

How to Display Simulated Signals using Waveforms

Prerequisites

[How to Add the Power Electronics Add-On to the System Definition](#)

[How to Select a Hardware Configuration](#)

[How to Add a Circuit Model to the System Definition](#)

Procedure

NI VeriStand provides two native options to display lossless **Waveform** data while the engine is executing: the Workspace and the VeriStand Editor. The Power Electronics Add-On supports both user interface types, and extends VeriStand's Waveform capabilities by providing a way to stream waveforms from the FPGA models to VeriStand Charts and Graphs. For a comparison of the Workspace and VeriStand Editor, or to learn more about using Waveform Graphs, see the links below.

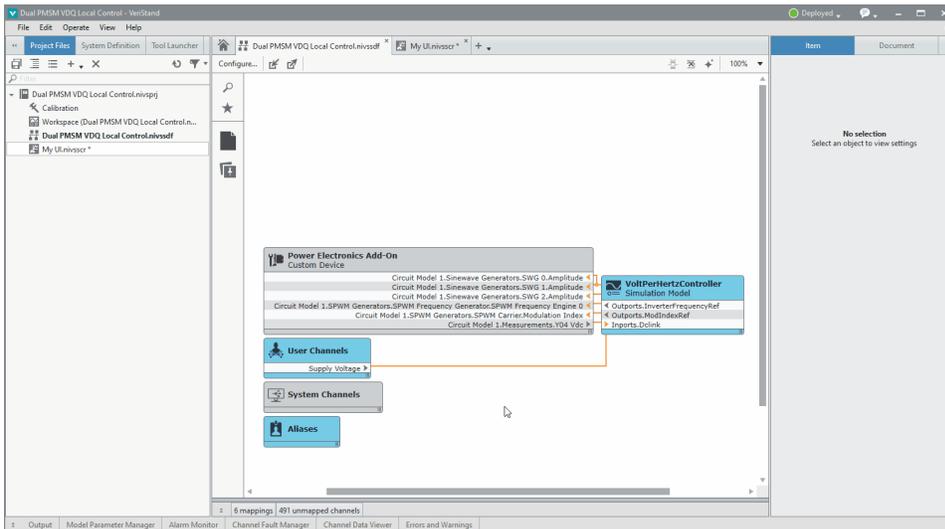
[Differences between Workspace and VeriStand Editor](#)

[Displaying Waveform Data in a Graph](#)

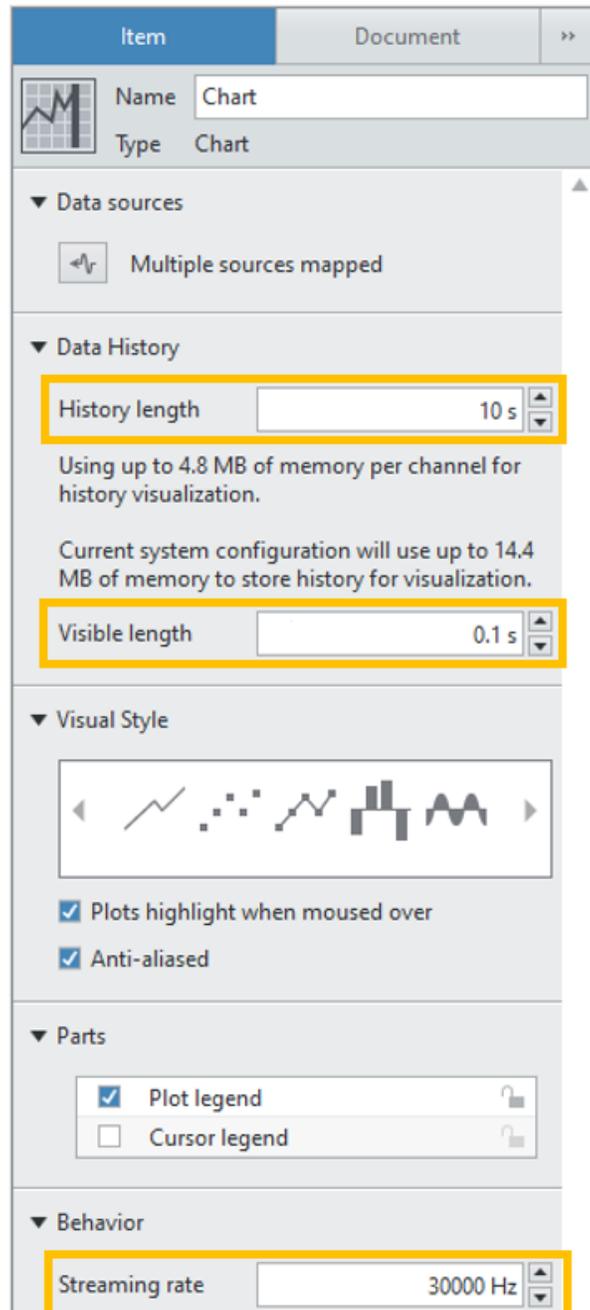
VeriStand Editor

 Waveforms are supported in the VeriStand Editor starting in VeriStand version 2020.

1. Navigate to the **Waveforms** section of the System Definition and select the signals you would like to display as Waveforms.
2. **Save** the project and **Deploy** to start simulating.
3. Create a new Screen by selecting **File >> New >> Screen** from the menu at the top.
4. Drop a Chart onto the Screen by selecting the ribbon item **Charts >> Chart**.
5. A Channel Finder widget will pop up automatically. Select the Waveform channels you wish to view.

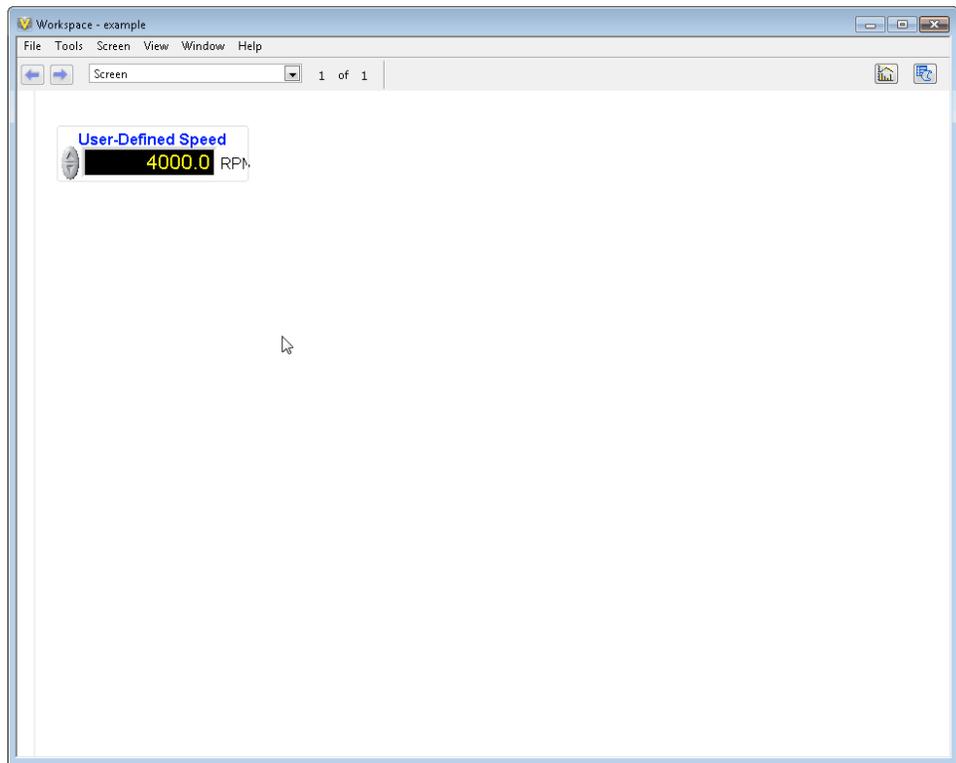


By default, Waveform data will be streamed and displayed on the chart at a rate of 100Hz. To better visualize high frequency signals, select the chart and navigate to its **Item Properties** page on the right-hand side to modify the **Streaming Rate** parameter. If a high **Streaming Rate** is required, consider reducing the **History Length** and **Visible Length** parameters to avoid lagging and hanging in the user interface.



Workspace

1. Navigate to the **Waveforms** section of the System Definition and select the signals you would like to display as Waveforms.
2. **Save** the project and **Deploy** to start simulating.
3. Open the Workspace file.
4. Drop a Waveform Graph onto the Workspace by going to **Workspace Controls >> Graph >> Waveform**. The Waveform Graph Setting Dialog will appear.
5. Click **Select Waveforms** and navigate through the tree to find the **Power Electronics Add-on >> Circuit Model >> Waveforms** section and select the Waveforms you wish to see in the graph.
6. Go to the **Screen** menu and take the Workspace UI out of **Edit** mode.



To stream and view the Waveform signals at a higher rate, increase the **Data Points per Pixel** parameter in the Waveform Graph Settings window. This value specifies the number of waveform points to display per pixel on the x-axis, and enforces a decimation of the waveform data stream, as displayed in the **Calculated decimation** indicator. Lower the setting to reduce stream fidelity and conserve real time CPU and Ethernet performance.

Waveform Graph Settings [X]

General Format & Precision

Graph Title: Waveform Graph Plot area background color: [Black]

Select waveforms...

Waveforms

- WVF00 Circuit Model 1.VoutA
- WVF01 Circuit Model 1.VoutB
- WVF02 Circuit Model 1.VoutC

Waveform path: Targets/Controller/Custom Devices/Power Electronics Add-On/Circuit Model 1/Waveforms/WVF00 Circuit Mode

Settings

Data

Data points per pixel: [Slider from 1 to 100, value 60]

Waveform rate: Unknown Calculated decimation: -1

Display

Condition for stream: All data

Condition for refresh: When new data arrives Minimum history: 5 Seconds

Delete Graph Update Cancel Help