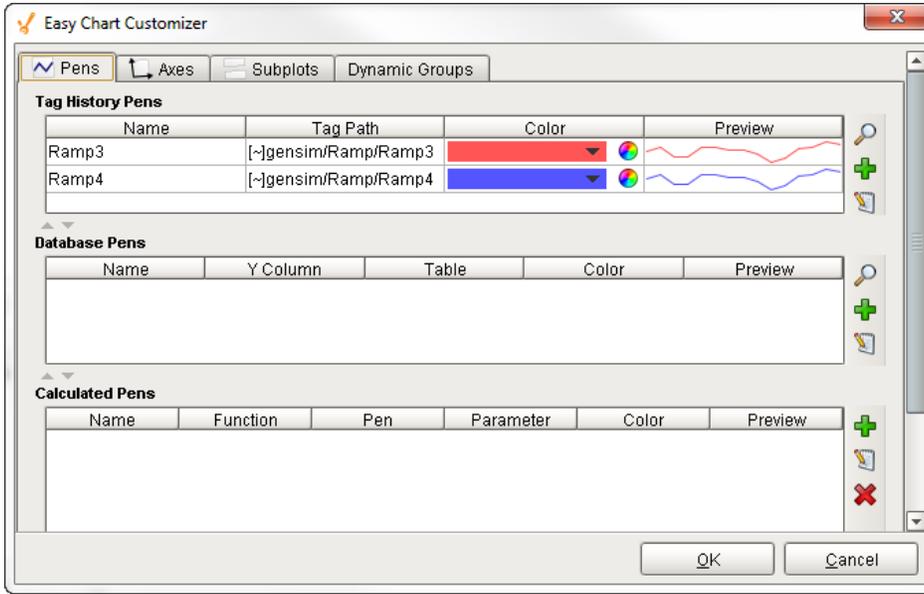


# Vision - Easy Chart Customizer



## Description

The **Easy Chart** component allows you to display the history of your Tags on a chart. When you drag and drop Tags onto an Easy Chart, it automatically trends the data for you. It has a special customizer that has some default settings to help you get started.

## Customizers

The Easy Chart Customizer allows you to easily modify the chart to your own style. You can add pens and modify the contents of your pens, and create new axes, subplots, and pen groups. When you open the customizer, you'll notice four tabs at the top of the window: Pens, Axes, Subplots, and Dynamic Groups. Each have their own properties.

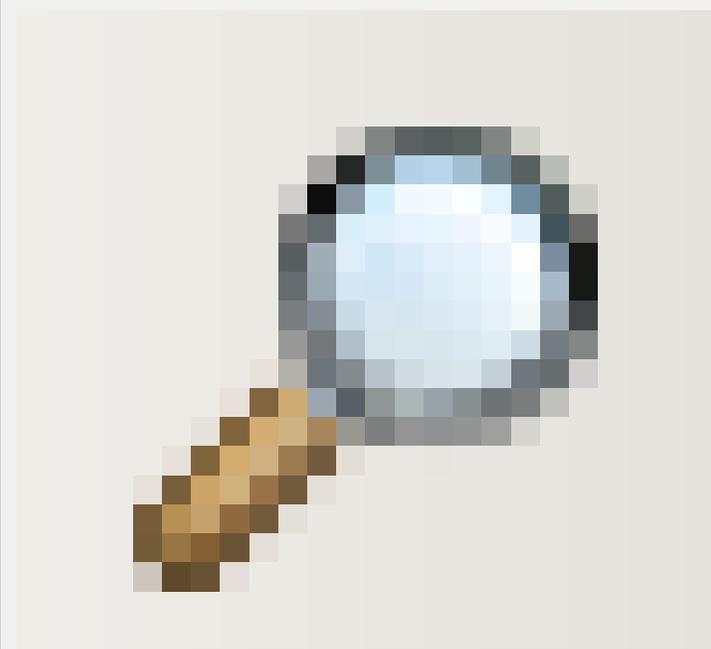
Shown below is each tab in the Easy Chart Customizer listing all its properties along with a brief description.

### ▼ Pens Tab

The Pens tab is where you can add new pens, create custom names for your pens, and group pens. There are three types of pens, and each functions in a similar manner, but what makes them different is how their data is collected. Each pen type has a few unique properties and is listed at the bottom of the table.

- **Tag pens** - Pens are driven by the Tag history system. (Data from any historical provider can be used).
- **Database pens** - Pens that are driven by an SQL query. They can query for data in any connected SQL database.
- **Calculated pens** - Pens that derive their data from calculations performed on other pens.

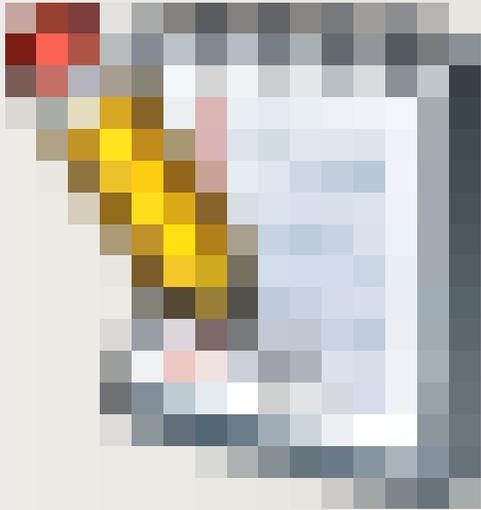
Property	Description
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Add pen (Browse for Tags).



Add a pen manually.

	<p>Edit pen.</p>
	<p>Delete pen.</p>
<p><b>Edit Pen Panel</b></p>	<p>Contains all the editable fields for the pen row selected.</p>
<p>Name</p>	<p>The name of the pen is what the user will see in the legend and the pen panel.</p>
<p>Enabled</p>	<p>If false, this pen will not show up on the chart and the data will not be generated. The user will be able to enable it via the pen control panel.</p>
<p>Hidden</p>	<p>If true, the pen will not show up on the chart or the pen control panel. The data will be generated.</p>
<p>User Selectable</p>	<p>If false, the pen will show up on the chart, but not the pen control panel.</p>
<p>Axis</p>	<p>Select the Y axis this pen will use.</p>
<p>Subplot</p>	<p>Putting pens on separate subplots can increase chart clarity.</p>
<p>Group Name</p>	<p>The group name is used for logical grouping in the pen panel and for advanced dynamic grouping.</p>
<p>Digital Offset</p>	<p>If true, a small gap will be placed between this and other digital pens so they don't overlap each other.</p>
<p>Color</p>	<p>Pen color.</p>
<p>Style</p>	<p>The style of the pen determines how it looks in the chart.</p>
<p>Dash Pattern</p>	<p>Uses a dash pattern like "5,5" to specify 5 pixels on, 5 pixels off.</p>
<p>Line Weight</p>	<p>The thickness of the pen's line.</p>

Shape	If the renderer style uses shapes, this will be the shape for each point.
Fill Shape	If true, the shape will be filled in rather than an outline.
Labels	If true, shows a label of the value above each bar.
Preview	Field where you can view the pen style.
<b>Tag History Pens Properties</b>	
Tag Path	String-based path where the Tag is located.
Aggregation Mode	Type of calculation (i.e., Constant, UCL, UWL, Avg, LWL, LCL, MovingAvg, Multiply, Min, Max).
<b>Database Pens Properties</b>	
Volume Column	The name of the column for the pen's value (Y value).
Time Column	The name of the column for the pen's timestamp (X value).
Table Name	The name of the table where the pen will be found.
Datasource	The name of the datasource to use for this pen (MySQL).
Where Clause	You can specify a snippet of WHERE clause here, like "TankNum = 16."
Run Diagnostics	Test this pen for data configuration for validity.
<b>Calculated Pens Properties</b>	
Function	Function is the type of calculation (i.e., Constant, UCL, UWL, Avg, LWL, LCL, MovingAvg, Multiply, Min, Max).
Driving Pen	Dedicated pen that will drive the value.
Parameter	Value which is the horizontal line drawn on the graph. The parameter type can be different for the Function used: <ul style="list-style-type: none"> <li>• Constant Value - constant value of the pen.(Used with the Constant function).</li> <li>• Window Size - the size of the moving average window, specified as a multiplier of the chart's date range. It's the percentage of time that you're going to do the moving average on. (Used with MovingAvg function).</li> <li>• Factor - multiply by 'X' factor (Used with Multiply function).</li> <li>• Secondary pen - another pen added to the chart to show the sum and/or the difference. (Used with the Sum and Difference functions).</li> </ul>

✓ [Pen Examples](#)

**Edit Pen Panel for Tag History Pens**

**Edit Pen**

General		Style	
Name	<input type="text" value="Ramp4"/>	Color	<input type="color" value="#0000FF"/>
Enabled	<input checked="" type="checkbox"/> true	Style	<input type="text" value="Line w/ Gaps"/>
Hidden	<input type="checkbox"/> false	Dash Pattern	<input type="text" value=""/>
User Selectable	<input checked="" type="checkbox"/> true	Line Weight	<input type="text" value="1"/>
Axis	<input type="text" value="Default Axis"/>	Shape	<input type="text" value="■"/>
Subplot	<input type="text" value="1"/>	Fill Shape?	<input checked="" type="checkbox"/> true
Group Name	<input type="text" value=""/>	Labels	<input type="checkbox"/> false
Digital Offset	<input type="checkbox"/> false	Preview	

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**Data**

Tag Path

Aggregation Mode

**Edit Pen Panel for Database Pens**

**Edit Pen**

General		Style	
Name	<input type="text" value="Test"/>	Color	<input type="color" value="#00FF00"/>
Enabled	<input checked="" type="checkbox"/> true	Style	<input type="text" value="Line w/ Gaps"/>
Hidden	<input type="checkbox"/> false	Dash Pattern	<input type="text" value=""/>
User Selectable	<input checked="" type="checkbox"/> true	Line Weight	<input type="text" value="1"/>
Axis	<input type="text" value="Default Axis"/>	Shape	<input type="text" value="■"/>
Subplot	<input type="text" value="1"/>	Fill Shape?	<input checked="" type="checkbox"/> true
Group Name	<input type="text" value=""/>	Labels	<input type="checkbox"/> false
Digital Offset	<input type="checkbox"/> false	Preview	

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**Data**

Value Column  Table Name

Time Column  Datasource

Where Clause

## Edit Pen Panel for Calculated Pens

**Edit Pen**

**General**

Name: High SP

Enabled:  true

Hidden:  false

User Selectable:  true

Axis: Default Axis

Subplot: 1

Group Name:

Digital Offset:  false

**Style**

Color: [Magenta]

Style: Line w/ Gaps

Dash Pattern:

Line Weight: 1

Shape: [Square]

Fill Shape?:  true

Labels:  false

Preview: [Magenta line with gaps]

**Data**

Function: Constant

Driving Pen: Ramp3

Constant Value: 200

OK Cancel

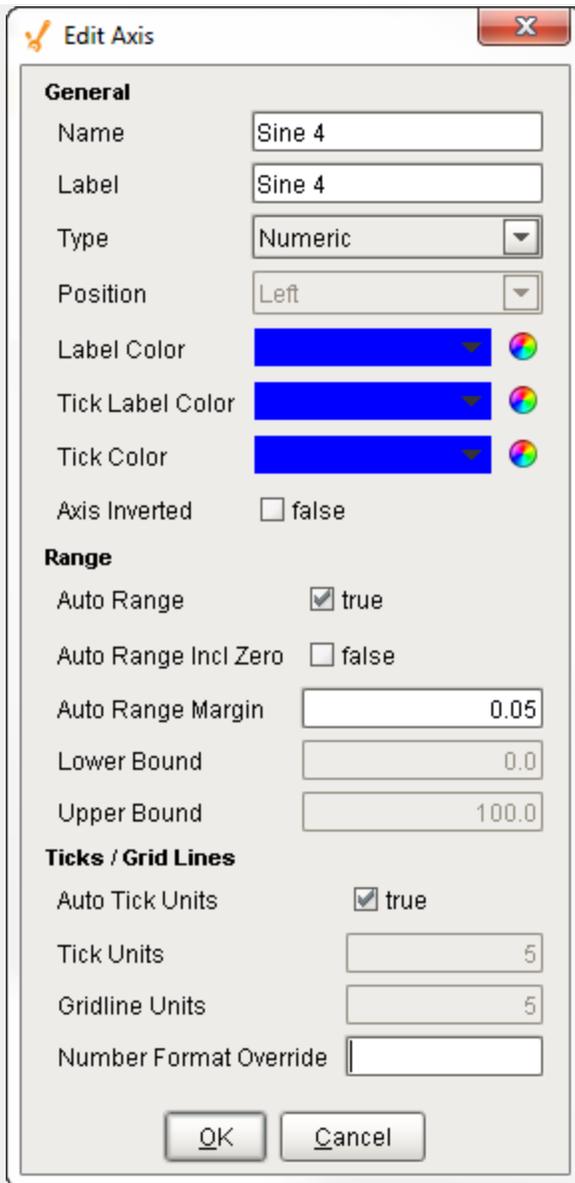
For more information, refer to the following sections:

- [Easy Chart - Pen Names and Groups](#)
- [Easy Chart - Calculated Pens](#)
- [Using the Vision - Easy Chart](#)

### ▼ Axes Tab

The Axes tab is where you can configure multiple axes on the Easy Chart component.

Property	Description
Name	The name of the axis is what pens use to refer to it.
Label	The label will be displayed on the chart next to the axis.
Type	The type of axis determines the plotting behavior. (i.e., Numeric, Logarithmic, Symbol)
Position	The position of the axis, if automatic, axis positioning is turned off.
Label Color	Color of the label.
Tick Label Color	Color of the tick label.
Tick Color	Color of the tick mark.
Axis Inverted	If true, inverts the axis.
Auto Range	If true, the axis will automatically scale itself to the data, rather than display a fixed range.
Auto Range Incl Zero	If true, forces the auto range to include zero.
Auto Range Margin	The extra margin (as percent of the total range) for the top and bottom of an auto range axis.
Lower Bound	The lower bound of a non-auto-ranging axis.
Upper Bound	The upper bound of a non-auto-ranging axis.
Auto Tick Units	If true, the distance between the tick marks and the gridlines will be automatically calculated rather than a fixed number.
Tick Units	If false, this amount will be used as the distance between tick marks.
Gridline Units	If false, this amount will be used as the distance between gridlines.
Number Form Override	Specifies a number format pattern to use for tick labels. Leave blank for automatic number formatting.

The image shows a software dialog box titled "Edit Axis" with a close button in the top right corner. The dialog is organized into three sections: "General", "Range", and "Ticks / Grid Lines".

**General**

- Name: Sine 4
- Label: Sine 4
- Type: Numeric
- Position: Left
- Label Color: Blue
- Tick Label Color: Blue
- Tick Color: Blue
- Axis Inverted:  false

**Range**

- Auto Range:  true
- Auto Range Incl Zero:  false
- Auto Range Margin: 0.05
- Lower Bound: 0.0
- Upper Bound: 100.0

**Ticks / Grid Lines**

- Auto Tick Units:  true
- Tick Units: 5
- Gridline Units: 5
- Number Format Override: (empty)

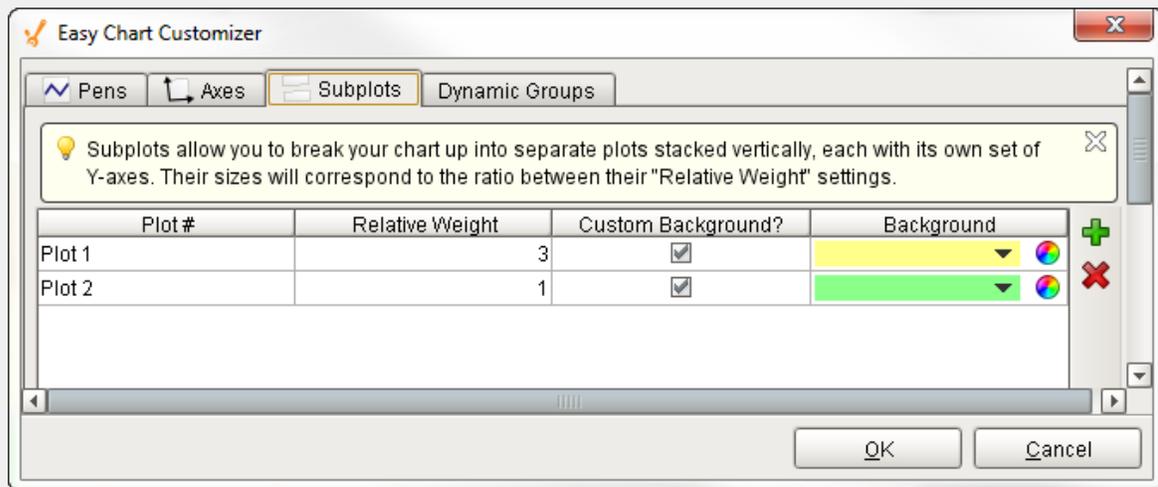
Buttons:

For more information, refer to the Easy Chart - Axes.

### Subplots Tab

The Subplot tab is where you can break up a chart's plot area into multiple distinct subplots that share the X axis, and also where you can add additional subplots.

Property	Description
Plot Number	Number of plots in a chart plot area.
Relative Weight	Ratio between all subplots. (If you have two subplots, and Plot 1's weight is 3 and Plot 2's weight is 1, then Plot 1 will be 3 times larger than Plot 2).
Custom Background	If false, the default background is white.
Background	Color of the plot area's background.



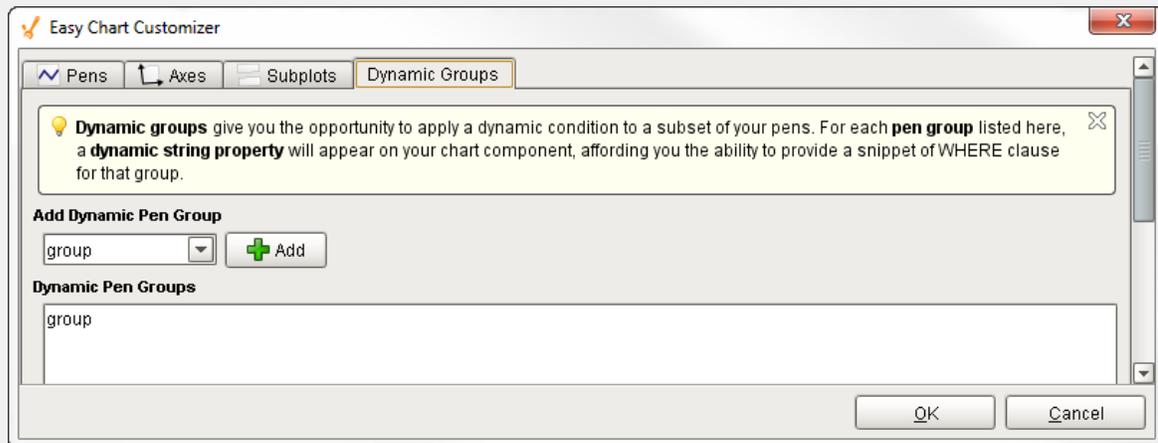
#### In the Pens Tab

Once you add a subplot, go to the Pens Tab, edit your pen, and put your pen into a different subplot.

For more information, go to [Easy Chart - Subplots](#).

#### Dynamic Groups Tab

Dynamic Groups are used with Database pens. They allow you to apply a dynamic condition, like using a WHERE clause, to a subset of pens. For each pen group, a dynamic string property will appear in the Property Editor under Custom Properties of your Easy Chart component. You can create a WHERE Clause that will search the database and return values if the pens meet a true condition.



#### Property Editor - Custom Properties - Where Clause for Dynamic Group Property



To learn more about Dynamic Groups, refer to the [Vision - Easy Chart](#) section.