

Description: An introduction to new features introduced in version 10.96 for the TrendWorX64 Viewer.

General Requirement: Basic knowledge of TrendWorX64 Viewer.

Introduction

This document gives you a quick introduction to some of the new features added to the TrendWorX64 Viewer in version 10.96, including:

- Stacked Plots
- Combined Plot Types
- Multiple Shared Axes
- Time Shift Pen
- Edit Trend Chart Command
- Enhanced Create Pen Command
- Alternate Background Colors
- Symmetric Auto Scale
- Sample Tooltips on Pie Slices and Bars
- Style Tab and Marker Size
- Improved Rendering Performance
- Dynamic Trend Range
- Custom Data in Legend
- Customizable Context Menu and New Refresh Action

Stacked Plots

Version 10.96 now allows you to use these stacked plot types within the TrendWorX64 Viewer.

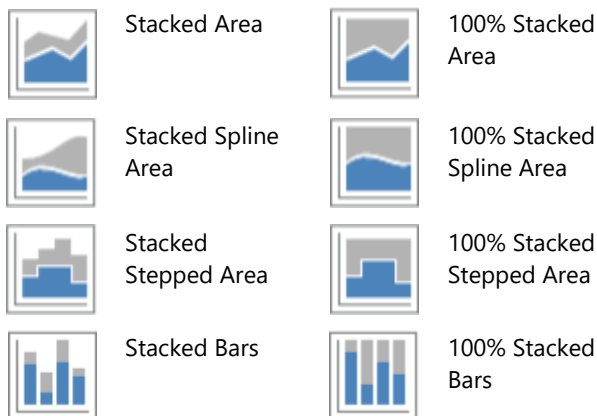


Figure 1 - Types of Stacked Plots

Below is an example of some of the stacked plots you can now use.

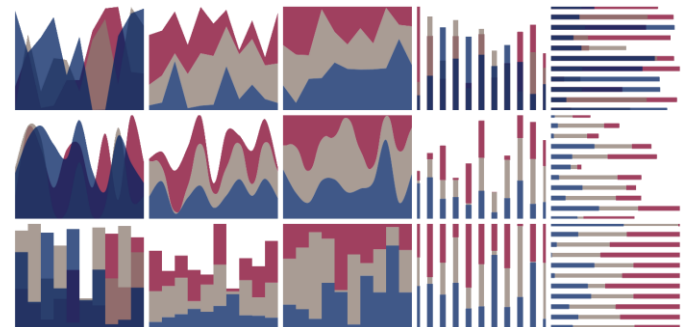


Figure 2 - Examples of Stacked Plots

Combined Plot Types

Users can now combine plot types in a single TrendWorX64 Viewer chart.

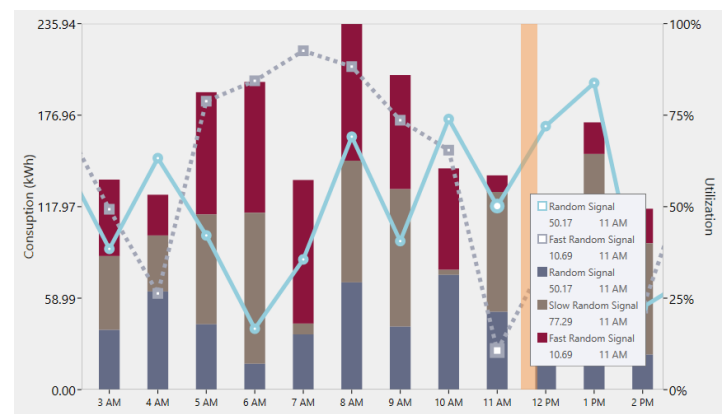


Figure 3 - Example TrendWorX64 Viewer with combined plot types

To configure multiple plot types, add more than one **plot** to your chart object in the tree. Set each plot with the plot type you would like to use and add pens to those plots.

Multiple Shared Axes

Users now can share an axis with multiple pens without using the global axis. Previously, the user had to choose between having all pens on one axis or each pen on their own axis.

To enable the shared value axis, configure the TrendWorX64 Viewer, select your chart in the tree, then go to the **Y Axis** tab.

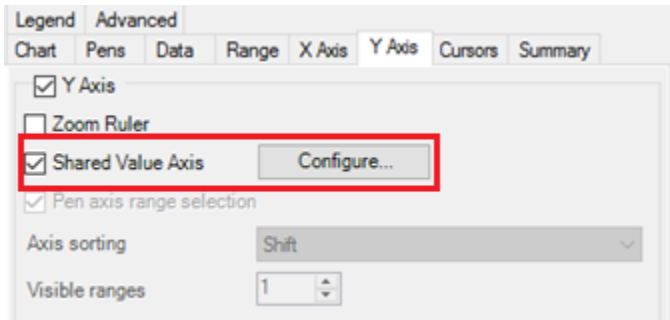


Figure 4 - Shared Value Axis setting

Check the Shared Value Axis box, then select Configure. In the dialog that opens, you will see a pre-created axis named Default Shared Axis. Pens that do not use an explicit axis will use these settings.

Use the plus button to add one or more shared axes. Select the axis and choose your axis settings below, such as the title and style.

When you are done configuring your axes, select OK.

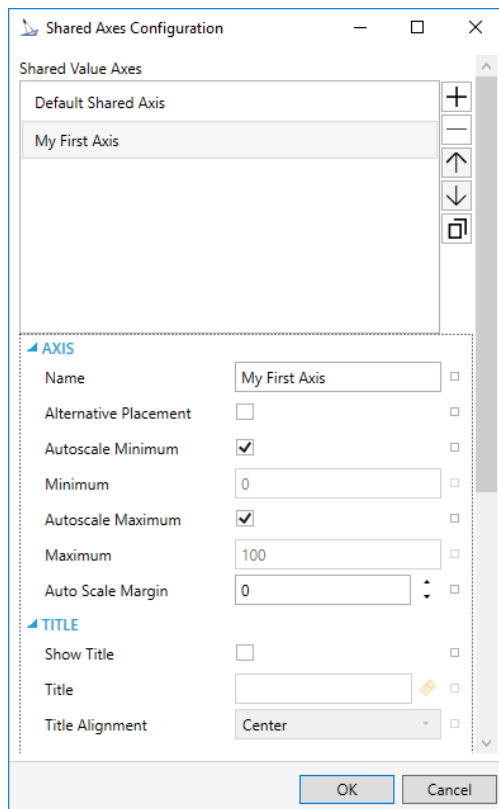


Figure 5 - Example Shared Axis

Select your pen in the tree and go to the Ranges tab. In the Shared Axis section, select the name of the axis you would like to use for this pen.

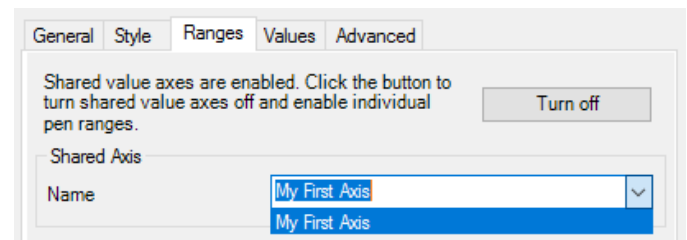


Figure 6 - Selecting a Shared Axis

The Create Pen and Edit Pen commands can now set a shared axis for the pen.

Time Shift Pen

You can now configure a pen to be shifted in time in the TrendWorX64 Viewer. This can allow you, for example, to compare time periods for the same pen, or compare pens from different batches starting from each batch's unique start time.

To configure the time shift for a pen, select the pen in the tree, go to the General tab, and fill in the Time Shift field. There is a '...' button with useful shortcuts. This button can also be used to access the data browser if you want to use a dynamic time shift.

The Time Shift field can support global aliases, tags, or expressions. Use the '...' button to see examples of proper syntax for the final time shift value.

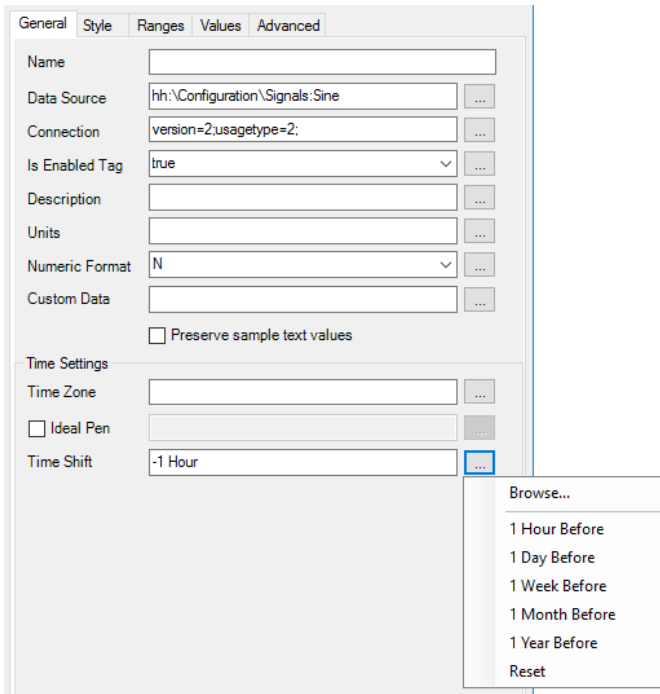


Figure 7 - Configuring Time Shift Pen

The Create Pen and Edit Pen commands can now set the Time Shift parameter.

Edit Trend Chart Command

Users can now use Commanding to edit various parts of a trend chart. This new command is called Edit Trend Chart. It can be used to dynamically modify a chart, such as when performing a drill-down.

When configuring the Edit Trend Chart command, first edit the SelectedProperties parameter, and check the properties of the chart you would like to change. Properties that are checked will then show up as additional parameters of the command.

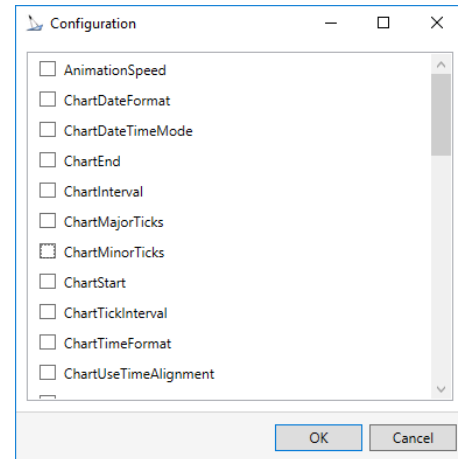


Figure 8 - Properties for the Edit Trend Chart Command

Below is a brief description of the different properties of a chart that you can change with the Edit Trend Chart command.

AnimationSpeed	Animation speed for trends in real-time mode.
ChartDateFormat	Date format of chart axis.
ChartDateTimeMode	Visibility of date and time components on chart axis.
ChartEnd	End time of trend chart.
ChartInterval	Time interval of trend chart. Always use singular for time unit (minute, hour, etc).
ChartMajorTicks	Major tick mark count on chart axis. Applies only if TimeAlignment is disabled.
ChartMinorTicks	Minor tick mark count on chart axis.
ChartStart	Start time of trend chart.
ChartTickInterval	Time interval of major tick marks on chart axis.
ChartTimeFormat	Time format of chart axis.
ChartUseTimeAlignment	Enables time alignment of major tick marks on chart axis.
HistoryReadRate	Desired historical request interval.
LegendPosition	Position for legend relative to trend chart.

LegendSize	Legend Area size.
SamplingInterval	Sampling interval in configuration format, e.g. "1 minute" or "10 second". Always use singular for time unit.
SamplingMethod	Data sampling method used to generate samples in trend charts.
SamplingMultiplier	Sample count per major tick mark. Effective only when SamplingMethod is set to Auto and UseTickMarkTimeAlignment is true.
SamplingTotalCount	Desired total count of samples for each pen in trend chart. Effective only when SamplingMethod is set to Count.
ShowCursorsIn FreezeMode	Show time cursor when chart is in freeze mode.
ShowCursorsIn Realtime	Show time cursor when chart is in realtime mode.
ShowGrid	Show chart grid lines.
ShowLegend	Show chart legend.
ShowOperator Comments	Show operator comments for pens.
ShowSampleTooltips	Show sample tooltips.
ShowSecondCursor	Show second time cursor in chart.
ShowSummary	Show summary chart.
SummaryDate Format	Date format of summary axis.
SummaryDate TimeMode	Visibility of date and time components on summary axis.
SummaryEnd	End time of summary chart.
SummaryInterval	Time interval of summary chart. Always use singular for time unit.
SummaryMajorTicks	Major tick mark count on summary axis. Applies only if TimeAlignment is disabled.
SummaryMinorTicks	Minor tick mark count on summary axis.

SummaryPosition	Position for summary chart relative to trend chart.
SummarySize	Summary chart area size.
SummaryStart	Start time of summary chart.
SummaryTickInterval	Enables time alignment of major tick marks on summary axis.
SummaryTimeFormat	Time format of summary axis.
SummaryUse TimeAlignment	Enables time alignment of major tick marks on summary axis.
TimeZonesAlignment	Enable to align all pens by time zone. Samples from different time zones are aligned to current time.
UseUTCTimeStamps	Show timestamps in UTC.
ZoomMode	Enables using the mouse to zoom.

Enhanced Create Pen Command

The Create Pen command has been enhanced with new properties, allowing even better control over your new pen. Like with the new Edit Trend Chart command, modify the SelectedProperties property to expose more properties in your command.

Alternate Background Colors

You can now alternate the background color stripes of your TrendWorX64 Viewer.

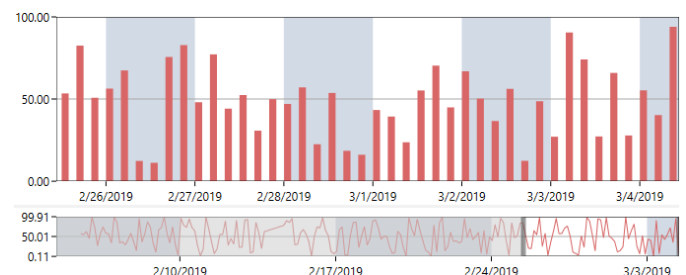


Figure 9 - Alternating Background Color Stripes

Select your chart in the tree and go to the Chart tab. Set the Alternate Plot Area color with the color of your stripes. This color and the standard Plot Area color will be alternated between major X grid lines. Both colors will also be used in the summary view.

If you do not wish to use the background striping, set the Alternate Plot Area to no color (the X next to the eyedropper in the color picker).

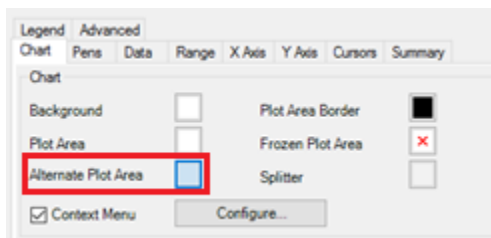


Figure 10 - Alternate Plot Area setting

Symmetric Auto Scale

On the Ranges tab of a pen, when both the minimum and maximum range are set to Auto Scale there is a new Symmetric Auto Scale option. Enabling this option will ensure that the minimum and maximum ranges are scaled symmetrically so that the zero point remains in the middle of the trend.

Note: This feature was first introduced in version 10.95.2, but not many users are aware of it, which is why it is mentioned here.

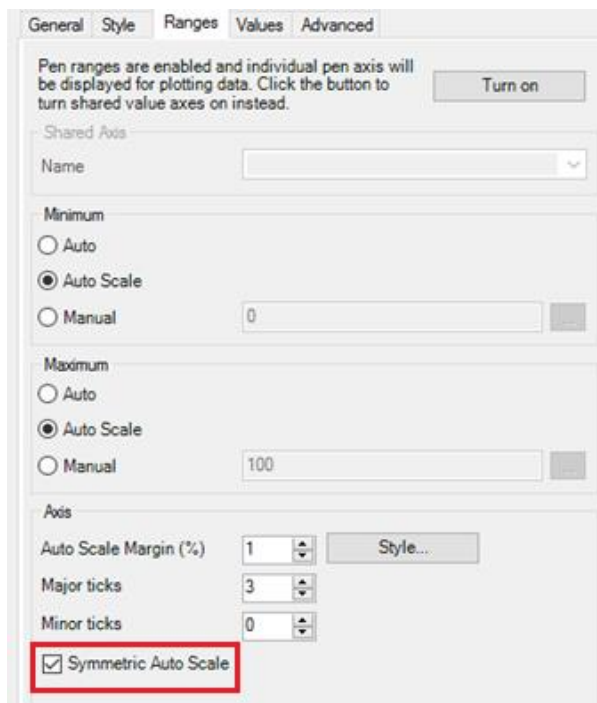


Figure 11 - Symmetric Auto Scale setting

Sample Tooltips on Pie Slices and Bars

New to Version 10.96 is the ability to hover over bar and pie charts to view sample tooltips. The bar or pie slice being hovered over will change color.

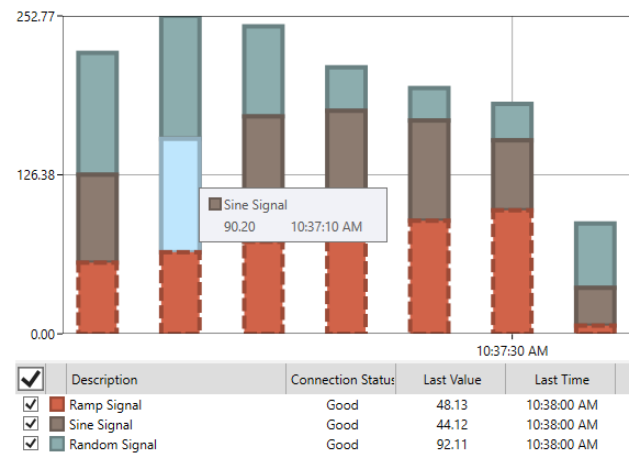


Figure 12 - Bar Chart showing sample tooltip

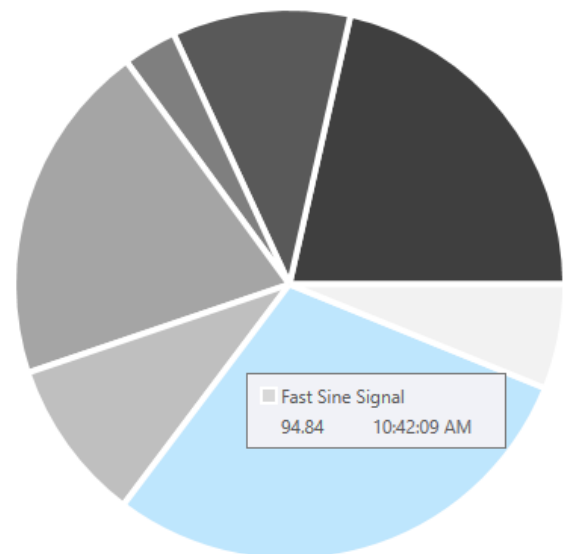


Figure 13 - Pie Chart showing sample tooltip

These tooltips are enabled by default. To disable, select your chart and go to the Pens tab. Uncheck "Show sample tooltips" in the "General Pen Settings" section.

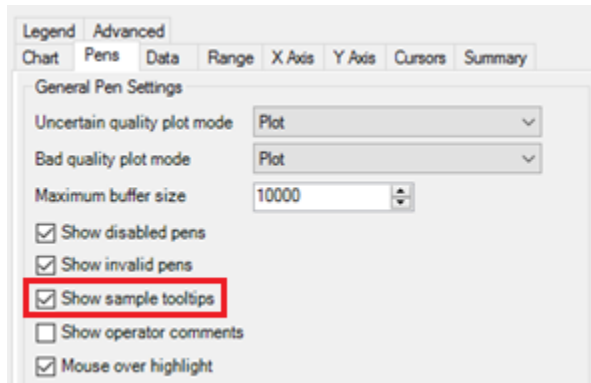


Figure 14 - Show sample tooltips setting

Style Tab and Marker Size

For pens, there is a new dedicated Style tab. Previously style information was on the General tab.

On the new Style tab, the pen marker size can now be set independently from the stroke size.

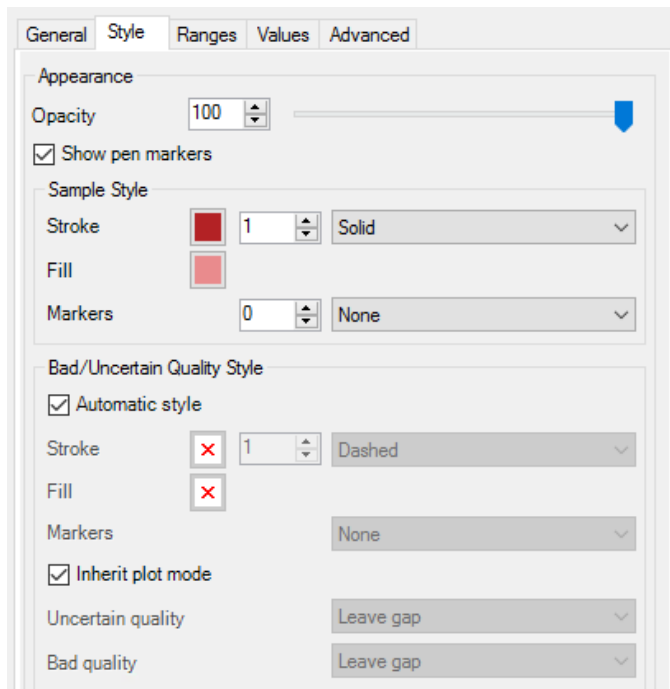


Figure 15 - New Style tab

Improved Rendering Performance

The rendering and data loading speed of the TrendWorX64 Viewer has been enhanced greatly, especially for displays with multiple viewers and pens.

Dynamic Trend Range

The range of a TrendWorX64 Viewer can be linked with a dynamic tag or expression. On the Range tab of the chart, check Read Range or Write Range (or both) and fill in the Data Source. When Read Range is checked, the trend viewer will read the tag and update its range when the tag value changes. When Write Range is checked, this trend viewer will write its range to the data source when it changes.

The dynamic trend range only takes effect when the viewer is frozen, which is why these settings are in the Freeze Mode section.

Note: This feature was first introduced in a 10.95 update, but not many users are aware of it, which is why it is mentioned here.

Example: Use Cursors to Set Range

As an advanced use of the dynamic trend range, you can use the cursors in one viewer to set the range of another viewer.

1. Add a TrendWorX64 Viewer to your display.
2. Click "Configure" to open configuration editor.
3. Add a pen that has logged data (or use the default Sine pen).
4. Select the chart object and go to the Range tab.
5. Enable Start Frozen.
6. Close the TrendWorX64 Viewer configuration.
7. Duplicate the viewer. You should now have two identical trend viewers on your display.
8. Select the first viewer and open the configuration editor.
9. Select the chart object and go to the Cursors tab.
10. Check Write Cursor Position.
11. Check Second cursor.
12. Make sure that the Data Sources for the first and second cursor are set to `{{localsim:: cursor1:String}}` and `{{localsim:: cursor2:String}}`, respectively. (These should be the default values.)
13. Close the TrendWorX64 Viewer configuration.
14. Select the second viewer and open the configuration editor.
15. Select the chart object and go to the Range tab.
16. Select Read Range.

17. For the Data Source, enter this expression:

```
{{x={{localsim::_cursor1:String}} + ";" +  
{{localsim::_cursor2:String}}}}
```

18. Close the TrendWorX64 Viewer configuration.

19. Go into runtime. Drag one cursor and then the other on your first trend viewer. The range of the second trend viewer should update to match the area between the two cursors.

Note: If your range does not seem to be updating, make sure you have dragged both cursors.

Custom Data in Legend

Users can now add custom data to a pen and show it in the legend.

Configure the TrendWorX64 Viewer, select your pen, go to the Advanced tab, and fill in the Custom Data field. This field can be static text, a global or language alias, a tag, or an expression.

Once your pens are configured with their custom data, select your chart in the tree, go to the Legend tab, enable the legend, and move Custom Data from Available Columns to Selected Columns.

☒	Description	Custom Data	Connection Status
☒	hh:\Configuration\Signals:Sine	Some custom text	Good

Figure 16 - Custom Data column in Legend

The value of Custom Data is also available in commands on events or in the customizable context menu:

```
{{@@pen.customdata}}
```

Customizable Context Menu and New Refresh Action

The context menu for the TrendWorX64 Viewer can now be customized.

Configure your TrendWorX64 Viewer, select the chart object in the tree, go to the Chart tab, make sure Context Menu is enabled and click the associated Configure button.

In the dialog that appears, available menu items are in the first combo box and selected menu items are in the second combo box. Add the Separator menu item to display a separator line between sections.

There is a new Refresh action available to be added as a pen menu item. The refresh action will re-query the historical server for data for that pen. This can be used on displays that have very long update rates to refresh the data before the scheduled update, or while a trend is frozen to update the data without having to go back into runtime or change the view.

Note: If none of the items in the context menu are enabled then the context menu will not appear at all. For example, if your context menu only contains the Reset Zoom menu item then the context menu will only appear when you have zoomed in or out.

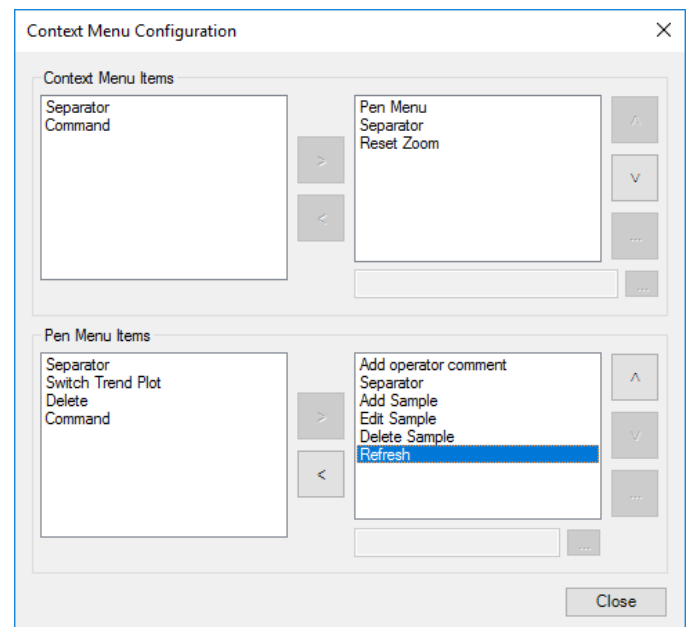


Figure 17 - Context Menu Configuration