

Waveform Viewer

Version 2.00

User Guide

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Waveform Viewer

1 About Waveform Viewer

Waveform Viewer (Waveform) provides a simple, intuitive interface to view realtime time-series waveforms from NaqsServer. It can display an unlimited number of traces in one window. All the traces are plotted using the same time scale, but each trace can be scaled individually on the vertical axis.

Waveform allows you to subscribe to any time-series channels from NaqsServer. For each subscribed channel, Waveform displays a trace plus some computed signal statistics—maximum, minimum, mean, and RMS (for example, see Figure 3-1 on page 3). These statistics apply to the time-series values that are currently displayed in the trace window.

Waveform communicates with NaqsServer via TCP/IP socket, so it can be run either on the NaqsServer machine, or on any other machine that has an Internet connection to NaqsServer.

2 Installing Waveform

Waveform is part of the Naqs Client package, included on the Nanometrics software installation CD.

2.1 Install Waveform

On Windows:

1. If the directories `c:\nmx\bin` and `c:\nmx\user` do not already exist on the computer, create them.
2. From either a command prompt or Windows Explorer, open the installation CD directory `Win32\Waveform\version number`.
3. Copy all files from the `bin` directory into the `c:\nmx\bin` directory, and all files from the `user` directory into the `c:\nmx\user` directory.
4. Check the system path, and add the directory `c:\nmx\bin` if it is not already included.
5. Optionally, create a shortcut (Section 2.2).

On Solaris or Linux:

- ▶ See the acquisition workstation installation instructions.

2.2 Create a shortcut

The optional parameter *settingsFile* specifies a settings file to load on startup (see also Section 4, “Saving Waveform settings,” on page 3).

On Windows:

1. Create a shortcut on the desktop to the file `waveform.bat`.
2. Right click on the shortcut icon and choose Edit.
3. Edit the startup parameters to use a specific settings file rather than the default:

```
javaw -cp c:\nmx\bin\waveform.jar WaveformApp settingsFile
```

On Solaris or Linux:

- ▶ See the acquisition workstation installation instructions.

3 Starting Waveform

Waveform runs in the Java runtime environment version 1.4 or later.

You can start a Waveform session from a shortcut or from the command line.

3.1 Start Waveform

- ▶ Start Waveform with the desktop shortcut, if you have defined one.

If you are not using a shortcut:

1. Open a command prompt.
2. Change directories to your working directory. Unless you have defined a different working directory, this will be `nmx\user`.
3. Start Waveform from the command line:

```
Waveform settingsFile
```

where the optional parameter *settingsFile* specifies a settings file to load on startup (see also Section 4, “Saving Waveform settings,” on page 3). If no settings file is specified, it will load settings from the file `waveform.ini` in the current working directory.

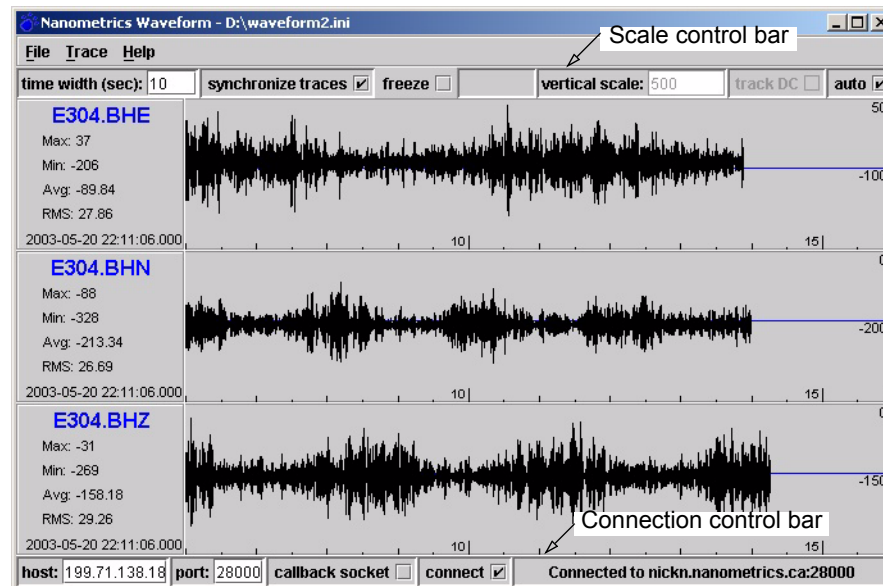
3.2 Connect to NaqsServer

1. In the Connection control bar fields at the bottom of the Waveform main window (Figure 3-1), type the host name or IP address, and the port of the NaqsServer Datastream service.

If you specified a settings file on startup, Waveform will connect automatically to the host address and port specified in the file.

- If the NaqsServer Datastream service has been configured to operate in callback mode, click to select the callback socket check box .
- Click the connect checkbox.
The connection status will be displayed at the right of the Connection control bar.

Figure 3-1 Waveform main window



4 Saving Waveform settings

You can save all Waveform settings—such as connection parameters, channel selection and scaling, and the size and placement of windows—to a settings file. You can save these settings at any time during a Waveform session either to a new settings file, or to the current settings file if you want to replace the current settings. Any changes to the settings (for example, unsubscribing a channel) will be saved automatically when you exit Waveform.

You can start new Waveform sessions with saved settings, or load different settings during a running session of Waveform.



Note The settings file is a binary format and cannot be edited manually.

4.1 Save Waveform settings to a settings file

To save a new settings file:

- From the File menu, choose Save As....
- In the browser window, select the path and type in a file name.
- Click Save. (To exit without saving the changes, click Cancel.)

To overwrite settings in the current settings file with the new settings:

- ▶ From the File menu, select Save.

4.2 Load saved settings

Waveform will automatically connect to NaqsServer and restore all window sizes and settings when it loads a settings file. There are two ways to restore Waveform settings that you have saved:

- ▶ Specify the name of the settings file when you start Waveform, either predefined as part of the shortcut target or as a command-line argument:

Waveform *settingsFile*

- ▶ Load the settings using the Load Settings option of the Waveform File menu:

File > Load Settings ... > *filename*

5 Quitting Waveform

- ▶ From the File menu, choose Exit.

If you have changed any settings during the session, the new settings will be saved automatically to the current settings file.

6 Using Waveform

You can use Waveform to view data trace for any available channel, and use Waveform options to manipulate the views of traces. You may add data channels to the view (subscribe) or remove channels (unsubscribe) at any time.

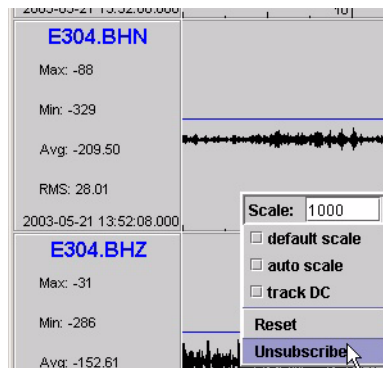
6.1 View waveform traces for a channel

1. From the Trace menu, choose Subscribe.
2. In the Select Channels dialog box, click the check box to select each channel that you want to view.
3. Click OK to add the selected channels to the view. (To discard your changes, click Cancel).

6.2 Remove traces from the view

You can remove individual traces from the view, and remove all traces from the view at once:

- ▶ To remove an individual trace, right click on the trace and choose Unsubscribe in the pop-up dialog box (Figure 6-1).
- ▶ To remove all traces from the view, in the Trace menu, choose Unsubscribe All.

Figure 6-1 Unsubscribe a trace with the trace pop-up dialog box

6.3 Scale all traces

All traces have the same time scale, and by default, all use the same vertical scale. You can change the time scale and the vertical scale for all traces at once:

- ▶ Use the options in the Scale control bar (Figure 3-1 on page 3) to set the time width and the vertical scale.
 - You may specify a vertical scale, or select the Auto check box to use automatic scaling.

6.4 Scale individual traces

To specify a different vertical scale for an individual trace:

1. Right click on the trace to display the pop-up trace dialog box (Figure 6-1).
2. Deselect the default scale checkbox .
3. In the Scale field at the top of the pop-up dialog box, type in the trace-specific scale.

6.5 Centre the plot on the trace DC value

Centring a plot around the DC value of the trace is useful for channels with a large DC offset. You can centre an individual plot, or centre all plots at once:

- ▶ To centre an individual plot, right click on the trace to open the pop-up dialog box, and then select track DC.
- ▶ To centre all plots, in the Scale control bar, select track DC. (Individual traces must have default scale selected.)

6.6 Synchronize traces

You can specify whether the time scales of all traces are synchronized. To synchronize traces:

- ▶ In the Scale control bar, select the synchronize traces checkbox (Figure 3-1 on page 3).

6.7 Reset traces

You can clear all traces and set the start time to zero.

- ▶ In the Trace menu, select Reset.

6.8 Freeze the display

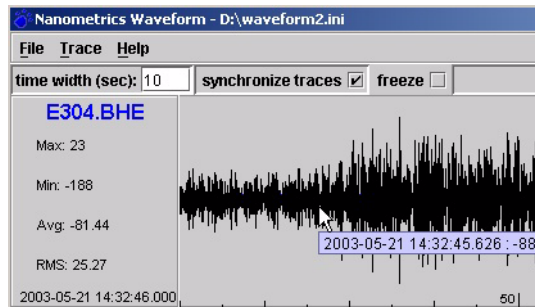
- ▶ In the Scale control bar, select the freeze checkbox to freeze the display. Deselect freeze to resume updating the trace with current data (Figure 3-1 on page 3).

6.9 View data point information

You can view the time and sample value for any point on a trace:

- ▶ Hold the mouse pointer steady on a trace for a few seconds to view information for the data point under the mouse pointer (Figure 6-2).

Figure 6-2 View data point information



7 Waveform menus and controls

This section provides a summary of the Waveform menu options and window controls.

7.1 Waveform menus

Waveform has three main menus—File, Trace, and Help.

7.1.1 File

The File menu provides file management options, listed in Table 7-1.

Table 7-1 File menu options

Option	Description
Load Settings	Load a Waveform settings file from disk, selectable from a browser window.
Save Settings	Save the current Waveform settings using the current file name.
Save As	Save the current Waveform settings to a new file name.
Exit	Exit from the Waveform program.

7.1.2 Trace

The Trace menu provides options to add and remove time series channels from the display, as listed in Table 7-2.

Table 7-2 Trace menu options

Option	Description
Subscribe	View the Select Channels dialog box, which provides the option for you to select which channels to display.
Unsubscribe All	Remove all traces from the display.
Reset	Clear the traces from the plot and set the start time to zero.

7.1.3 Help

The Help menu provides the options listed in Table 7-3.

Table 7-3 Help menu options

Option	Description
Help Topics	View a PDF copy of the user guide.
About Waveform	View the current Waveform version information.

7.2 Waveform controls

The main Waveform window has two main control bars—the Connection control bar, at the bottom of the window, and the Scale control bar, at the top of the window (Figure 3-1 on page 3). You can open a trace dialog box by right clicking on a trace (Figure 6-1 on page 5).

7.2.1 Connection control bar

The Connection control bar provides controls for specifying the NaqsServer address and connection parameters, as described in Table 7-4.

Table 7-4 Connection controls

Control	Description
host	<ul style="list-style-type: none"> Text field. Specify the host name or IP address of the NaqsServer host.
port	<ul style="list-style-type: none"> Text field. Specify the TCP port used for NaqsServer Datastream service.
callback	<ul style="list-style-type: none"> Check box. Select if Waveform should connect using a callback socket.
connect	<ul style="list-style-type: none"> Check box. Select to apply the connection parameters and connect to NaqsServer.

7.2.2 Scale control bar

The Scale control bar provides scaling controls for all traces, as described in Table 7-5. The scales defined here are default scales for all traces, which may be overridden for each trace using the trace pop-up dialog box (Section 7.2.3).

Table 7-5 Trace scale controls

Control	Description
time width (sec)	<ul style="list-style-type: none"> Text field. Specify the time width of the traces in seconds.
synchronize	<ul style="list-style-type: none"> Check box. Select to synchronize time scales for all traces.
freeze	<ul style="list-style-type: none"> Check box. Freeze the view of the traces (that is, stop updating traces with new data).
vertical scale	<ul style="list-style-type: none"> Text field. Specify the vertical scale of the trace plots in counts.
track DC	<ul style="list-style-type: none"> Check box. Select to centre each trace about the DC value of its trace (useful for channels with a large DC offset).
auto	<ul style="list-style-type: none"> Check box. Select to use automatic scaling for all traces. Selecting this box disables the vertical scale field.

7.2.3 Trace pop-up dialog box

The trace pop-up dialog box provides scaling controls for a specific trace, as described in Table 7-6. Right click on a trace to open this dialog box.

Table 7-6 Trace pop-up dialog box controls

Control	Description
Scale	<ul style="list-style-type: none"> Text field. Specify the vertical scale for this trace.
default scale	<ul style="list-style-type: none"> Check box. Select to set this trace to use the default scale.
auto scale	<ul style="list-style-type: none"> Check box. Select to set this trace to use automatic scaling.
track DC	<ul style="list-style-type: none"> Check box. Select to centre this plot at the DC value of the trace.
Reset	<ul style="list-style-type: none"> Menu option. Clear the trace from the plot and set its start time to zero.
Unsubscribe	<ul style="list-style-type: none"> Menu option. Remove this trace from the display.