

Description: Guide to using TrendWorX64 Viewer.

General Requirement: General understanding of GENESIS64, Hyper Historian or TrendWorX64 Logger.

Introduction

TrendWorX64 Viewer is a tool that enables users to visualize real-time or historical data. It supports a full set of configuration options and runtime options.

Some of the useful features that TrendWorX64 Viewer offers include:

- Add multiple pens in one viewer
- Set simple color alarms on pen values
- Runtime freeze mode for easy value-reading
- Dynamically add a pen to the viewer in runtime
- Configurable runtime legend grid

In this Application Note, we will walk you through a simple example of how to configure a TrendWorX64 Viewer to show historical and real-time data.

Historical Trending

Before you set up a TrendWorX64 Viewer with historical trending, you want to make sure that you have some data already logged by Hyper Historian or another OPC-UA-HDA or Classic OPC HDA server. In this example, we will use the data logged by the sample Hyper Historian configuration. Remember to keep the logger running during runtime so there will be data coming into the chart.

1. Create a new GraphWorX64 display by clicking on Start → All Programs → ICONICS → GENESIS64 → GraphWorX64 → **GraphWorX64**.
2. Select the Controls tab in the ribbon and click on TrendWorX64 Viewer.

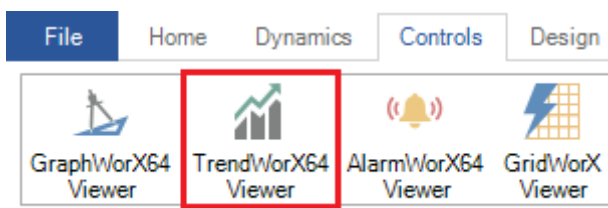


Figure 1: Selecting TrendWorX64 Viewer from Controls ribbon

3. Click on the empty display to drop the TrendWorX64 Viewer control.
4. Newly created TrendWorX64 Viewer controls already have a pen connected to a Hyper Historian tag.
5. Go to Runtime mode, you should see the historical trending being drawn.

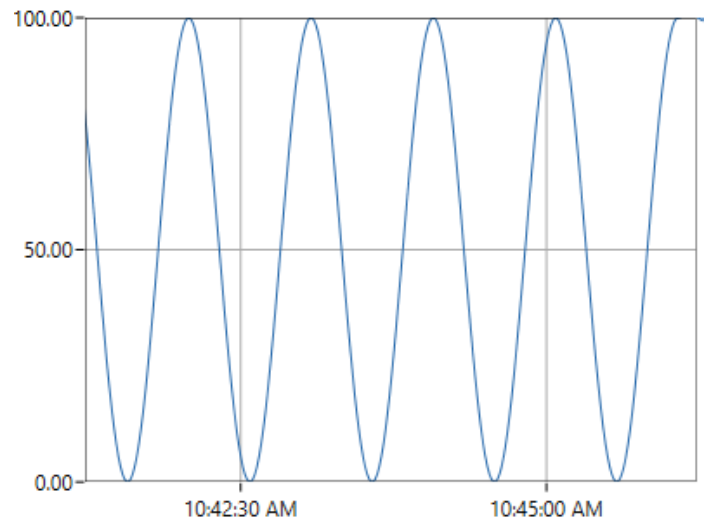


Figure 2: TrendWorX64 Viewer in runtime

6. Go back to configure mode.
7. Select TrendWorX64 Viewer control and switch to Pens ribbon.

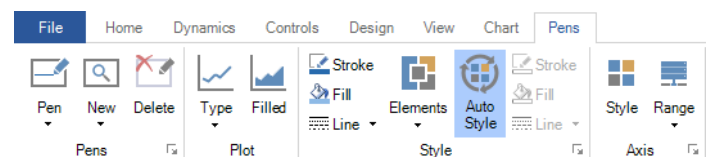


Figure 3: Pens ribbon for TrendWorX64 Viewer

8. Click on the "New" button to pick few more data tags from Data Browser

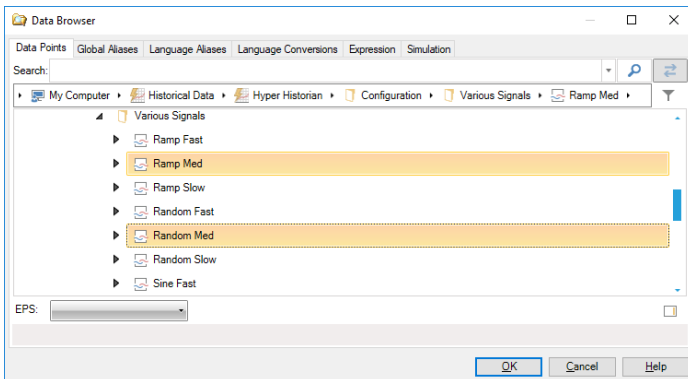


Figure 4: Browsing to a historical tag

9. Go to Runtime mode

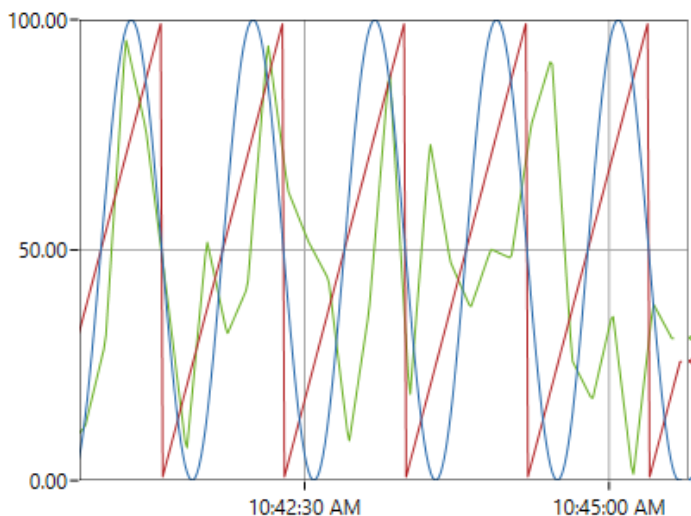


Figure 5: Selected historical pens in runtime mode

10. Alternatively, you can open the advanced configuration from ribbon or double-clicking on the TrendWorX64 Viewer control.

Adding Pens Using Drag and Drop

You can also add a pen to a TrendWorX Viewer using the drag-and-drop feature.

1. Go back into Configuration mode.
2. On the left side of your GraphWorX64 display, select the Data Browser tab.

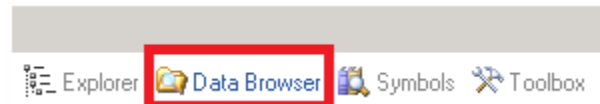


Figure 6: Opening the Data Browser in GraphWorX64

3. Browse to My Computer → Data Connectivity → OPC UA → Hyper Historian → Configuration → Various Signals → Sine Med. Select the signal, and drag it onto your TrendWorX64 Viewer, and release. This will automatically add a new pen with that tag as the source.
4. Go into Runtime. Now your TrendWorX64 Viewer should show the new signals.

Adding Pens Using Commanding in Runtime

You can also add a pen to a TrendWorX Viewer while in Runtime.

1. Go back to Configure mode.
2. Add a button to the display from Dynamics ribbon.
3. Pick the command type **Create Pen**.
4. Browse for a historical data tag to set the **PointName** and use the configuration dialog to set **Parameters** to use HDA Connection.

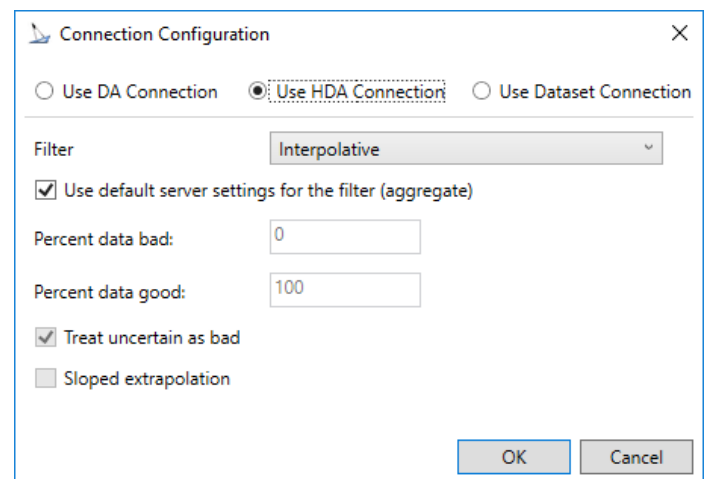


Figure 7: Configuring connection parameters

5. Set the **Target** property to "twx1".

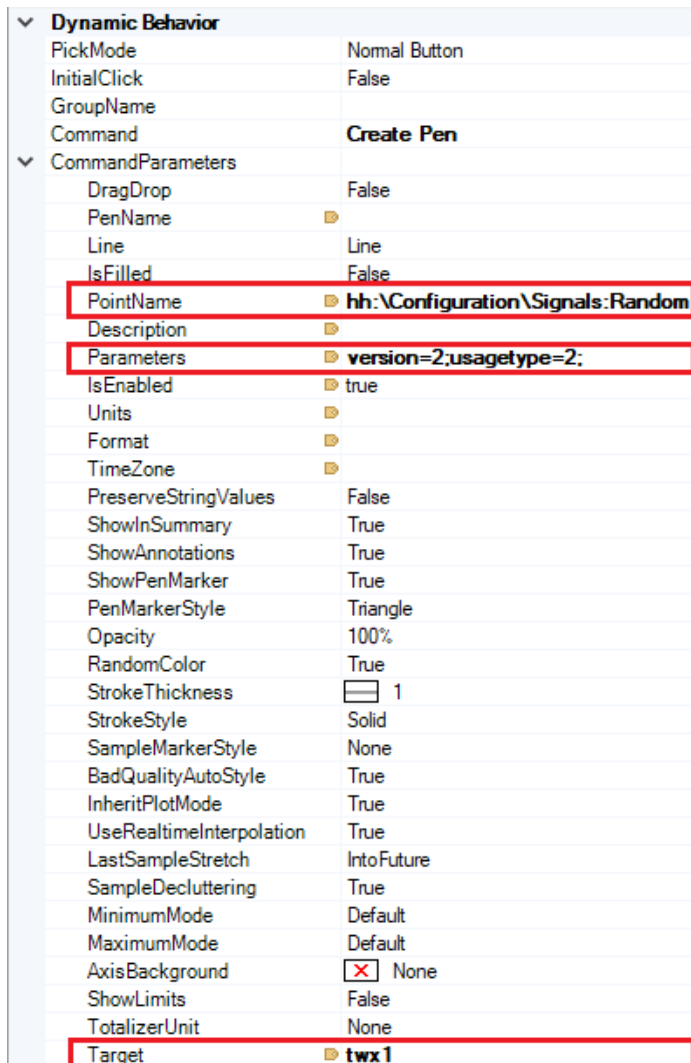


Figure 8: Create pen command parameters

6. Select the TrendWorX64 Viewer control and set its CommandingName property to "twx1".

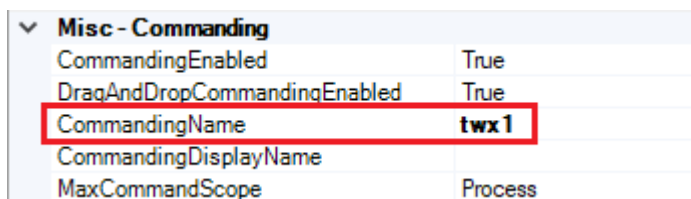


Figure 9: CommandingName property

7. Set Legend position in ribbon to Bottom:

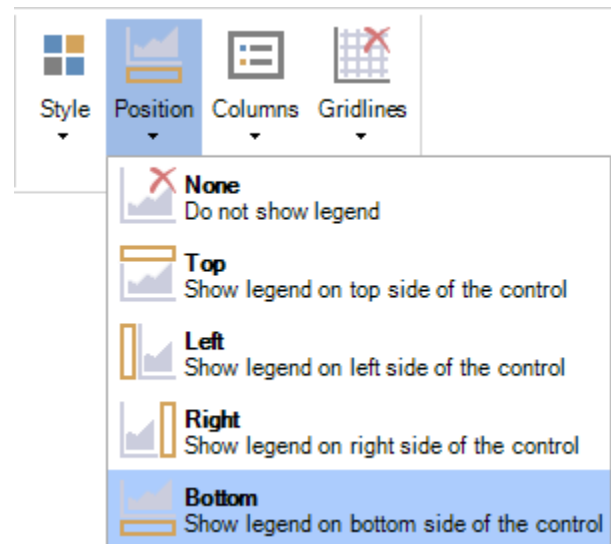


Figure 10: Legend position

Common Configuration Parameters

The most important parameters to set for any trend are the count of samples and the time range. You configure these in the TrendWorX64 Viewer ribbon.

To set the both parameters, pick one of the predefined option from configuration ribbon:

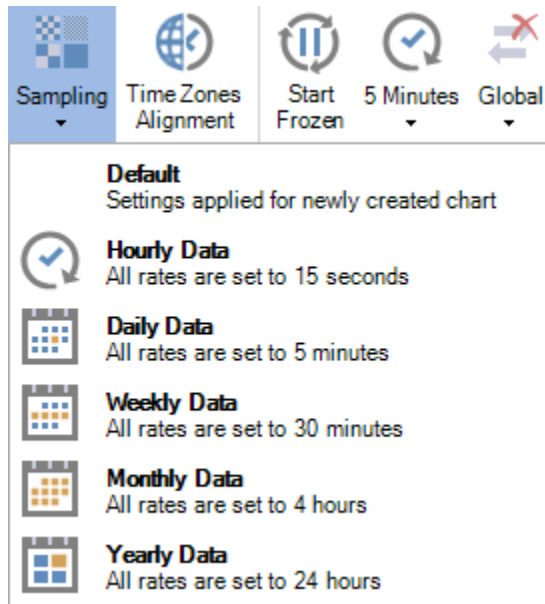


Figure 11: Legend position

To fine tune the settings, open the configuration dialog at the chart level. Sampling method is under the Data tab, and the trend range is under the Range tab.

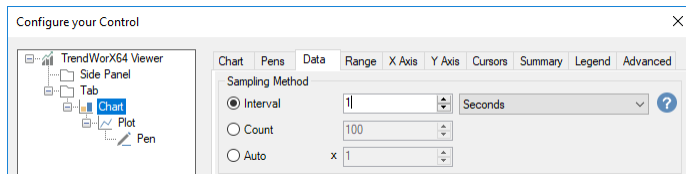


Figure 12: Setting Sampling Method

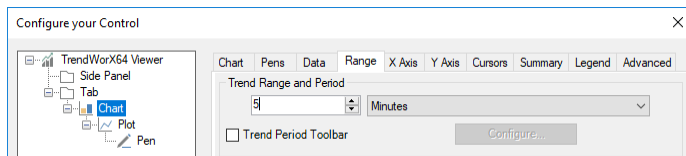


Figure 13: Setting the Trend Range

The **Trend Period** defines what range of data to show on the viewer. The **Sampling method** defines how dense you want the points to be on the chart. In historical trending, if the loggers log one point per 10 seconds, a sampling interval of 20 seconds will skip every other point and give you one point that could be the average, max and min depending on the aggregate type you have set. For real-time trending, a new point will be added to the trend for every sampling period.

Together, trend period and data collection rate determine how many points the Viewer will load. Setting a reasonable trend period and data collection rate will make sure that you have a fast response without excessive delay. Please refer to **TrendWorX64 Viewer Performance Optimization** and **Hyper Historian - Data Retrieval Optimization** for more information about performance.

Additionally, the TrendWorX64 Viewer provides a feature that allows you to define the simple limit alarms on each pen under the Calculations tab as shown in Figure 14. You can now define threshold values for *High High*, *High*, *Low*, and *Low Low* alarms and see different styles for that pen during alarm conditions.

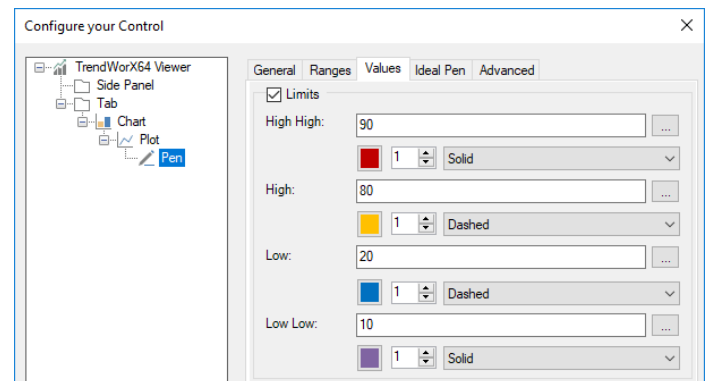


Figure 14: Set limit alarms on a pen

Real-time Trending

To add a TrendWorX64 Viewer for a real time data tag, make sure that you have your OPC Server configured and running. In this example, we will use ICONICS Simulator OPC Server.

1. Create a new GraphWorX64 display by clicking on Start → All Programs → ICONICS → GENESIS64 → GraphWorX64 → **GraphWorX64**.
2. Select the Controls tab in the ribbon and click on TrendWorX64 Viewer.
3. Click on the empty display to drop the TrendWorX64 Viewer control.
4. Double-click on the control to bring up the TrendWorX Viewer configurator.
5. Select the default Pen.
6. Click on ellipsis button on **Data Source** to pick a data tag from Data Browser.
7. Browse to: My Computer → Data Connectivity → OPC Data Access → Simulations → Double → Ramp → FastL001 as in Figure 16. Click OK.

NOTE: You can also add real-time pens using the same Drag and Drop or Runtime methods covered earlier in this application note.

8. Click on ellipsis button on **Connection parameters** and select the 'Auto-detect' option.
9. Close the configurator and go into runtime.

You should see the real-time trend data showing on the TrendWorX64 Viewer now.

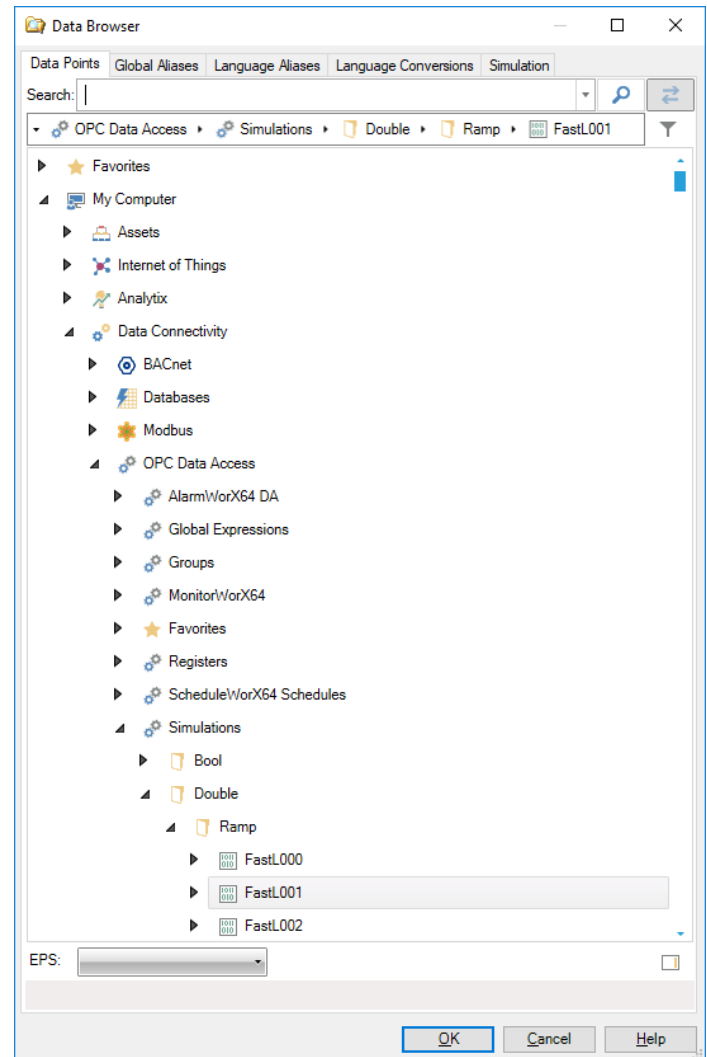


Figure 15: Browsing to a real time tag