles or legends, use the Collection settings listed under **Chart**. Anything you enter in this **Text** field is not saved. |
| **Chart** |
| This group lists Collection Editors. ***Collection*** indicates that you can have more than one of these items. When you click the item, a **...** button appears as shown below. Use this to open the Collection Editor.CollectionEditors.png |

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|  |  |
| --- | --- |
| **Annotations** | Opens the **Annotation Collection Editor**. This dialog box is not functional and annotations are not relevant to General charts in MooD. |
| **ChartAreas** | Opens the [**Chart Area Collection Editor**](#_bookmark40) from which you can open the[**Axis Collection Editor**](#_bookmark41). |
| **Legends** | Opens the [**Legend Collection Editor**](#_bookmark42) from which you can open the[**Legend Cell Column Collection Editor**](#_bookmark43). |
| **Series** | Opens the [**Series Collection Editor**](#_bookmark44). |
| **Titles** | Opens the [**Title Collection Editor**](#_bookmark45). |

## The Chart Area Collection Editor

Opened from the **Chart Areas** link in the **Chart** group on the **Chart Layout Settings** dialog box, use this to configure the chart area. This is the area within which the chart is plotted. By default, charts have a single chart area. However, you can have multiple chart areas.

Each area can be individually configured using the **Chart Area Collection Editor**. Chart area properties can be listed alphabetically or by group (the default). If a property has been set manually, its setting appears in a bold font.

**Note:** To quickly see if a chart has manual settings, use the **Template XML** command on the ribbon (the **Style** tab). Manual settings are stored as XML.

Use the **Chart Area Collection Editor** to:

* Make charts appear 3-dimensional. See [*3D charts*](#_bookmark28) on page [30](#_bookmark28) for details.
* Create multiple chart areas, each plotting one or more data series. See [*Multiple chart areas*](#_bookmark29) on page [31](#_bookmark29) for details.
* Access the [**Axis Collection Editor**](#_bookmark41). Each chart area has its own set of axes.

### The Axis Collection Editor

Opened from the **Axes** link in the **Axes** group in the [**Chart Area Collection Editor**](#_bookmark40), use this to configure the X and Y axes for the selected chart area. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for general details.

Each axis can be individually configured using the **Axis Collection Editor**. Axis properties can be listed alphabetically or by group (the default). If a property has been set manually, its setting appears in a bold font.

**Note:** To quickly see if a chart has manual settings, use the **Template XML** command on the ribbon (the **Style** tab). Manual settings are stored as XML.

Use the **Axis Collection Editor** to:

* Add and format an axis title. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for details.
* Access the **Custom Label Collection Editor** (click **CustomLabels** in the **Labels** group of properties) and set the labels used for the elements on that axis. See [*Data series labels*](#_bookmark21) on page [24](#_bookmark21) for details.
* Add secondary axis. See [*Secondary axes*](#_bookmark17) on page [22](#_bookmark17) for details.

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* Remove or alter the background grid. Use the **MajorGrid** and **MajorTickMark** axis properties. See [*Grid lines*](#_bookmark19) on page [23](#_bookmark19) for more details.
* Create charts that use a crossing point. See [*Crossing points*](#_bookmark30) on page [32](#_bookmark30) for details.
* Manually control the axis scale overriding the default settings which are designed to automatically accommodate the data series being plotted. See [*Axes*](#_bookmark16) on page [19](#_bookmark16) for details. This section also includes details on the **IsMarginVisible**, **IsReversed** and **ScaleBreakStyle** properties. Respectively, use these to remove the space padding on the X axis, reverse a chart’s axis, and to cater for data with large value differentials.

## The Legend Collection Editor

Opened from the **Legends** link in the **Chart** group on the **Chart Layout Settings** dialog box, use this to add a legend table to a chart. By default, a General chart does not show legends. In charts with multiple data series, legends show which colour represents which data series.

Legends properties can be listed alphabetically or by group (the default). If a property has been set manually, its setting appears in a bold font.

**Note:** To quickly see if a chart has manual settings, use the **Template XML** command on the ribbon (the **Style** tab). Manual settings are stored as XML.

Use the **Legend Collection Editor** to:

* Add a default legend table, and then format it by, for example, adding a title and positioning it within the chart area itself. See [*Legends*](#_bookmark23) on page [25](#_bookmark23) for details.
* Create your own legend table. The default legend table has two columns. You can create your own legend table, for example, one with three columns where the third column uses a keyword to show the percentage of the total that a data series represents. See [*Manually creating a legend table*](#_bookmark24) on page [26](#_bookmark24) for details.

### The Legend Cell Column Collection Editor

Opened from the **CellColumns** link in the **CellColumns** group in the [**Legend Collection**](#_bookmark42)[**Editor**](#_bookmark42), use this to manually configure a legend by adding each of the columns you want to appear in the legend table. See [*Manually creating a legend table*](#_bookmark24) on page [26](#_bookmark24) for specific instructions and [*Legends*](#_bookmark23) (page [25](#_bookmark23)) for more general details.

## The Series Collection Editor

Opened from the **Series** link in the **Chart** group on the [**Chart Layout Settings** dialog box](#_bookmark39), use this to configure each data series that appears in the chart. A data series is a piece of information plotted in the chart, for example, you could have one data series for estimated costs, and one data series for actual costs. Each data series has data points (Y values or columns) plotted against the elements on the X axis. See [*Data series*](#_bookmark20) on page [23](#_bookmark20) for an example.

**Important:** Do not attempt to add data series in the **Series Collection Editor**. Any data series added there will not appear in your model. The **Add** button, whilst appearing to work, does not. To add data series, you must use the **Select Fields** link on the chart’s [**Content** tab](#_bookmark35).

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You can have any number of data series, and each series can be individually configured using the **Series Collection Editor**. Series properties can be listed alphabetically or by group (the default). If a property has been set manually, its setting appears in a bold font.

**Note:** To quickly see if a chart has manual settings, use the **Template XML** command on the ribbon (the **Style** tab). Manual settings are stored as XML.

Use the **Series Collection Editor** to:

* Set the chart type, for example, change from the default Column chart to a Pie chart. **ChartType** is a property of each series, and charts can mix compatible types such as Column and Line. See [*Chart type*](#_bookmark15) on page [18](#_bookmark15) for details.
* Change the order of data series. See [*Data series order and colour*](#_bookmark22) on page [24](#_bookmark22) for details.
* Plot a data series against a secondary Y axis. Use the **YAxisType** series property in the **Axis** group. See [*Plotting a data series against a secondary Y axis*](#_bookmark18) on page [22](#_bookmark18) for details.
* If you have more than one chart area, assign data series to another area. Use the **ChartArea** series property in the **Chart** group. See [*Multiple chart areas*](#_bookmark29) on page [31](#_bookmark29) for more details.

**Important:** Although you can access a **Data Point Collection Editor** from the **Series Collection Editor**, it is not functional. If you want to control data point labels, use the **Show Labels** command on the ribbon (the **Style** tab), or manually create them. See [*Data point labels*](#_bookmark25) on page [28](#_bookmark25) for details.

## The Title Collection Editor

Opened from the **Titles** link in the **Chart** group on the [**Chart Layout Settings** dialog box](#_bookmark39), use this to add and position one or more titles. See [*Chart titles*](#_bookmark14) on page [17](#_bookmark14) for details.

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# Chart template XML

The ribbon includes a **Template XML** command on the **Style** tab (the chart must be selected):



This displays the **Configure Chart XML** dialog box. For example:

Chart layout settings that change the defaults are stored and applied as XML. You can save and load different XML files, and thereby reuse particular configurations.

You can also directly edit this XML. You must exercise caution. If you edit the XML and break the syntax, you will get an error when you next flip the chart. If you edit the XML, click **OK** to save the changes. The **Save** button is for saving the XML to a file.

**Note:** If you edit series formatting, the XML includes identifiers to the fields used in those series. This affects how reusable such XML is.

|  |
| --- |
| **Tip – Restoring a chart to its default formatting** |
| A quick way to restore a chart to its default formatting is to delete the content of the **Configure Chart XML** dialog box. |

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# Keywords

Each time a chart is displayed or refreshed, keywords are updated to show their current value in the MooD repository.

You can use keywords within:

* Manually created data point labels. This is the **Label** series property in the **Series Collection Editor**. See [*Manually creating data point labels*](#_bookmark27) on page [29](#_bookmark27) for details.
* Manually created data series legends. This is the **Text** cell property in the **Legend Cell Column Collection Editor**. See [*Manually creating a legend table*](#_bookmark24) on page [26](#_bookmark24) for details.

**Note:** If you use the **Show Labels** setting on the ribbon to implement data point labels, or use the chart’s default legends, you cannot use keywords. You can only use keywords when you manually create these items.

You can include formatting characters in keywords and combine them with standard text. The following tables list keywords and formatting respectively.

#### Table 1. Keywords

|  |  |  |
| --- | --- | --- |
| **Keyword** | **Result** | **Applies To** |
| #VALX | X value of a data point. | Data points |
| #VAL, #VALY,#VALY2, #VALY3,... | Y value of the data point. | Data points |
| #SERIESNAME | Data series name. | Data points and Series |
| #LEGENDTEXT | Data series property **LegendText** if set. This property is used when you want the legend to use a name other than the data series name. | Data points and Series. |
| #LABEL | Data point label. | Data points |
| #AXISLABEL | Axis data point label. | Data points |
| #INDEX | Data point index. | Data points |
| #PERCENT | The percentage of the series total that a data point represents. This can be particularly helpful on pie charts to show the percentage each slice is. | Data points |
| #TOTAL | The total of all the Y values in a data series. | Series |
| #AVG | The average of all the Y values in a data series. | Series |
| #MIN | The minimum data point Y value in a data series. | Series |
| #MAX | The maximum data point Y value in a data series. | Series |
| #FIRST | First data point value of all Y values in the series. | Series |
| #LAST | Last data point value of all Y values in the series. | Series |

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#### Table 2. Keyword formatting

|  |  |
| --- | --- |
| **Formatting** |  |
| \n | Inserts a new line into the text. |
| {N*x*} | To the x number of decimal places. For example, #AVG{N2} will show an average to 2 decimal places. |
| {C} | As a currency. For example, #VAL{C} will show values as a currency, for example, £44.00. Use {C0} for just £44. The currency type is derived from the locale of your PC.If you want to use a currency symbol that is not derived from your locale, include the currency symbol, for example, $#VAL |

## Examples

Here are some examples:

* #VAL\n#PERCENT

Gives the data point value, then on a new line, the percentage that that data value represents in the entire data series, for example:

* #AVG{N2}

Gives the average value of a data series to 2 decimal places, for example, in a legend:

* #VAL{C0} million

Gives the value as a whole number of £s (assuming a UK locale) but with the text million included in the label, for example:

**Note:** $#VAL{N0} million

Gives the value as a whole number of dollars (if you do not want to use the currency {C} format character).

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