

LeCroy



Operator's Manual

Revision G – October, 2008

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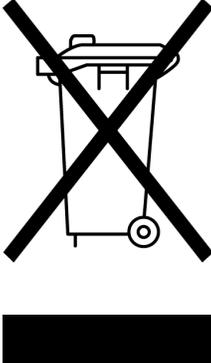
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QualiPHY™

WHAT IS QUALIPHY?

Physical Layer Compliance Testing

As multiple serial data standards converge in today's computer motherboards and multimedia equipment, device designers and their team members must rely on high performance test equipment tools. With the introduction of QualiPHY, LeCroy is committed to offering unsurpassed value by enabling customers to achieve improved time to market while ensuring that standards compliance requirements are fully met.

The new LeCroy compliance software is designed with two major objectives in mind:

- First, to provide the user with a superior, highly automated compliance test tool necessary to develop and validate the PHY (physical-electrical) layer of a device, in accordance with the official documents published by the applicable standards organizations and special interest groups (SIGs).
- Second, to provide a means of reporting all test results, including multiple output file formats, user-adjustable compliance limits, and output to XML format for database archiving.

The standard features of the SDA and other oscilloscopes also provide a broad toolset for advanced debugging of these interfaces, including jitter, eye pattern, and bit error rate. The QualiPHY software is composed of a main user interface that enables the configuration and control of components for each of the standards.

Features and Benefits

- **Compliance Testing:** Fully-automated compliance test runs with custom-configured specification limits.
- **Multiple Data Source Capability:** Connect to your X-Stream oscilloscope via LAN or GPIB interface.
- **User-Defined Test Limits:** Parameter interconnect losses can be factored into the parametric results.
- **Flexible Test Results Reporting** that includes XML Test Record Generation. Understand a device performance distribution, or obtain process related information from the devices under test.

LeCroy's Serial Data Analysis tools at the user's fingertips:

- Jitter Analysis and Q-Scale
- Histograms, Trend, and Track functions
- Digital Filter Package
- Custom DSO

System Compatibility

The QualiPHY software is available as an option to the SDA series of oscilloscopes and to some lower-bandwidth X-Stream oscilloscope models (firmware version greater than 5.6.0 installed). To ensure optimum system performance, run QualiPHY on instruments with adequate bandwidth:

Standard	Option Key	LeCroy Oscilloscope
Universal Serial Bus 2.0	QPHY-USB	High-Speed/Full-Speed/Low-Speed: WR6200, WR204Xi, WP7200, WP7300, WP725Zi, WP735Zi, WP740Zi, WP760Zi, any WM or SDA/DDA Full-Speed/Low-Speed: above oscilloscopes plus WR6030, WR6050, WR6100, WR44Xi, WR62Xi, WR64Xi, WP7000, WP7100, WP715Zi
Ethernet	QPHY-ENET	1000Base-T/100Base-TX/10Base-T: any WR6000, WRXi, WP7000, WP7xxZi, WM-A, or SDA/DDA with a bandwidth of at least 1 GHz 100Base-TX/10Base-T: any of the above oscilloscope models with a bandwidth of at least 400 MHz
Serial ATA	QPHY-SATA	Gen2 (3.0Gb/s) and Gen1 (1.5Gb/s): SDA 11000, SDA 13000 Gen1 (1.5Gb/s): above oscilloscopes plus SDA 6000, SDA6000A, SDA 6020, SDA 9000, SDA760Zi, DDA760Zi, WP760Zi with SDA option
PCI Express	QPHY-PCIE	SDA760Zi, DDA760Zi, WP760Zi, SDA6000, SDA 6000A, SDA 6020, SDA 9000, SDA 11000 and SDA 13000
WiMedia Ultra Wide Band	QPHY-UWB	Band Group 1 to 6: SDA11000, SDA13000 Band Group 2 and 3: above oscilloscopes plus SDA9000 Band Group 1: above oscilloscopes plus SDA6000, SDA6000A, SDA6020, SDA760Zi, DDA760Zi, WP760Zi

Table 1. Serial Data Standards and Oscilloscope Option Keys



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Required Equipment

- SDA, WaveMaster, WavePro or WaveRunner series of X-Stream oscilloscopes as required for each standard
- QualiPHY compatible software option (i.e. QPHY-XXX)
- Fixtures and Probes, as required for each standard
- A Host computer, though not required, is highly recommended to run the Compliance & Development Software Engine. The oscilloscope is the default host computer.

Host Computer Minimum System Configuration

OS

- Windows 2000 Professional with service pack 4
- Windows XP Professional with service pack 2
- Windows VISTA with service pack 1

Memory (RAM)

- 100 MB of free RAM memory

Connection

- Ethernet network (LAN)
- or GPIB network

Hard Drive (C:)

- At least 100 MB to install the application
- Up to 1GB per standard installed to store the log database
Each database grows from a few MB to a maximum of 1 GB

SOFTWARE INSTALLATION AND SYSTEM CONFIGURATION

The new QualiPHY software application is an MS Windows-based application that can be configured with one or more serial data compliance components. Each serial data compliance component is individually enabled by installing a software option key. See **Table 1. Serial Data Standards and Oscilloscope Option Keys** on page 5 for details.

The serial data compliance components are factory installed as part of the main application in your oscilloscope and are individually activated through the use of an alphanumeric code uniquely matched to the oscilloscope's serial number.

When a software key is enabled (list the enabled software options from **Utilities** → **Utilities Setup...** on the main menu drop-down, and then click the **Status** tab), the oscilloscope is ready to accept the commands executed from QualiPHY. Only serial data components installed in QualiPHY with option keys installed on the oscilloscope are enabled.



The previous screen shows that the Serial ATA TSG OOB (SATA), Ultra Wide Band (UWB), PCI Express (PCIE), USB and IEEE 802 Ethernet (ENET) components are installed. Notice how Serial ATA (SATA) TX/RX, Serial Attached SCSI (SAS), fully buffered dual in-line memory module (FB-DIMM), HDMI and DisplayPort (DPORT) components are not selectable because they do not apply to this release. In order for each application component to work properly, the oscilloscope must have the corresponding option key enabled. For ultimate flexibility, QualiPHY can be installed and executed from a host computer other than the oscilloscope, provided that there is a Windows-compatible GPIB or LAN connection.



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Oscilloscope option Key Installation

Enter the option key code by doing the following:

1. Select **Utilities** → **Utilities Setup...** on the oscilloscope's menu bar.
2. Click the **Options** tab, and then the **Add Key** button.
3. Use the **Virtual Keyboard** to enter the option key code.

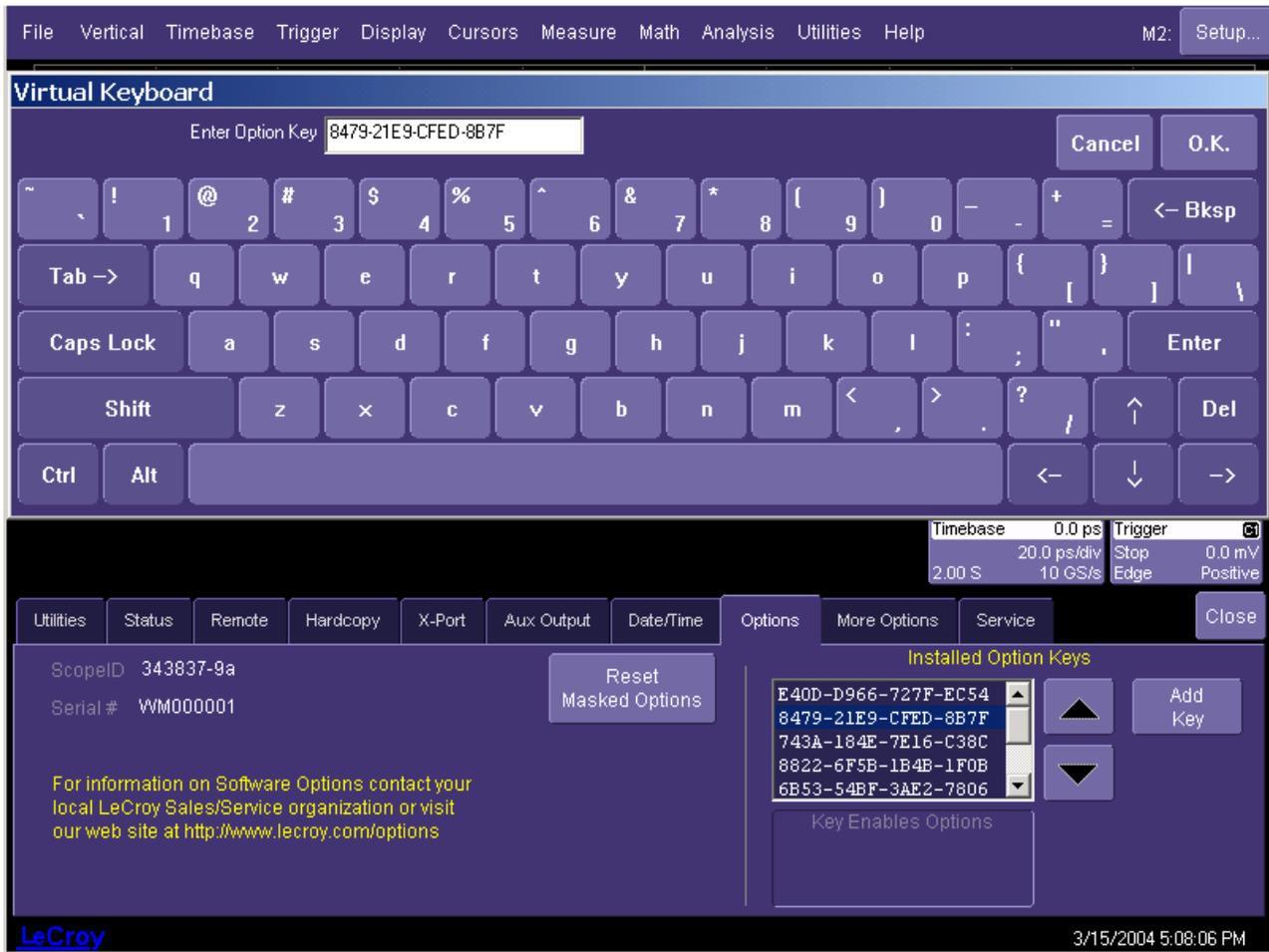


Figure 1: Entering the option key code for a serial data component software option

4. Now, restart the oscilloscope to activate the option after installing.

QualiPHY Software Installation

The latest version of QualiPHY is available at: <http://www.lecroy.com/tm/options/software/QualiPHY/default.asp>.

Use the downloaded file to install QualiPHY on the required system, which can be:

- The oscilloscope with which it was delivered (the use of Dual Monitor Display option is recommended).
- A host computer other than the oscilloscope (for remote control).

A new installation is required whenever a new serial data component is added to an existing QualiPHY installation. An option key is issued and needs to be installed on the oscilloscope. First, install the option keys on the oscilloscope, and then configure QualiPHY with the newly-ordered serial data components.

<p>Note: Some components contain script generation files for specific equipment used with the oscilloscope to perform the compliance test. To allow automation of such equipment, QualiPHY should be installed on the oscilloscope even if it's run from a remote computer. Dedicated equipment control software may have to be installed. Check the relevant section of the corresponding Operator's Manual for additional installation needs.</p>
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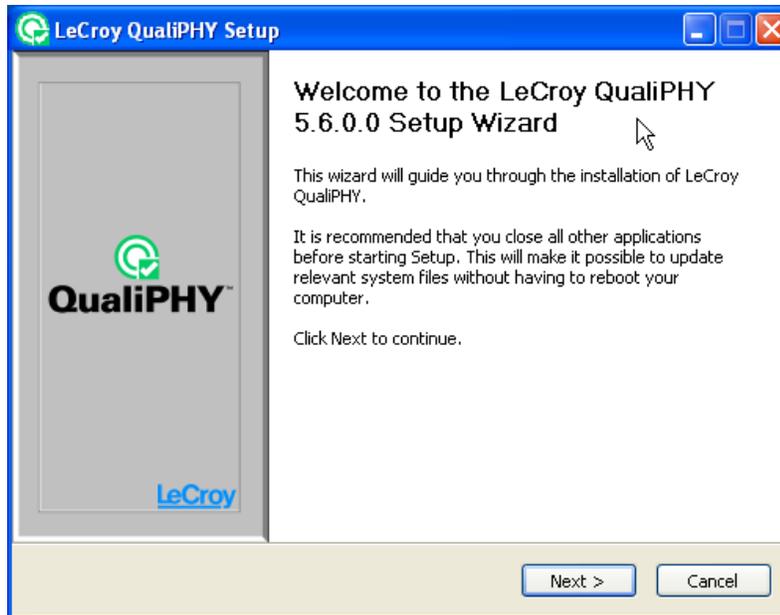
Follow the specific installer application instructions. The installation process prompts for specific choices of serial data components as needed.

When QualiPHY must be installed on an oscilloscope not connected to a network, first copy the QualiPHY installer file **QualiPHYInstaller.exe** from the website onto a USB memory stick (with at least 30MB), and then proceed with the installation as explained in the next section of this manual. An alternate solution is to connect the oscilloscope to a Local Area Network (LAN) to access the installer using the Internet.

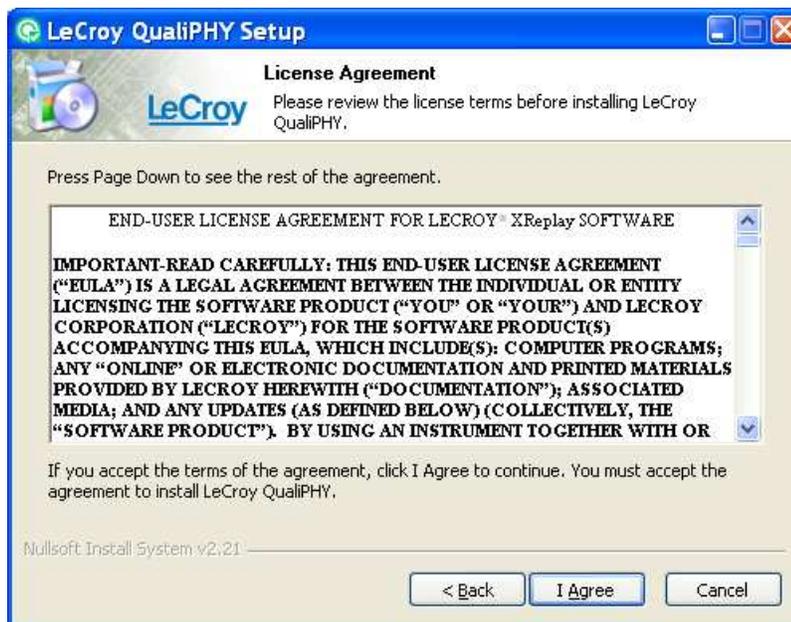


Executing the Installer

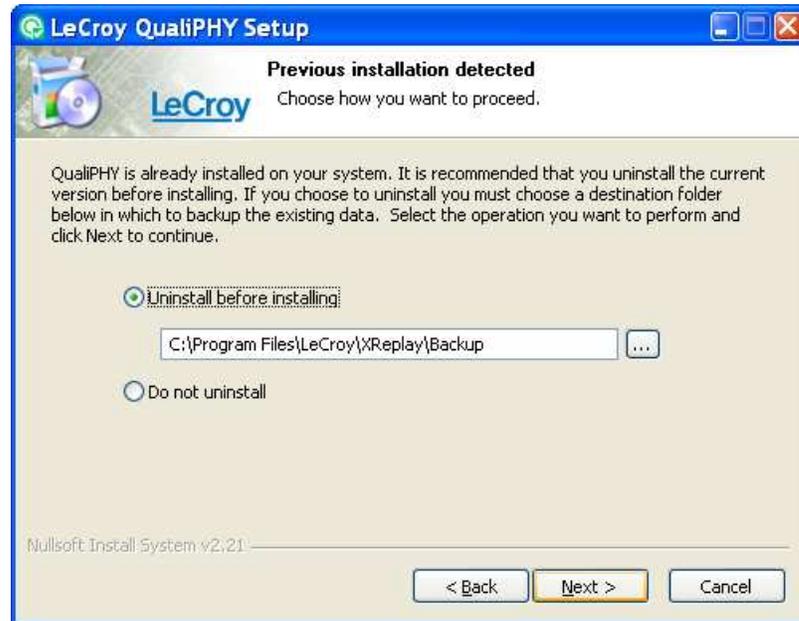
- Double-click the installer executable. The **Welcome** screen is shown.



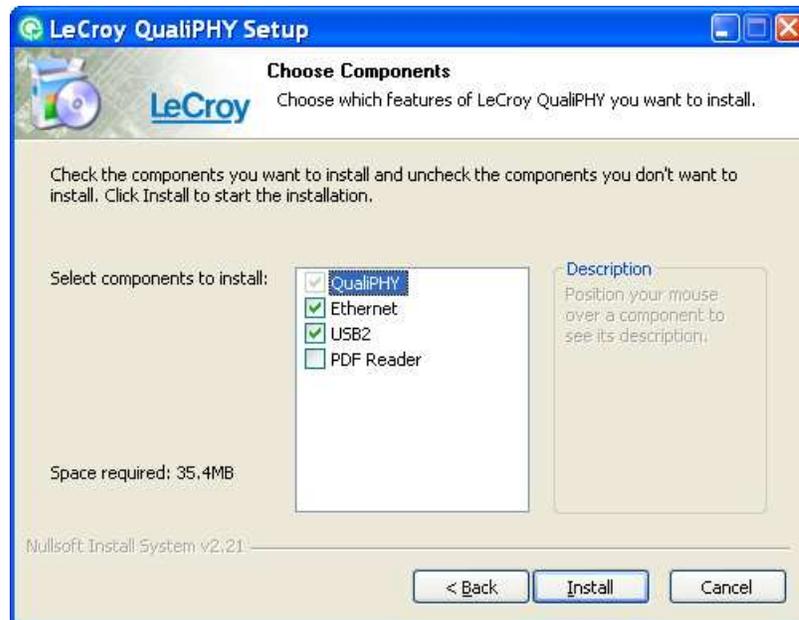
- Read the End User License Agreement. If you agree, click the **I Agree** button.



- If the application is already installed, the following window is shown. Choose to either **Uninstall** (and keep a backup of the existing file to a selected folder) or **Do not uninstall** (and overwrite any existing files).

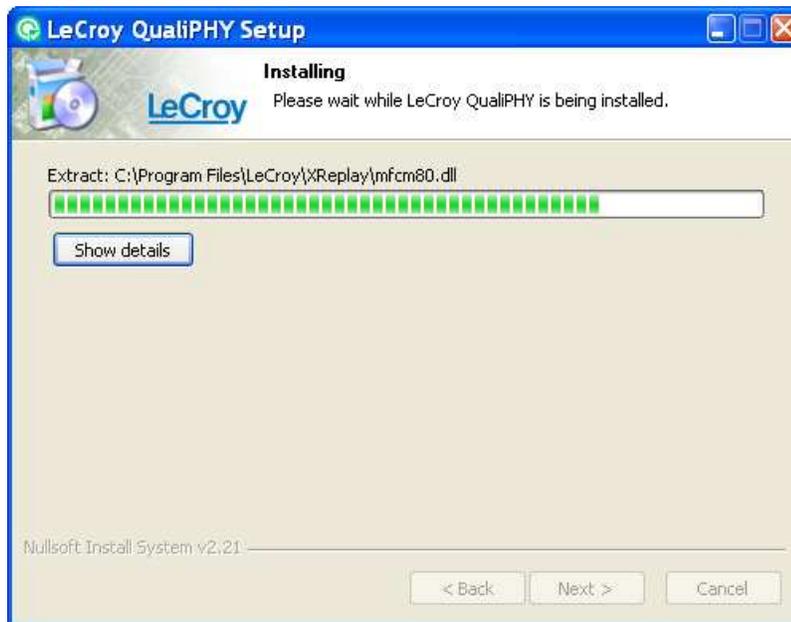


- Install the serial data components required for the operation. While it is possible to install all the serial data components, only ones enabled with an option key are operational.

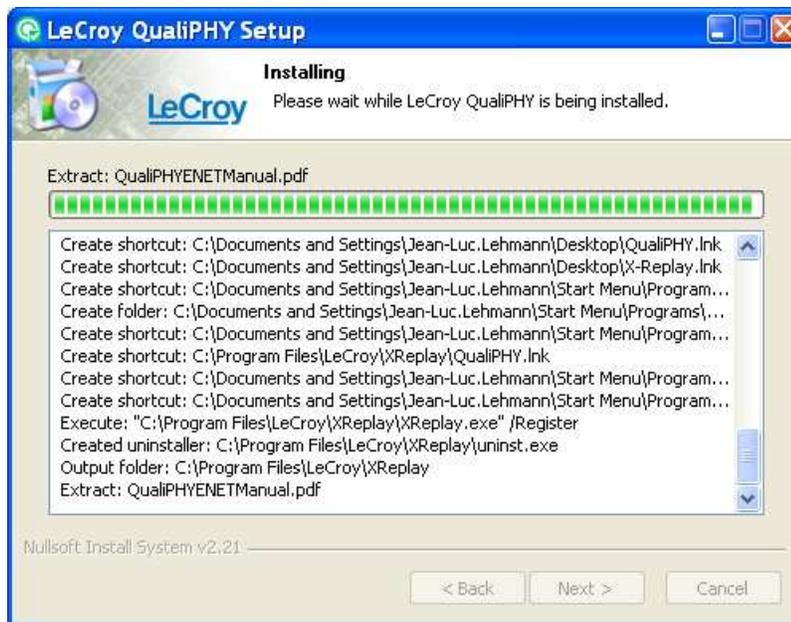




- The installation progress bar is then shown.



- Click the **Show details** button to see more installation details.



- Once finished, you can launch the application and/or display the manual. Un-check a box if you don't want the corresponding automatic action performed, and then click the **Finish** button.



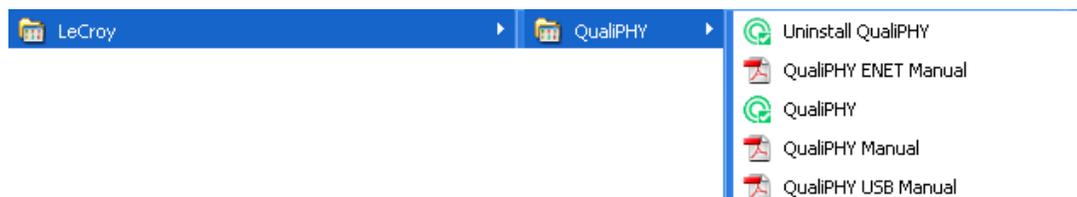
Note for X-Replay users: If an application using X-Replay executable was previously installed, it is overwritten (upgrading the X-Replay version). X-Replay is the underlying core application of QualiPHY.

Installation Directories

This section lists all objects created by the installation process.



- A shortcut is created on the desktop:
- A QualiPHY group is created under **All Programs** → **LeCroy**.



It contains shortcuts for launching QualiPHY, uninstalling the application, or opening manuals.

- All application files are installed under C:\Program Files\LeCroy\XReplay.



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COMPLIANCE TEST – MODE OF OPERATION

In general, serial data waveforms, primarily LVDS (Low Voltage Differential Signals, data or clock), need to be measured so proper design can be verified or debugged. To capture signals and preserve signal frequency content, it is essential to use active differential probes, and to capture millions of samples (data points) for each test to perform Electrical Signal Integrity measurements. These test conditions are often dictated by the serial data standard in question. In the case of serial data standards under development, the definition of measurement methods and algorithms is undertaken by committee members actively participating in the standards.

A typical user setup has the oscilloscope in **Compliance Mode** while performing the following test types:

- **Amplitude Tests** - differential or single-ended voltage, amplitude, etc.
- **Timing Tests** - rise and fall times, inter- and intra-line skew, jitter, etc.
- **Frequency Domain Tests** - differential or single-ended return loss

You can display several signals in eye mode (to minimize display size and maximize information display). Typically, users set up a trigger on the clock signal, perform single-shot acquisitions, and then measure timing between specific events. Sometimes, you may be unsure of what you are looking for, or events may be widely separated in time. So, long capture times (and long memory) are important for system analysis.

An Example Using Ethernet (QPHY-ENET)

Assuming that the QPHY-ENET automated test solution (Option Key QPHY-ENET) has been installed on the oscilloscope and the QualiPHY installation (on the oscilloscope by default or a host computer) is complete:

Note: For demonstrative purposes, some interfaces used in this example differ from the QPHY-ENET interfaces.

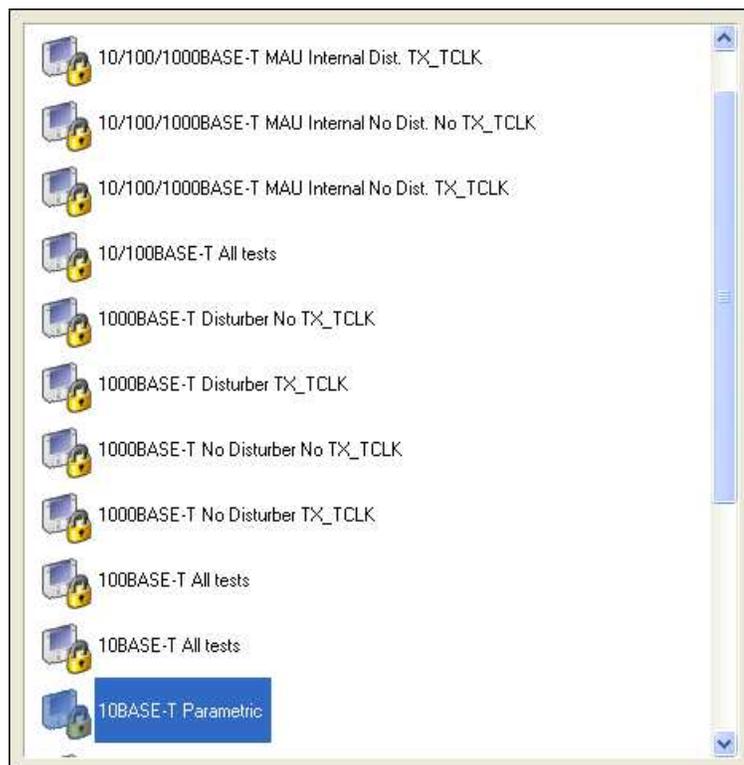
1. Double-click the **QualiPHY** desktop icon (or select **Analysis** → **QualiPHY...** on the oscilloscope menu) to launch the QualiPHY automated test solution. There is a brief splash screen and then the main window with a standard selected by default (here Ethernet).



- Click the **Standard** button and then select **ENET** from the **Standard** menu for tests to be performed on a real-time oscilloscope.

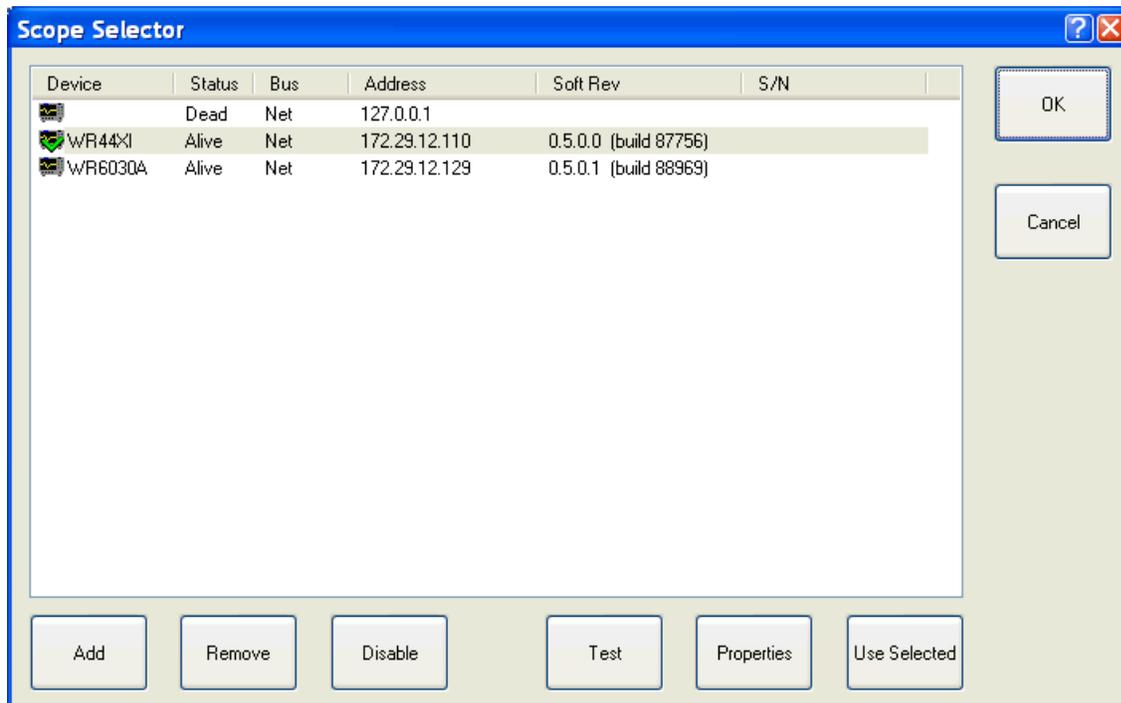


- Click the **Configuration** button and select the appropriate configuration. A configuration is a pre-defined selection of the tests to be executed during a session.

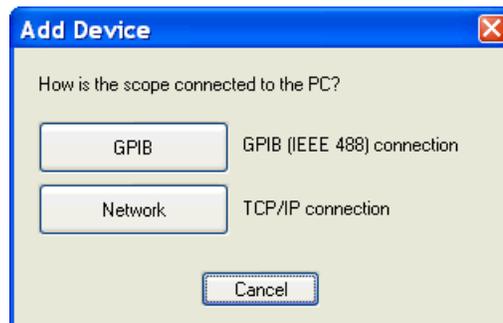




4. Ensure the oscilloscope is connected and ready to collect data from the device under test (DUT).
5. If QualiPHY is being run from a computer, click the **General Setup** button and then the **Connection** tab to establish communication with the oscilloscope. If QualiPHY is running on the measuring oscilloscope, you can skip ahead to step 10 of this manual. Otherwise, use the following steps.
6. From the Connection tab (**General Setup** button) click the **Scope Selector** button, and then the **Add** button.



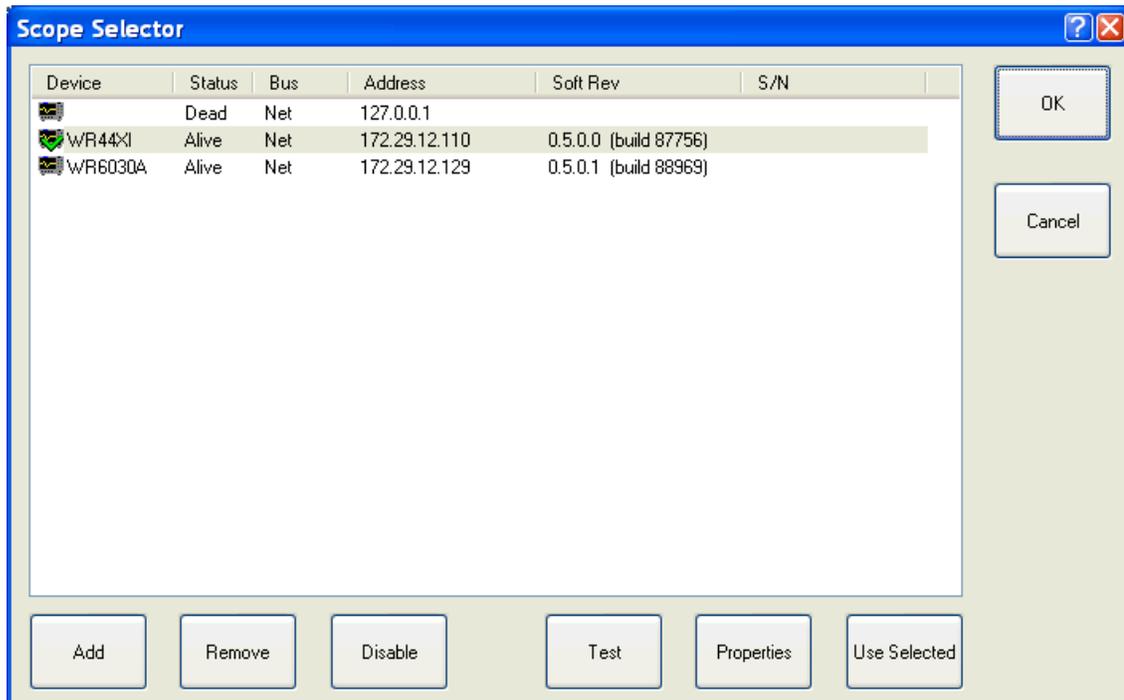
7. Select **Network**, unless you are using a GPIB connection to the oscilloscope.



8. Enter a valid IP address or LeCroy serial number for the oscilloscope connection. When QualiPHY is installed on the oscilloscope, the default IP address is 127.0.0.1. When QualiPHY is installed on a separate host computer, both the host computer and the oscilloscope must be configured in a LAN and have a valid IP address.



9. Click **OK**. When the oscilloscope is properly detected, the following window is shown. Click the **Test** button, ensure the oscilloscope status is **Alive**, and then click **OK**. To select another oscilloscope, click the corresponding line and then click on **Used Selected**.





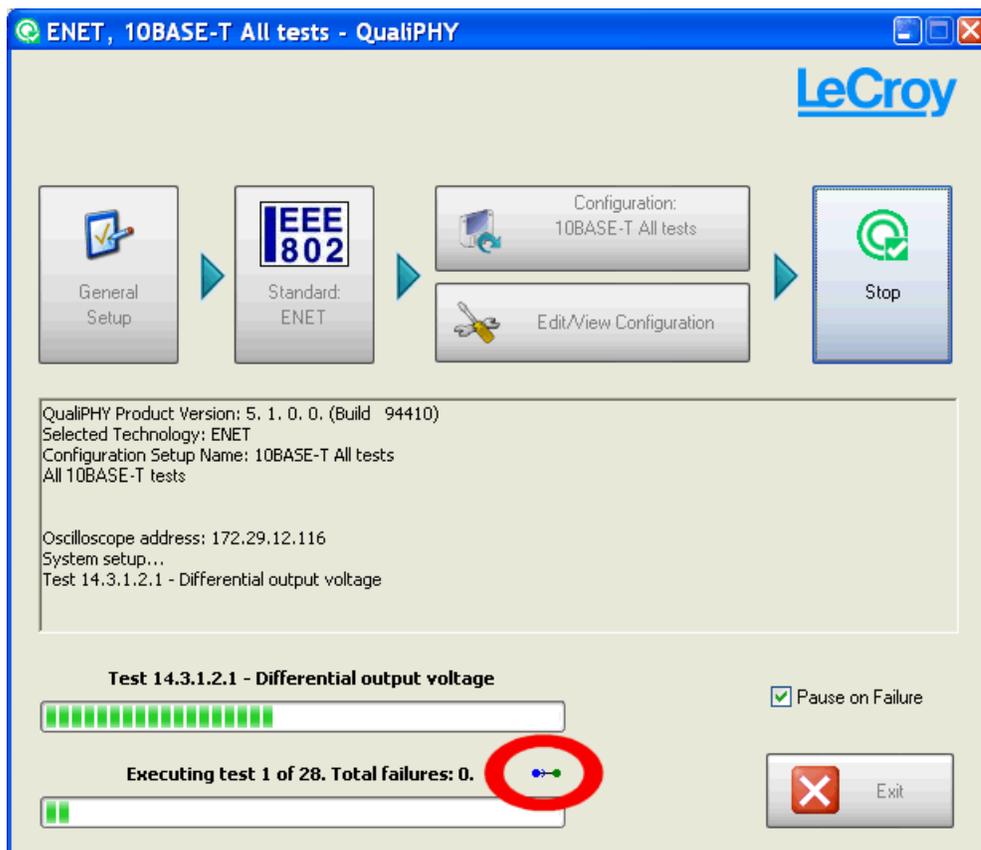
10. Make sure the device under test is properly connected. Now, click the **Start** button. A **Session Info** dialog is shown to enter your name, the device under test, etc.

The **Session Info** dialog box contains the following fields:

- Operator Name: Operator
- Device Under Test: DUT
- Temperature (in °C): 25
- Comment: Test Compliance

An **OK** button is located at the bottom center of the dialog.

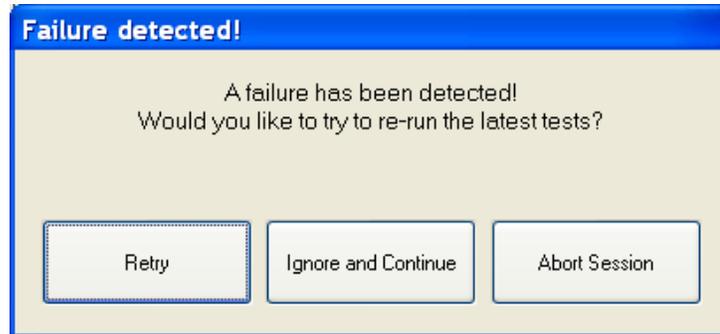
11. With the information provided as desired, click **OK**. The automated testing then starts.



The **Start** button is replaced with the **Stop** button and two progress bars are shown on the bottom-left of the window. As the tests run, the top progress bar indicates individual test progress and the bottom progress bar

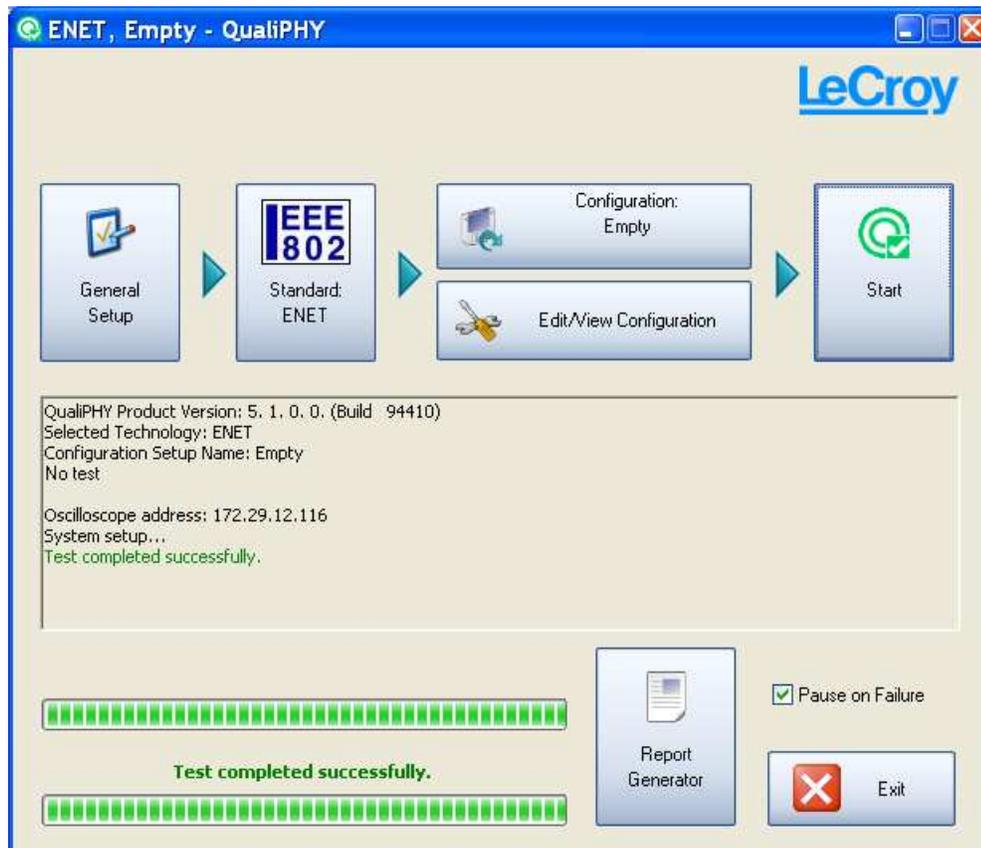
indicates overall progress. A small animated icon appears during lengthy oscilloscope processing sequences (circled previous).

If the **Pause on Failure** checkbox is checked, the following message is shown whenever scripts fail.



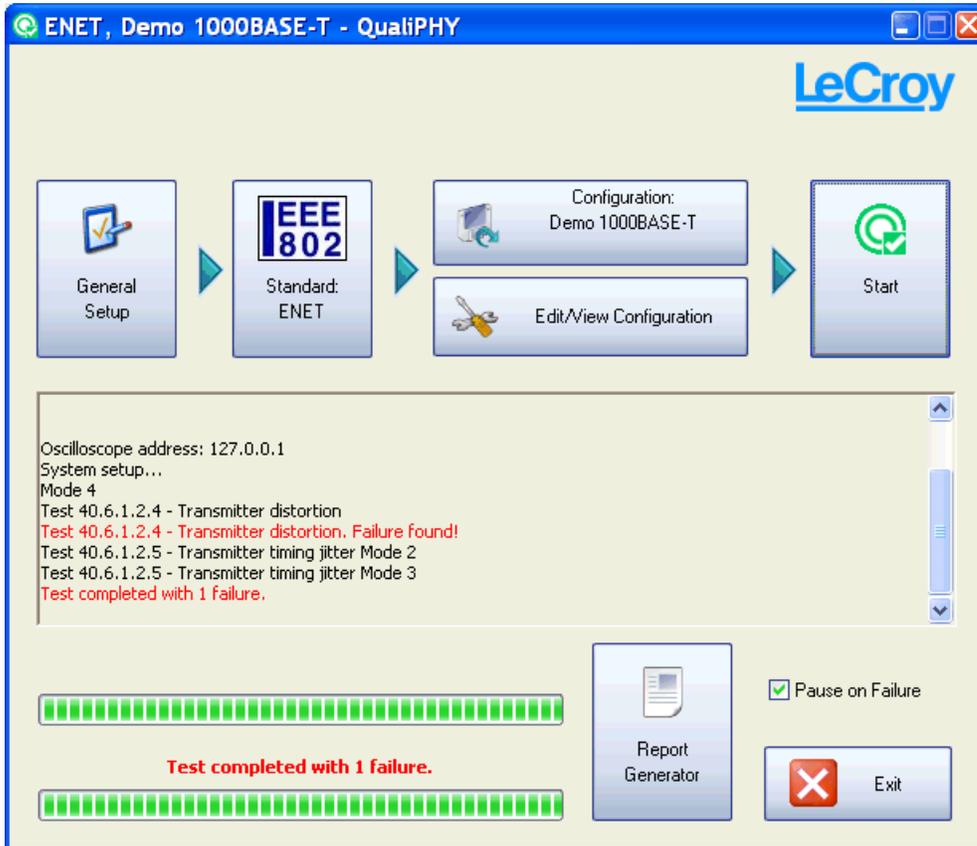
- Click the **Retry** button to re-run the script from the latest established point defined in the script.
- Click the **Ignore and Continue** button to continue with next test,
- Click the **Abort Session** button to stop the script.

When all tests are successfully completed, both progress bars are completely green and the message **All tests completed successfully** is shown in green between the progress bars.

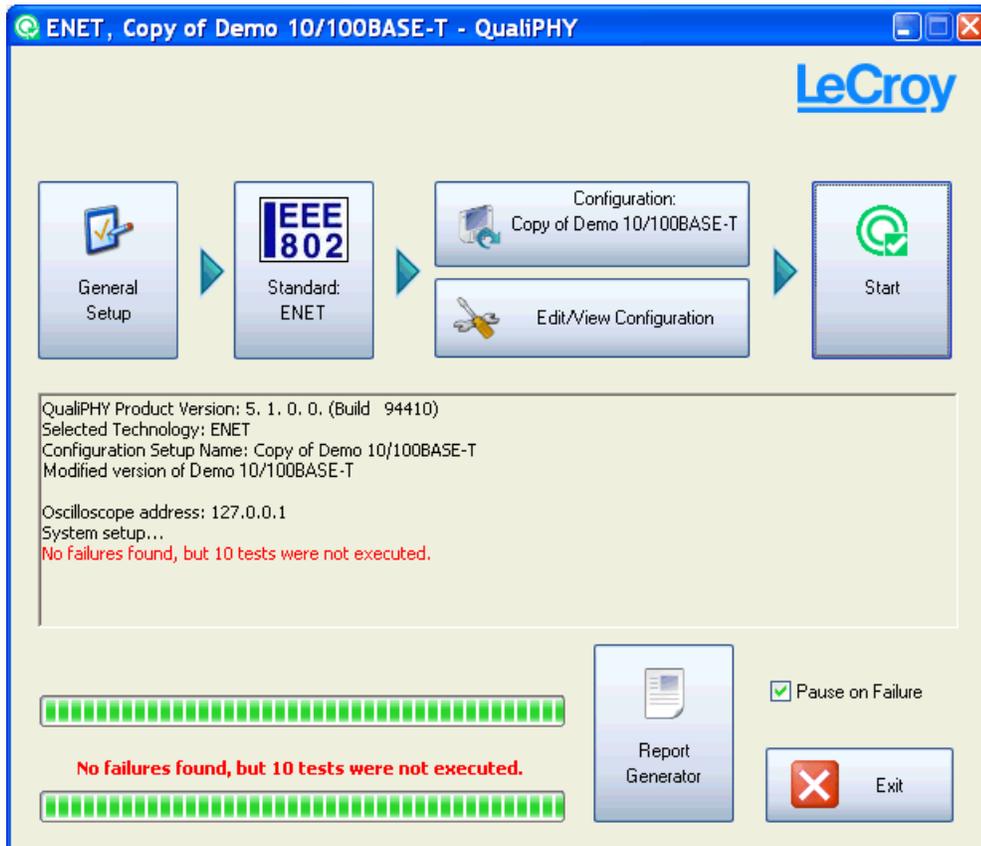




Errors messages are shown (along with the number of failures) in red, as follows:

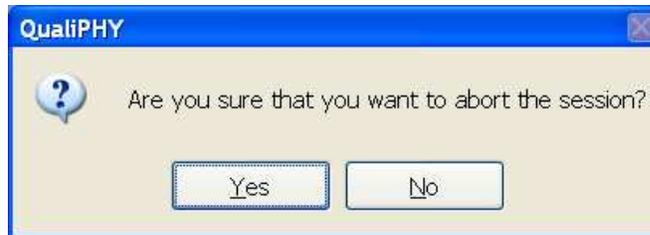


The following error is shown when all tests are not completely executed.

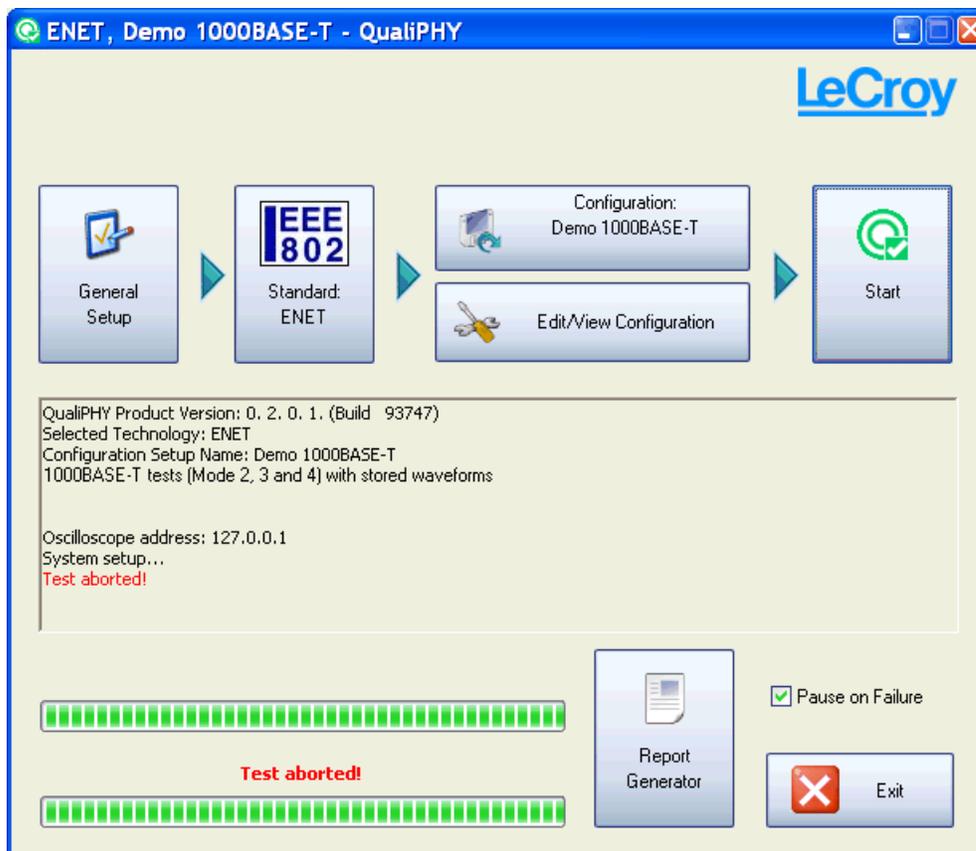




Cancel the tests at any time by clicking the **Stop** button. If **Stop** is clicked while a test is running, a confirmation message is shown after the current script step is completed.



The following message is shown in red if the **Yes** button is clicked.



After the test is completed or stopped, create a report clicking the **Report Generator** button. Based on default behavior settings, the **Report Generator** can launch automatically, be shown in a dialog window, or directly create the report.

See the **Report tab** section under **General Setup** for more report generation detail.

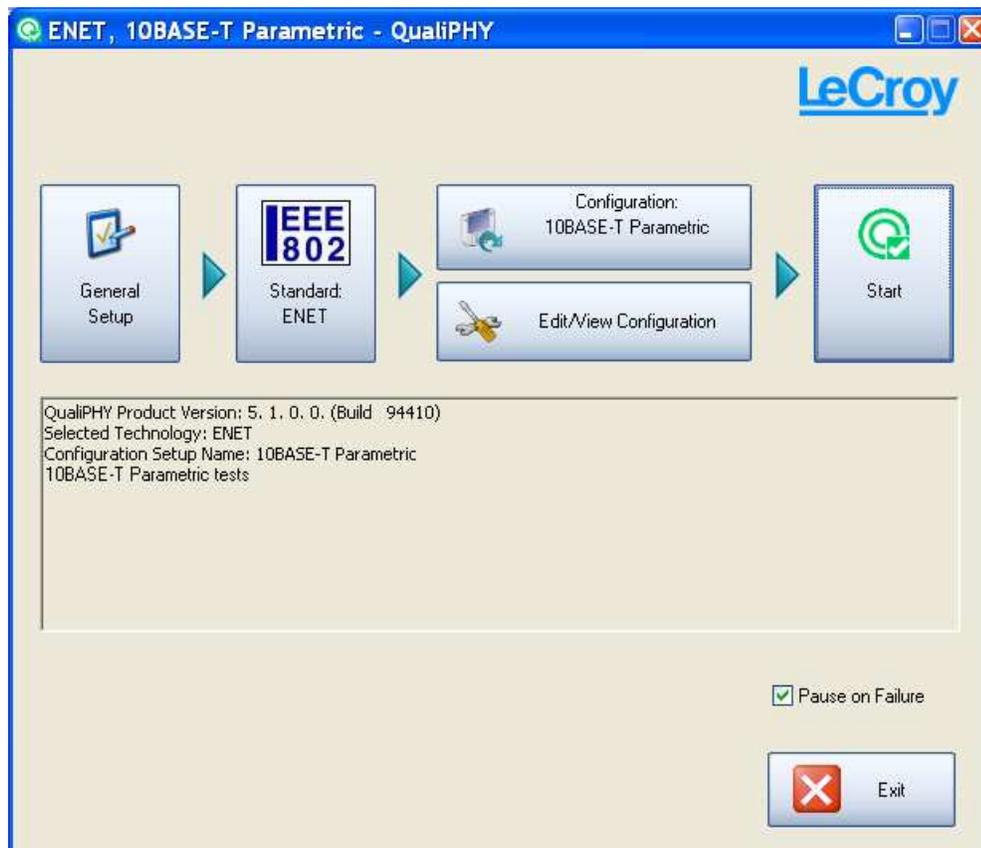
MENU REFERENCE

Launching QualiPHY

Double-click the **QualiPHY** icon on the desktop to launch the QualiPHY automated test solution. A QualiPHY splash screen is shown.



Then the QualiPHY main window is shown, a serial data standard is selected by default. The following shows the Ethernet standard in this manner.



At this point you can quit the application by clicking the **Exit** button (or on the top-right close window button). When launched again the QualiPHY window remembers its position on the desktop and the last **Standard** and **Configuration** selected.

An Alternate way to Launch QualiPHY:

You can also launch QualiPHY by selecting **Analysis** → **QualiPHY...** on the oscilloscope menu. This sets the XStreamDSO application in the windowed mode adjusted to fit the screen. Switch between applications using the



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application buttons in the Windows task bar (alternately, use the **Alt + Tab** key combination). The Alt + Tab method allows for switching between applications while XStreamDSO remains in full-screen mode.

Right-clicking the application from the Windows toolbar provides the following choices:



The main QualiPHY window can also be minimized using the standard close window button at the top-right of the screen.

On the main QualiPHY window, click the **Standard** button for a pop-up list. A green radio button is shown on the standard currently selected and unavailable standards are grayed out. Only one standard may be chosen for testing at a time, and in the example, only the ENET IEEE 802 and USB standards may be used.



Press the **Escape** key to close the window.

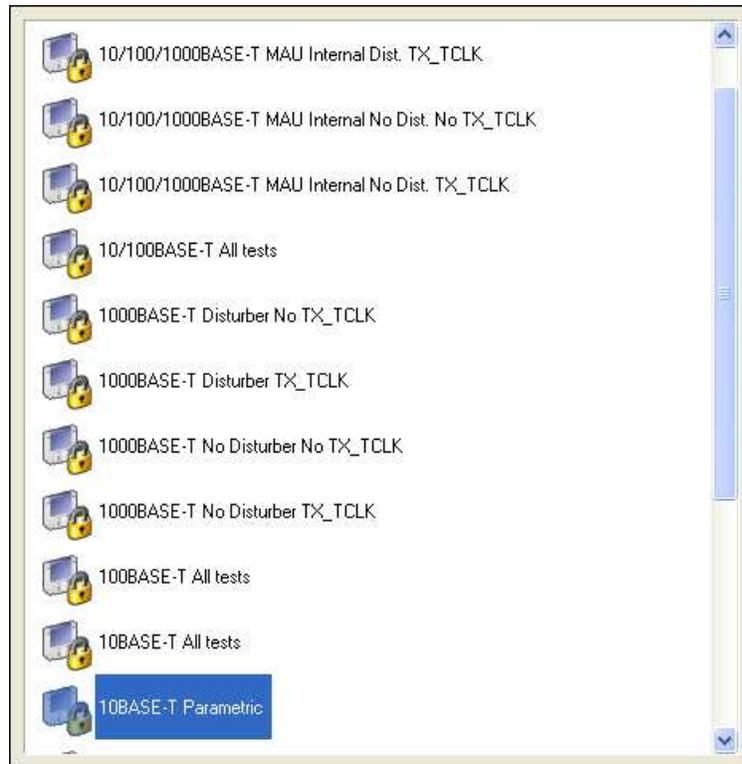
Click a standard (e.g. ENET for Ethernet). New information is shown in the log field (of the QualiPHY main screen) as follows:



Note: The font in the log window is first defined by the core application. Then, it is defined in the selected Standard script. The core application information is shown once a standard is selected. All log information can be copied using standard copy/paste functions.



Click the **Configuration** button for a pop-up configuration selection (example for ENET).

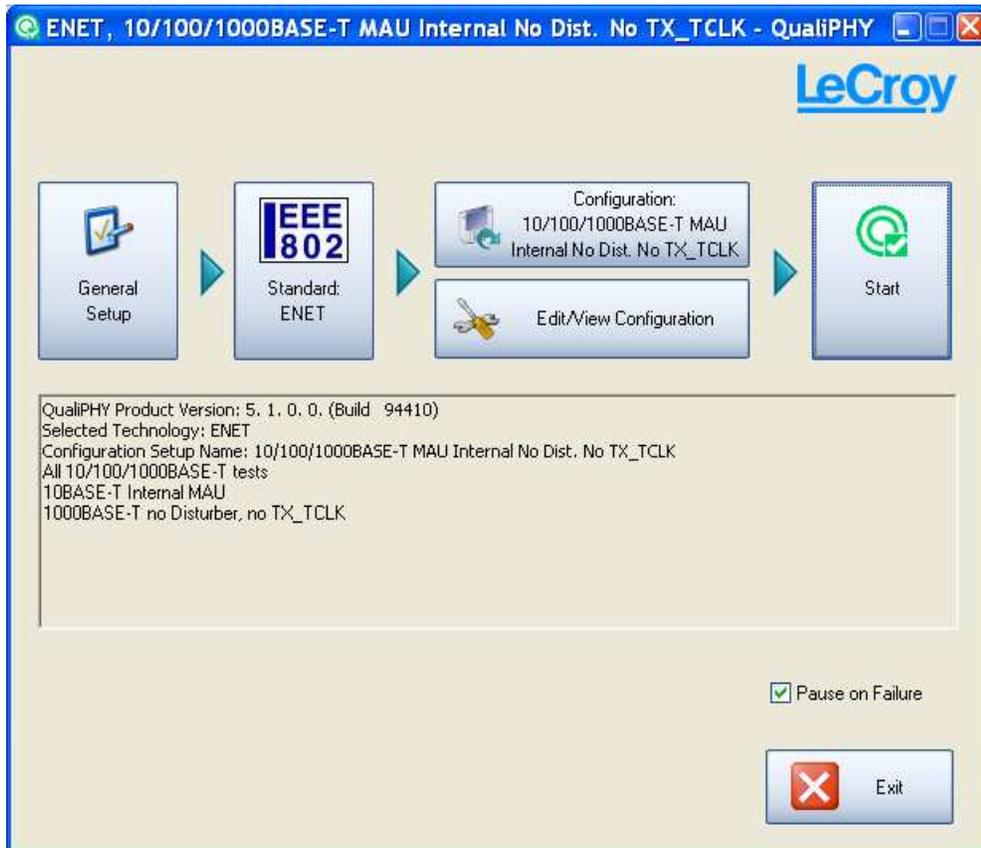


The currently-selected configuration is highlighted. Use the vertical scroll bar on the right to view the list of all available configurations.

Each configuration enables a pre-defined subset of all the tests available for a given standard. A number of pre-defined configurations are provided with each standard. There is usually a full test configuration and then subsets allowing the test of specific characteristics. Creating configurations can be done (please see the **Editing Configuration** section on page 46 for more information).

Press the **Escape** key to close the configuration selection window.

The following example shows the new log display when the third ENET configuration is chosen.





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General Setup

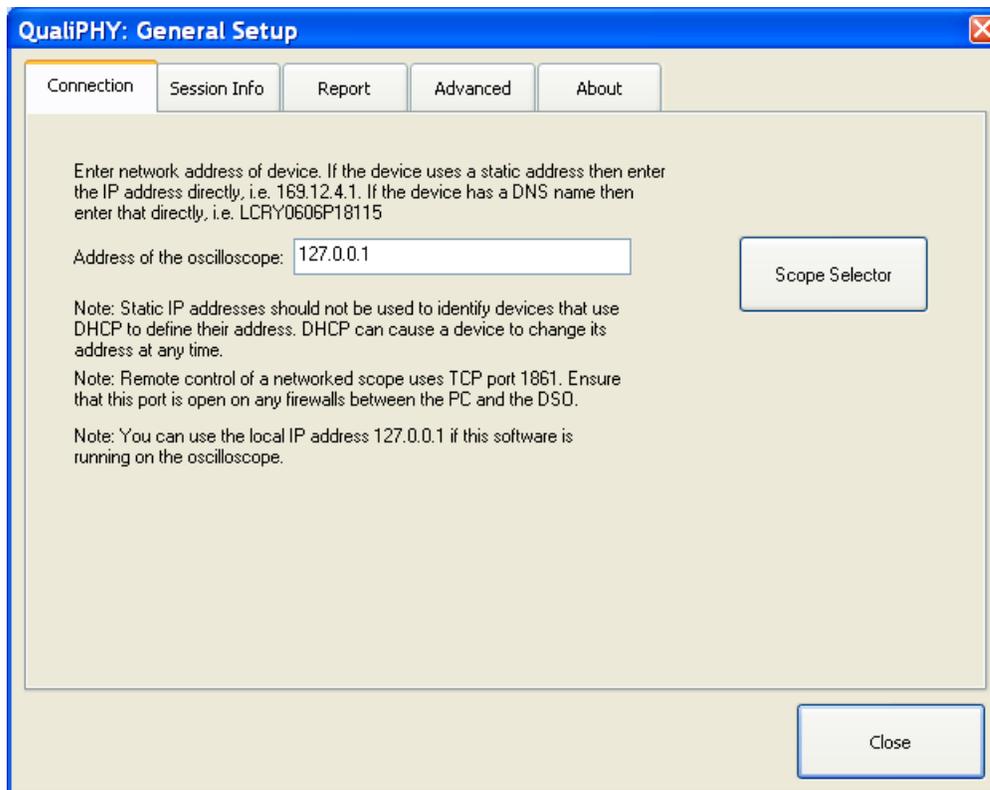
Using **General Setup**, ensure the oscilloscope is connected and ready to collect data from the device under test (DUT). Also, set the default behavior of the application by making configurations on the **Connection** (initially shown), **Session Info**, **Report**, **Advanced**, and **About** tabs.

Click **General Setup** button.



Connection Tab

The **Connection** tab is initially shown. This screen enables the establishment of communication with an oscilloscope. The oscilloscope address can be entered directly. The last address is entered by default - 127.0.0.1 corresponds to the local IP address.

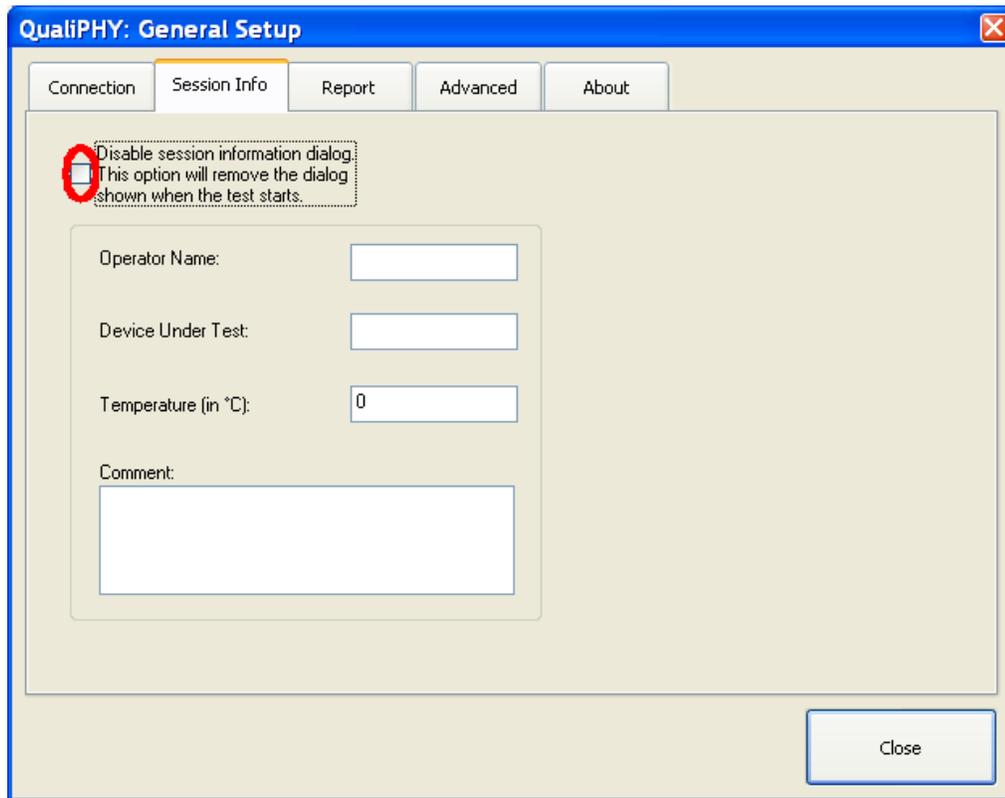


- If QualiPHY is running on the measuring oscilloscope, check the address is **127.0.0.1** and click **Close**.
- If QualiPHY is running on a host computer, enter the oscilloscope's **IP address**. For further information on how to set up a connection with an oscilloscope, follow the steps in the **Scope Selector** section of this manual.

Session Info TAB

The **Session Info** tab allows entering default information for the session (Operator Name, DUT, Temperature and Comment).

The information can be changed in the pop-up dialog shown when the **Start** button is clicked on the main screen. Disable the pop-up dialog by checking the checkbox (circled as follows).





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Report Tab

The **Report** tab allows setting the default behavior of the **Report Generator**.

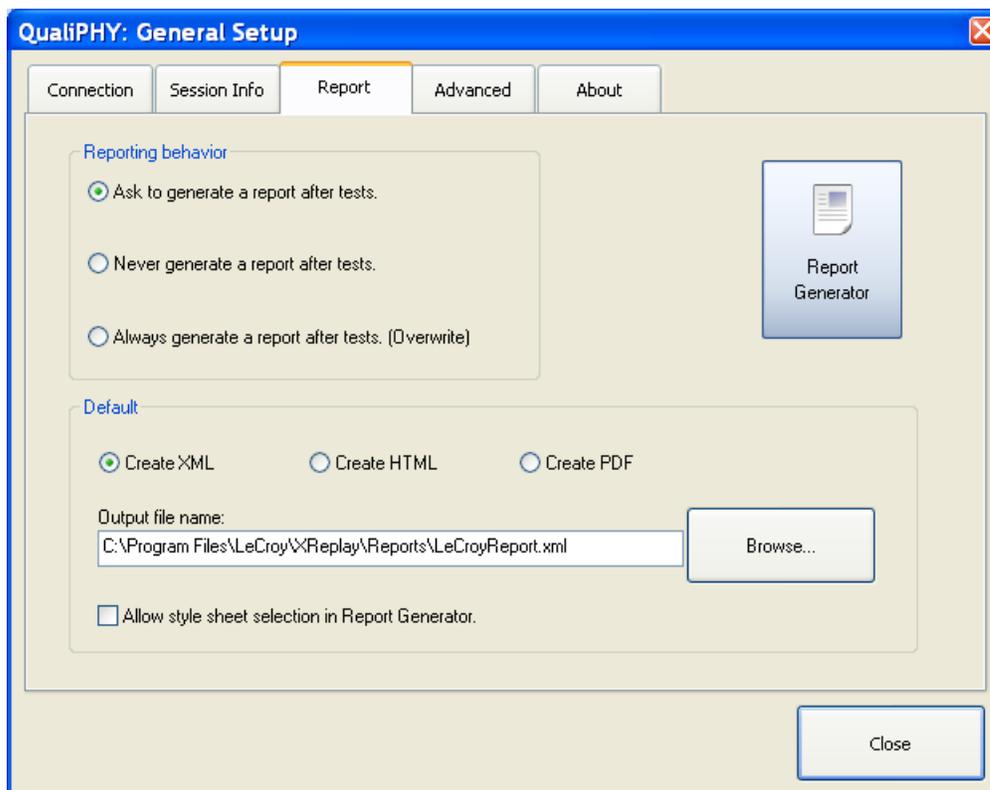
The following behaviors are available after the tests are finished:

- **Ask to generate a report**
- **Never generate a report**
- **Always generate a report** (overwriting the previous report)

The default report file type can be selected between XML, HTML or PDF.

The default output file name and location can also be changed using the **Browse...** button.

A default style sheet is provided in the package. Enabling the selection of another style sheet in the Report Generator is done by checking the **Allow style sheet selection in Report Generator** checkbox.

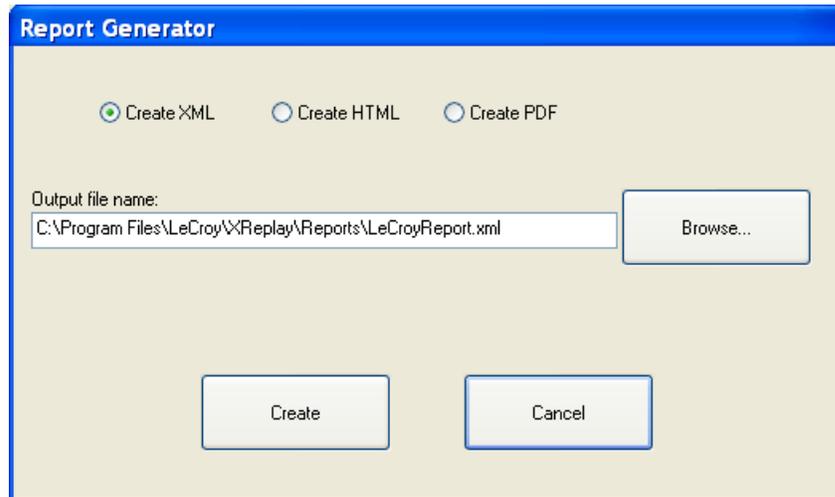


The script is actually contained in a database. All values and pass/fail statuses of the test results are stored in the database. The script also saves screen-shot images in the database. The size of the screen-shot is determined by the size of the XStreamDSO window. For the best resolution (and largest image), the XStreamDSO application must be set to full screen.

Note: Reduce report image size by selecting **File** → **Windowed** in the XStreamDSO application, then resize the XStreamDSO window.

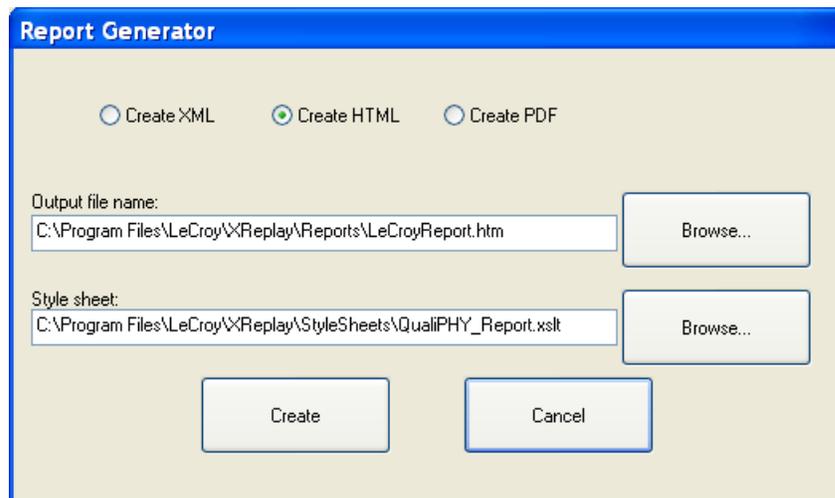
Warning: If the XStreamDSO application is minimized, an icon substitutes the trace screen-shot in the report.

Create a report for the current session by clicking the **Report Generator** button. The following screen is shown.



This screen allows the changing of a single report file type. The output file name and location can also be modified for the report from this location.

- If the **Ask to generate a report after tests** radio button option is selected as the default behavior (on the main Report tab, previous), the same window is shown after the tests are complete or aborted.
- If the **Allow style sheet selection in Report Generator** checkbox is checked (on the main Report tab, previous), a selection field for the style sheet is displayed in the **Report Generator** screen as follows:



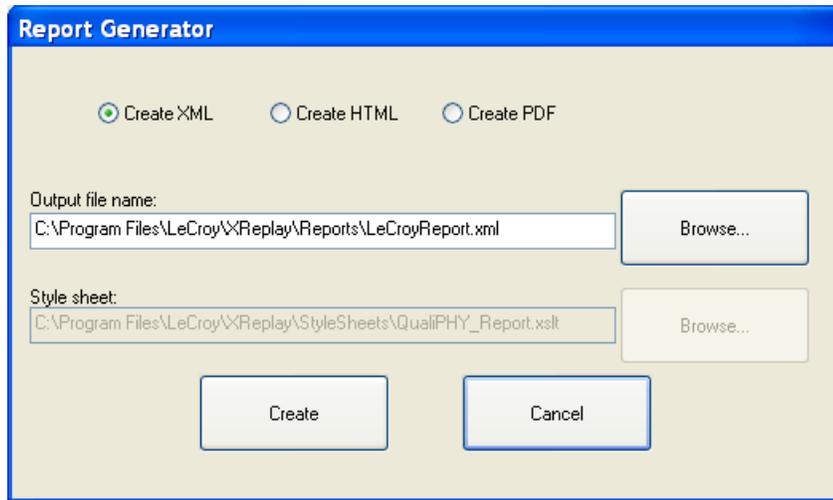
Click the **Browse...** button (or use the text field) to locate another style sheet.

Any change done to this window only applies to the one report instance. After the report is run, the settings revert to the default as defined on the **Report** tab of the **General Setup** (shown previous).

The style sheet also reverts to the one defined in the selected standard database as it is dedicated to the standard as opposed to the other general settings.



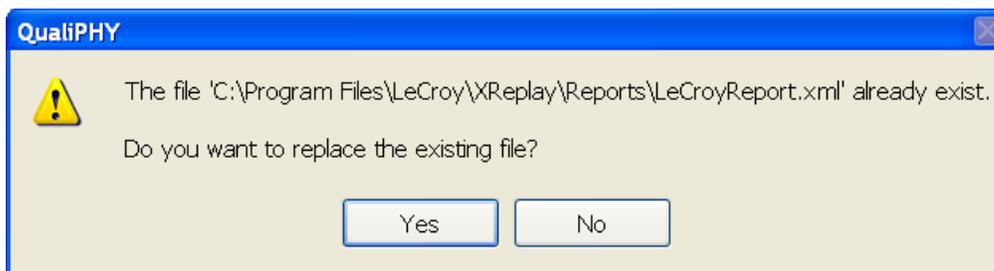
When XML is selected, the style sheet choice is not available (not necessary for the XML format).



Note: XML is the basic report format. HTML is created by using the XML data and applying it to the style sheet. A PDF is created by printing the HTML report.

Generate the report by clicking the **Create** button.

If a report with the same file name already exists, a confirmation message is shown.



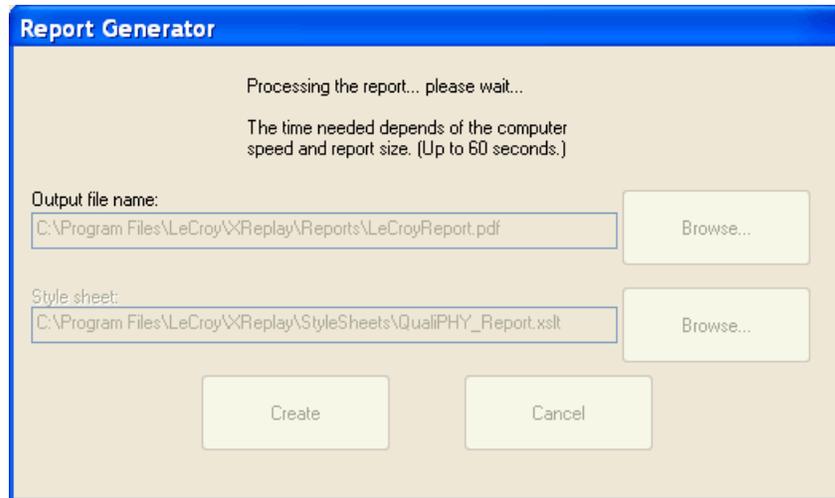
WARNING: If the **Always generate a report after tests. (Overwrite)** option is selected as a default behavior (on the main Report tab, previous), this window is not shown, and any existing file is overwritten.

If there is no valid session, the following failure message is shown.



With a valid session, the application proceeds with report creation.

During report generation, a processing message is shown.



As the generation of a PDF report can take considerably longer to produce (over a minute), an animated window appears during processing of the HTML to PDF conversion.

The PDF report advantage is being a single file with embedded information. The PDF document can be magnified, but elements in the document do not change size relative to one another. The HTML report is viewed in a web browser and requires external files saved in a specific folder.

The report file is saved by default in the **C:\Program Files\LeCroy\XReplay\Reports** folder. Attached files are stored in a sub-directory of this folder. The sub-directory name uses the following convention:

<report file name>_<report file extension>_files

When prompted to overwrite a report, selecting **Yes** also removes the corresponding sub-directory before creating the new report.

Once the report is created, QualiPHY asks to open it. The report can always be opened later from the output file specified (shown previous), unless you create another report with the same name (and overwrite it). It is typical to view the report, and then save it from the viewer program with a meaningful name, in a more convenient directory.



Note: Add your own logo to reports by replacing the **CustomerLogo.jpg** file in the **C:\Program Files\LeCroy\XReplay\StyleSheets** folder with a JPEG file containing your logo (with the same name). The maximum recommended size of the logo image is 250 x 100 pixels @ 72 pixel/inch, 16.7 Million colors, 24 bits.



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When opened, the report is shown in the corresponding appropriate viewer application (i.e. an internet browser for an HTML report).



ENET Test Report

Overall result: Pass

DUT:
 Comment:
 Time of test: 10/01/2007 15:42:54
 Operator:
 Temperature: 0° C

Configuration in use: Demo 10/100/1000BASE-T
 Limits in use: Default
 Standard in use: ENET
 Oscilloscope Name: LECROY-NB.lecroy.net Model: WR204XI
 Oscilloscope Serial #: WR000001
 Computer: LECROY-NB

Oscilloscope firmware version: 5.1.2.8 (Build 98481)
 QualiPHY core version: 5.1.0.3 (Build 97795)
 QualiPHY script version: 0.1.2.2
 Stylesheet version: 1.0

Summary Table

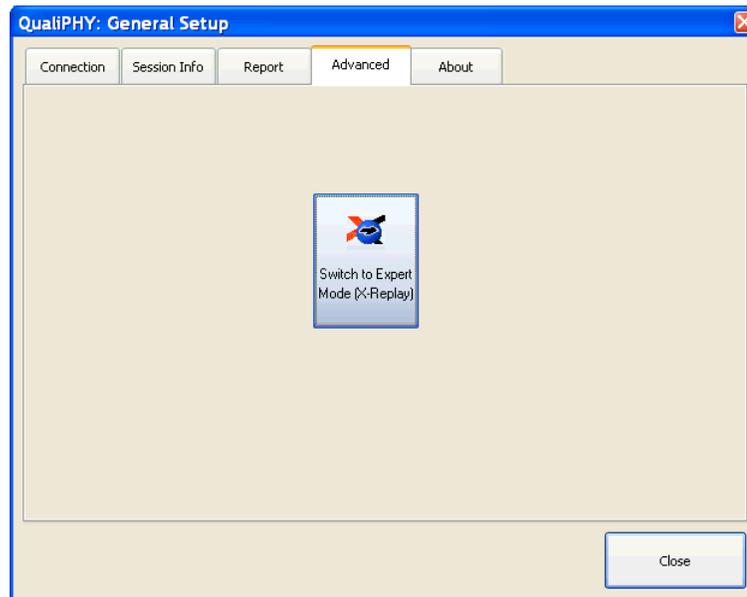
[\[Hide Table\]](#)

Pass	Test	Measurement	Current Value	Test Criteria
✓	14.3.1.2.1	Peak Differential Output Voltage	2.52 V	2.20 V < n < 2.80 V
✓	14.3.1.2.1	Differential Output Voltage Harmonics	28.9 dB	>= 27.0 dB
✓	14.3.1.2.3	8BT Output Timing Jitter 100 ohm without TPM Internal MAU	9.647 ns	<= 22.000 ns
✓	14.3.1.2.3	8.5BT Output Timing Jitter 100 ohm without TPM Internal MAU	9.603 ns	<= 22.000 ns
✓	14.3.1.2.3	8BT Output Timing Jitter 100 ohm with TPM Internal MAU	5.925 ns	<= 22.000 ns
✓	14.3.1.2.3	8.5BT Output Timing Jitter 100 ohm with TPM Internal MAU	5.038 ns	<= 22.000 ns
✓	14.3.1.2.1	TP_IDL 100 ohm without TPM (Head)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL 100 ohm without TPM (Tail)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 1 without TPM (Head)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 1 without TPM (Tail)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 2 without TPM (Head)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 2 without TPM (Tail)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL 100 ohm with TPM (Head)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL 100 ohm with TPM (Tail)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 1 with TPM (Head)	AllPass	AllPass
✓	14.3.1.2.1	TP_IDL Load 1 with TPM (Tail)	AllPass	AllPass

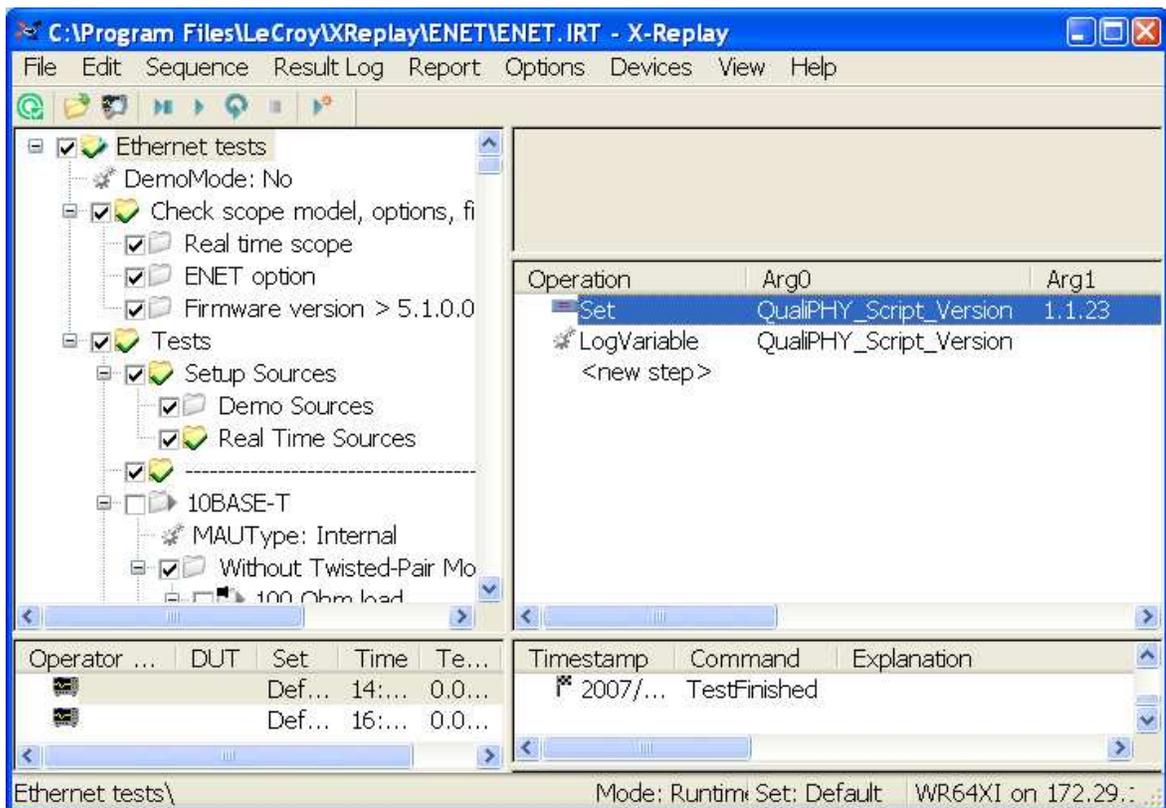
Upon opening an HTML report using some internet browser (such as IE7), you may get a warning message about scripts and ActiveX controls. The QualiPHY HTML report contains some scripts to help you browse through the results. Allowing the scripts to run will enable those features. Disabling the scripts will still allow viewing all results, however without the added browsing feature.

Advanced Tab

The **Advanced** tab allows access to advanced features.



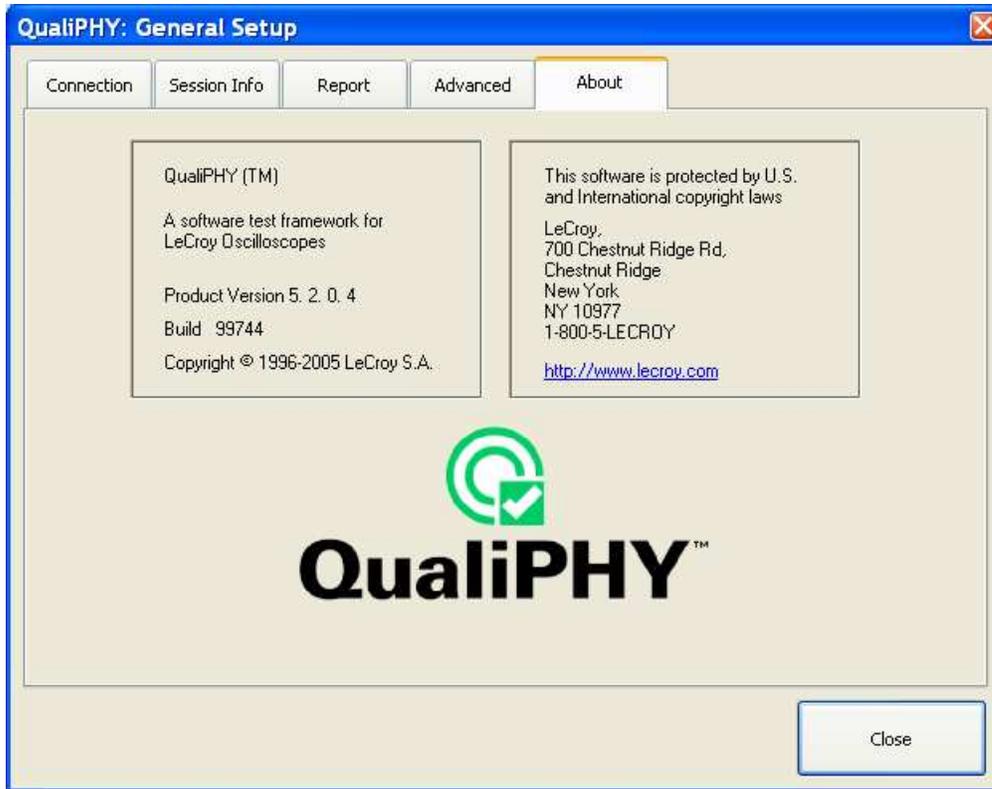
Click the **Switch to Expert Mode** button to close the QualiPHY screens and open the X-Replay screen:



Return to the QualiPHY window by clicking the **QualiPHY icon** in the toolbar (located in the leftmost position). Moving the mouse over the **QualiPHY icon** shows text indicating **Switch to QualiPHY Wizard mode**.



The **About** tab gives information on the QualiPHY version and build as well as LeCroy contact information:



Exit **General Setup** by clicking the **Close** button (or the top-right close window button).

Edit/View Configuration

Use **Edit/View Configuration** to view the current configuration settings and edit configurations. Click the **Edit/View Configuration** button.

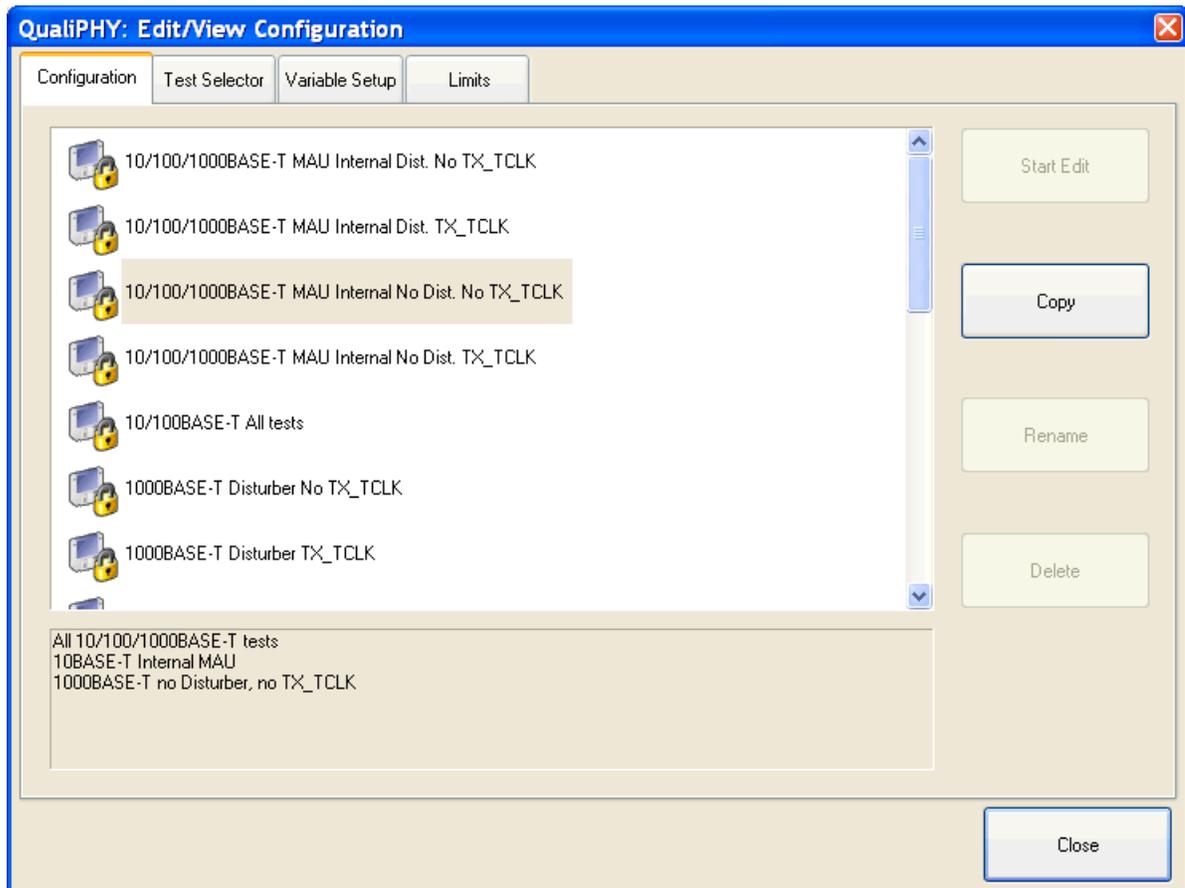


The Edit/View Configuration screen is shown and made up of the **Configuration** (initially shown), **Test Selector**, **Variable Setup**, and **Limits** tabs.

Configuration tab

The **Configuration** tab is shown initially after clicking the **Edit/View Configuration** button.

This tab opens with the current configuration highlighted. Changes can be made from this screen. When a new configuration is selected, a corresponding description is shown on the lower field.



The locked configurations are supplied by LeCroy and cannot be modified. It is not possible to delete them or modify their content. Change existing (locked) configurations by making a copy and saving it with a new name.

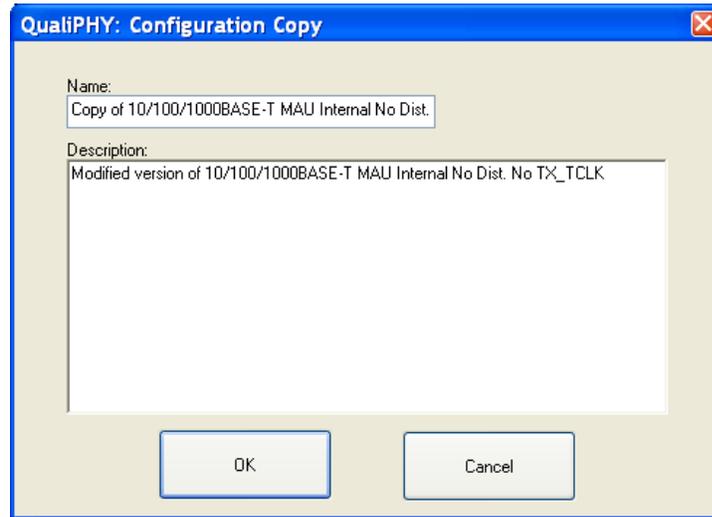
Once a locked configuration is saved with a new name, it can be edited, copied again, renamed and deleted. Use the other tabs of the **Edit/View Configuration** window to modify content. The following can be changed:

- Tests to be run

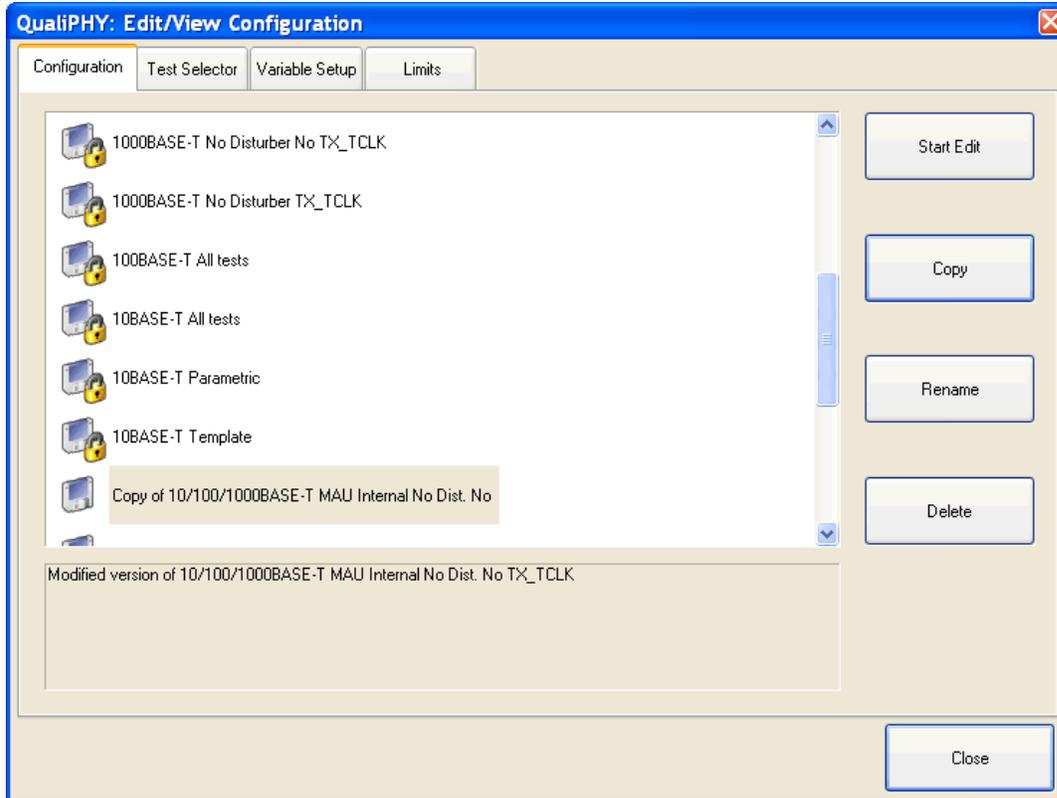


- Configuration variables state
- Limit sets

After clicking the **Copy** button, a proposed name is provided and can be changed.

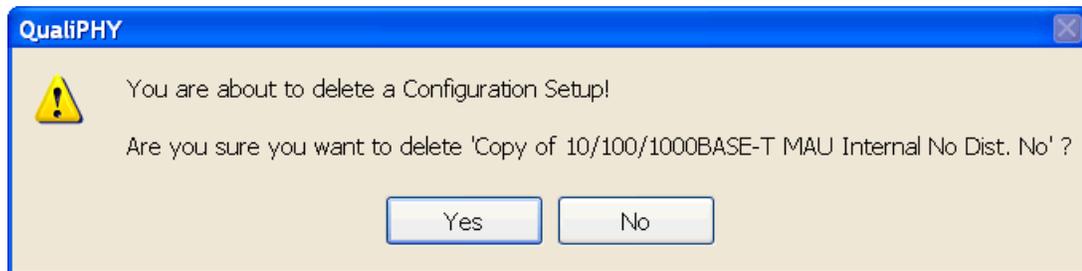


Click **OK**. The copy appears highlighted on the list.

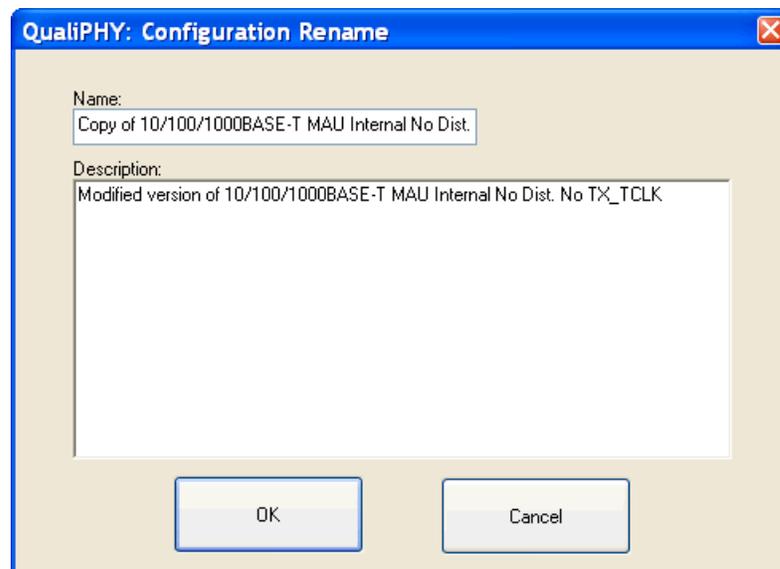


The new copied configuration is shown with a basic description. The **Start Edit**, **Rename**, and **Delete** buttons are active for the new configuration.

When the Delete button is clicked after selecting a non-locked configuration, the following pop-up appears:



Non-locked configurations can be renamed or have descriptions modified by clicking the **Rename** button.



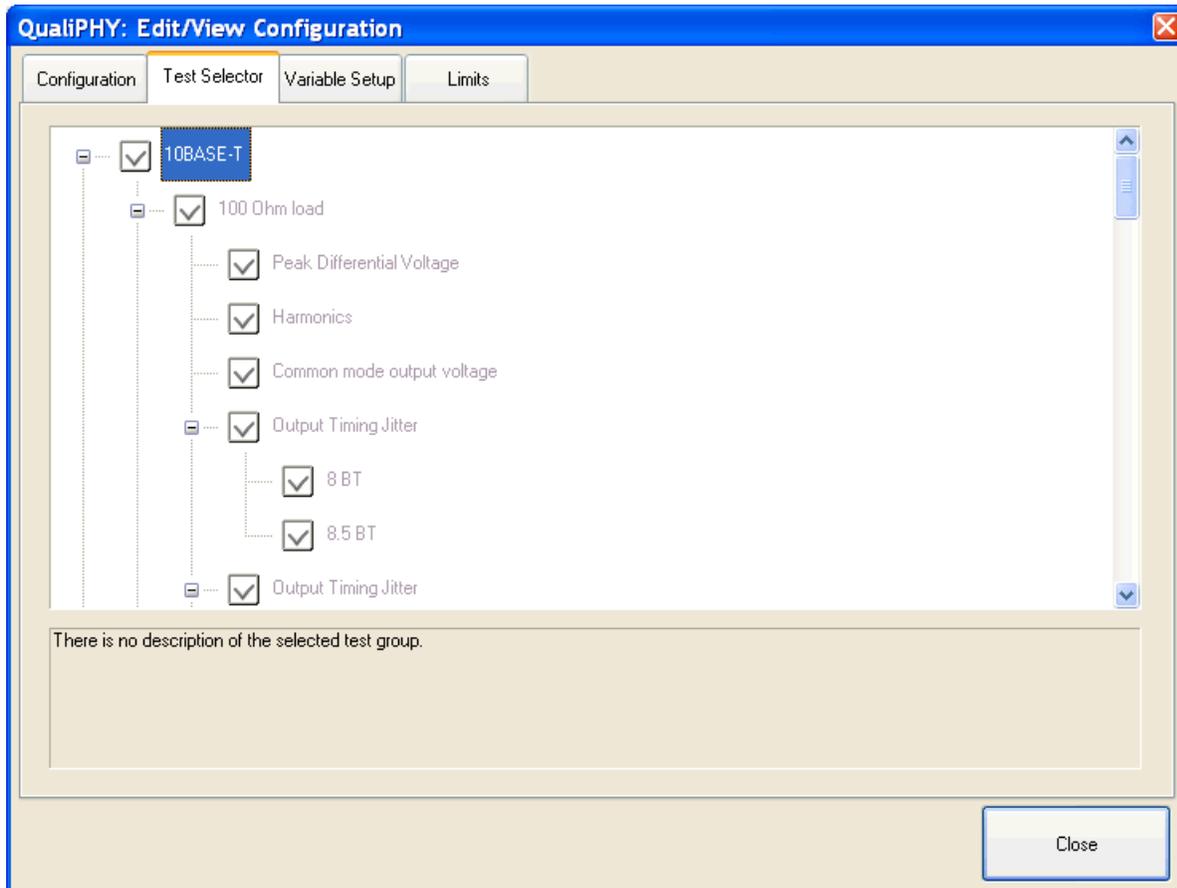
Note: The selected configuration copy still cannot be edited, as all information is gray under **Test Selector** and **Variable Setup** tabs.

For more information on the use of the **Start Edit** button, see the **Editing Configuration** section of this manual.

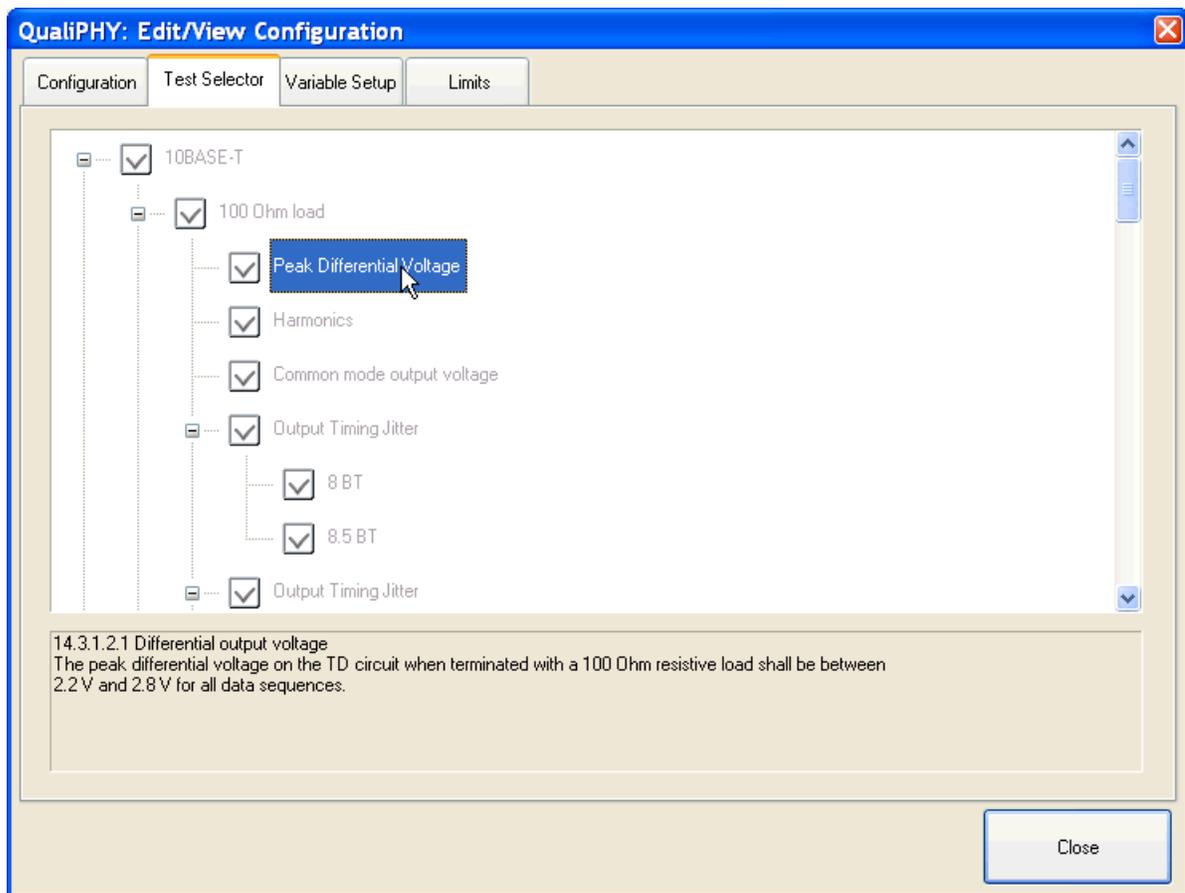


Test Selector tab

The **Test Selector** tab determines which tests are to be executed by placing a check mark in the box to the left of the test name. By default, only those tests necessary to generate a compliance test report are pre-checked. All other tests are either informational or do not apply to the specific test setup.



Click a test to view its description in the lower text field.



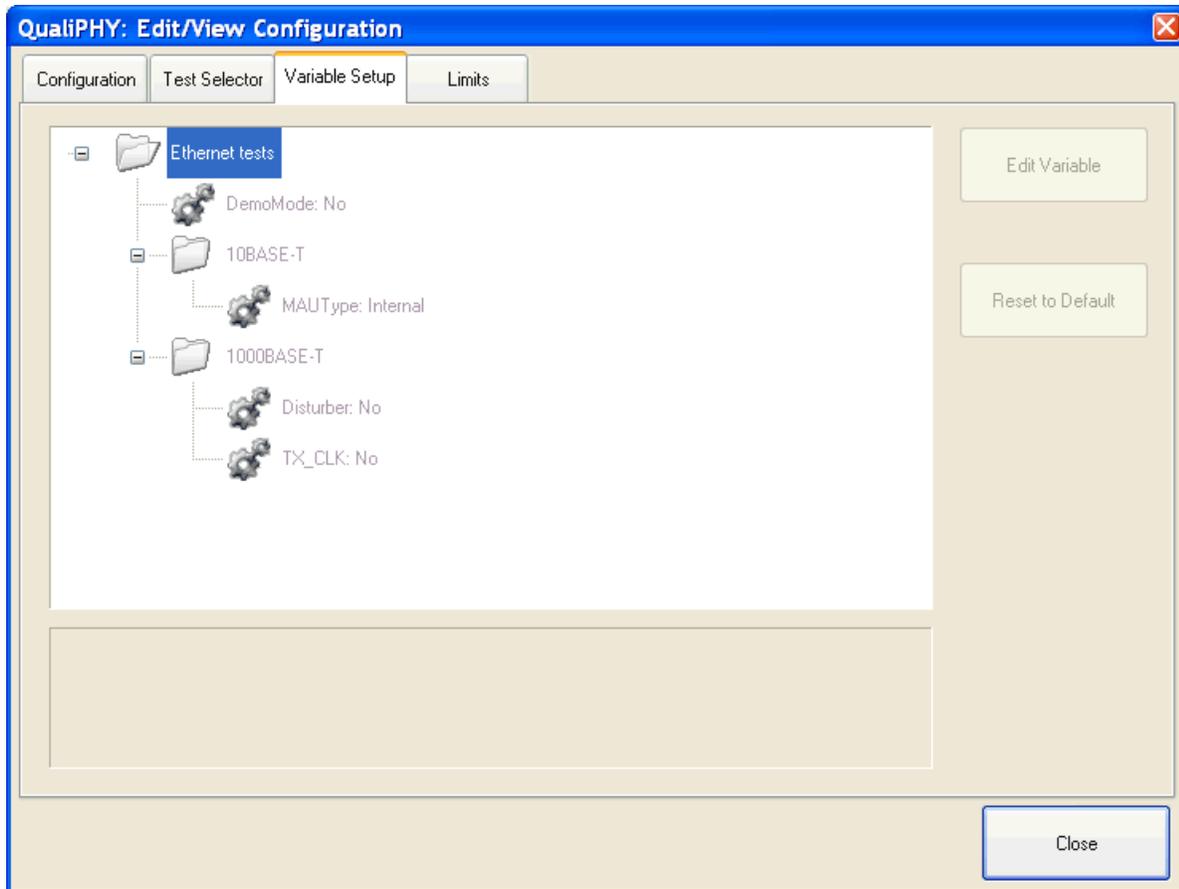
If the selected configuration is not in edit mode, the test tree appears in gray. Returning to this tab automatically selects the first item on the tree.



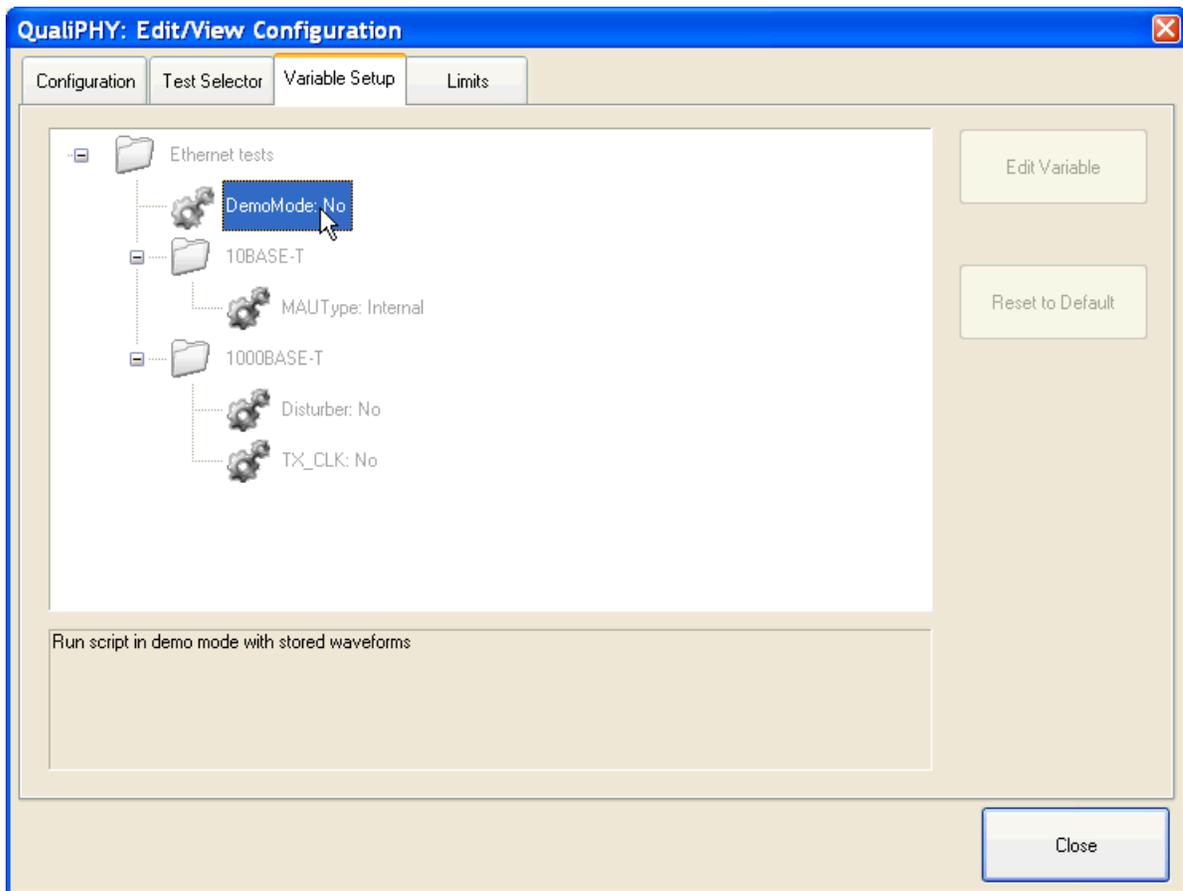
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Variable Setup tab

The **Variable Setup** tab controls values of configuration variables. For example, MAU type for 10BASE-T testing, disturber and TX_CLK present for Ethernet 1000 BASE-T testing.



Click a variable to view its description in the lower text field.



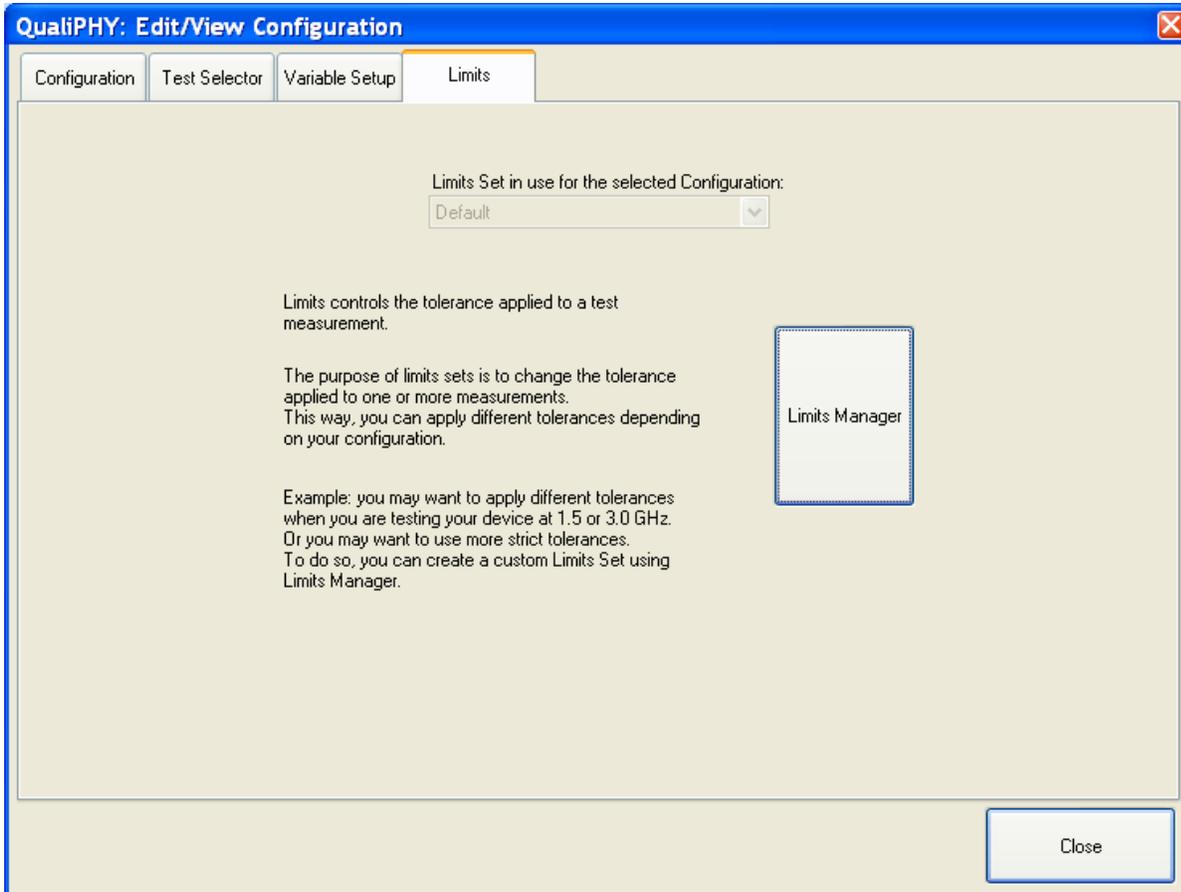
If the selected configuration is not in edit mode, the test tree appears in gray. Returning to this tab automatically selects the first item on the tree.



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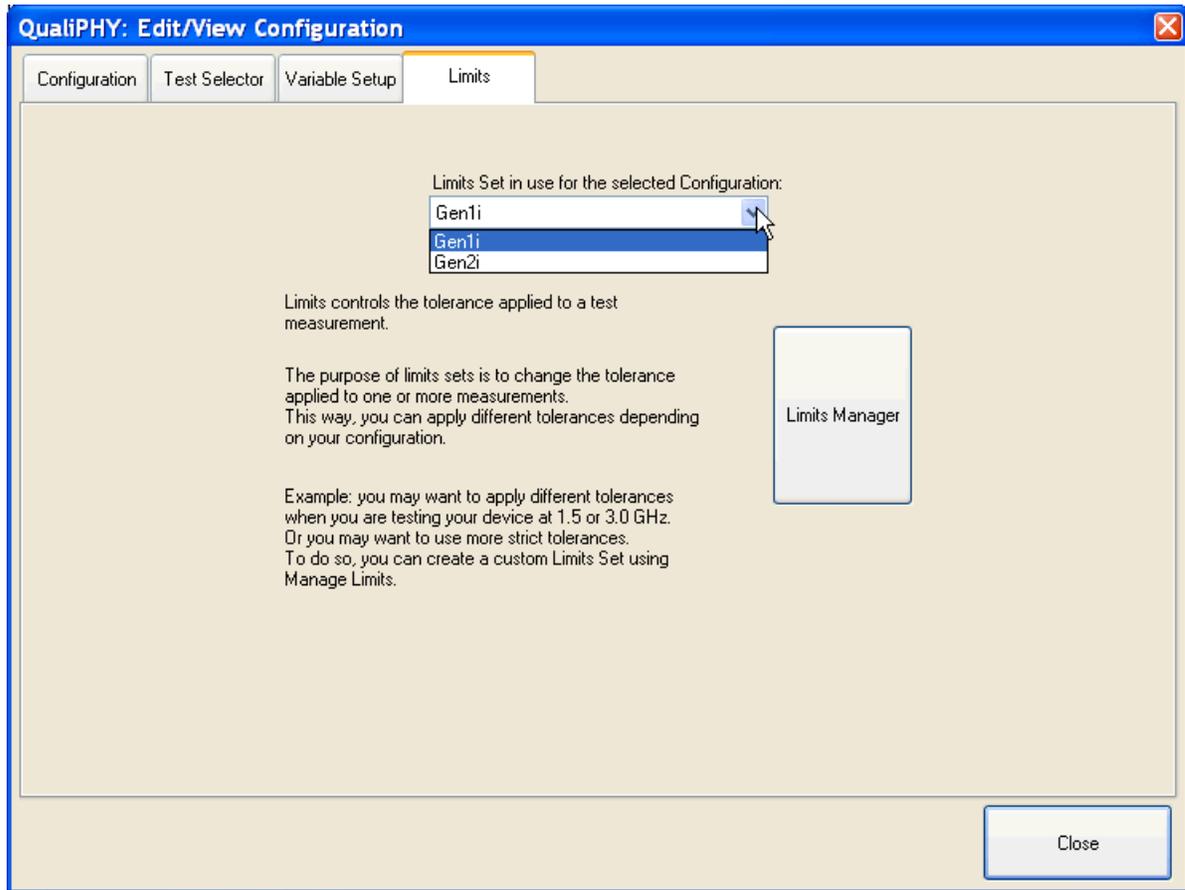
Limits tab

The **Limits** tab shows the limit set used by the currently selected configuration.



The limits set provided is locked and cannot be modified. However, limit sets can be copied, renamed, and then edited for use in the tests. Make changes to the limits set by clicking the **Limits Manager** button. See the **Managing Limits** section of this manual for more information.

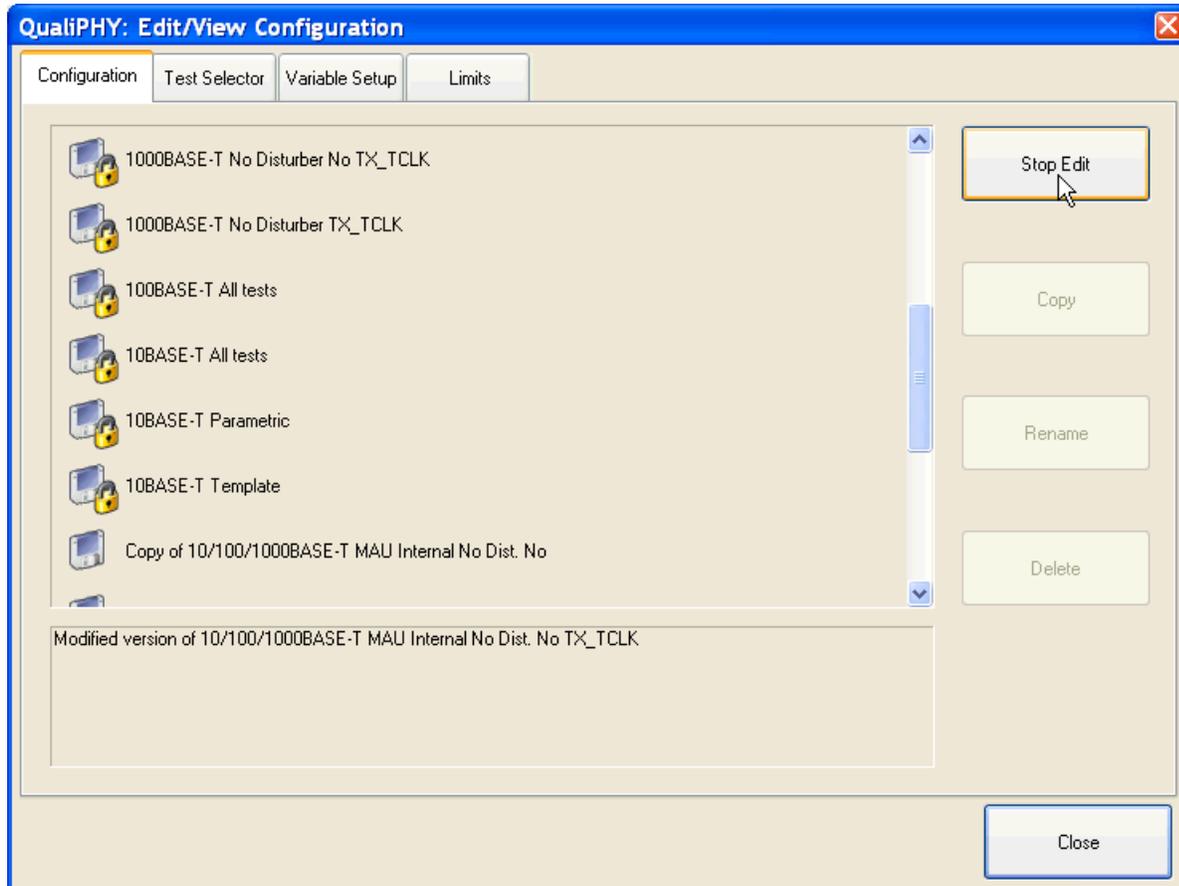
On the **Limits** tab, select another set of limits from the drop-down (if others are available).





Editing Configuration (on Non-Locked, Configuration Copies)

Now, under the **Configuration** tab, select a non-locked configuration. Notice how the buttons are made active since we're working on configuration copy. Click **Start Edit** to enter Edit mode.

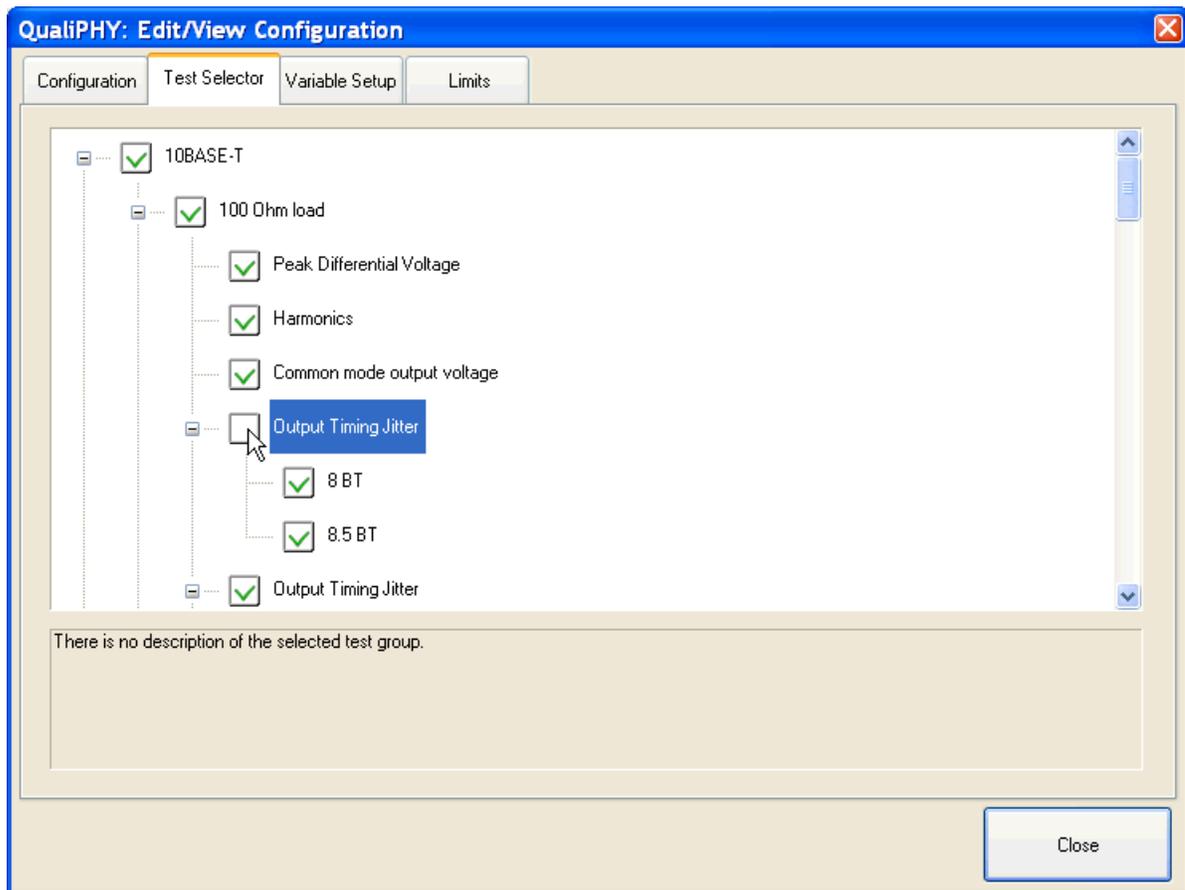


The **Start Edit** button toggles and becomes the **Stop Edit** button. The other configurations and buttons are deactivated by the system.

WARNING: At this point, all modifications under **Test Selector**, **Variable Setup** and **Limits** tab are immediately saved. To be safe, make a new copy of the configuration **BEFORE** starting to edit.

Click the **Stop Edit** or **Close** buttons to quit edit mode.

While in edit mode, information under the **Test Selector** and **Variable Setup** tabs active (not gray anymore)_and can be modified.



Click a box to un-check or check it.

PLEASE NOTE THE FOLLOWING:

- Un-checked **Tests** are not executed.
- Un-checked **Groups** (and all tests in the group) are not executed.

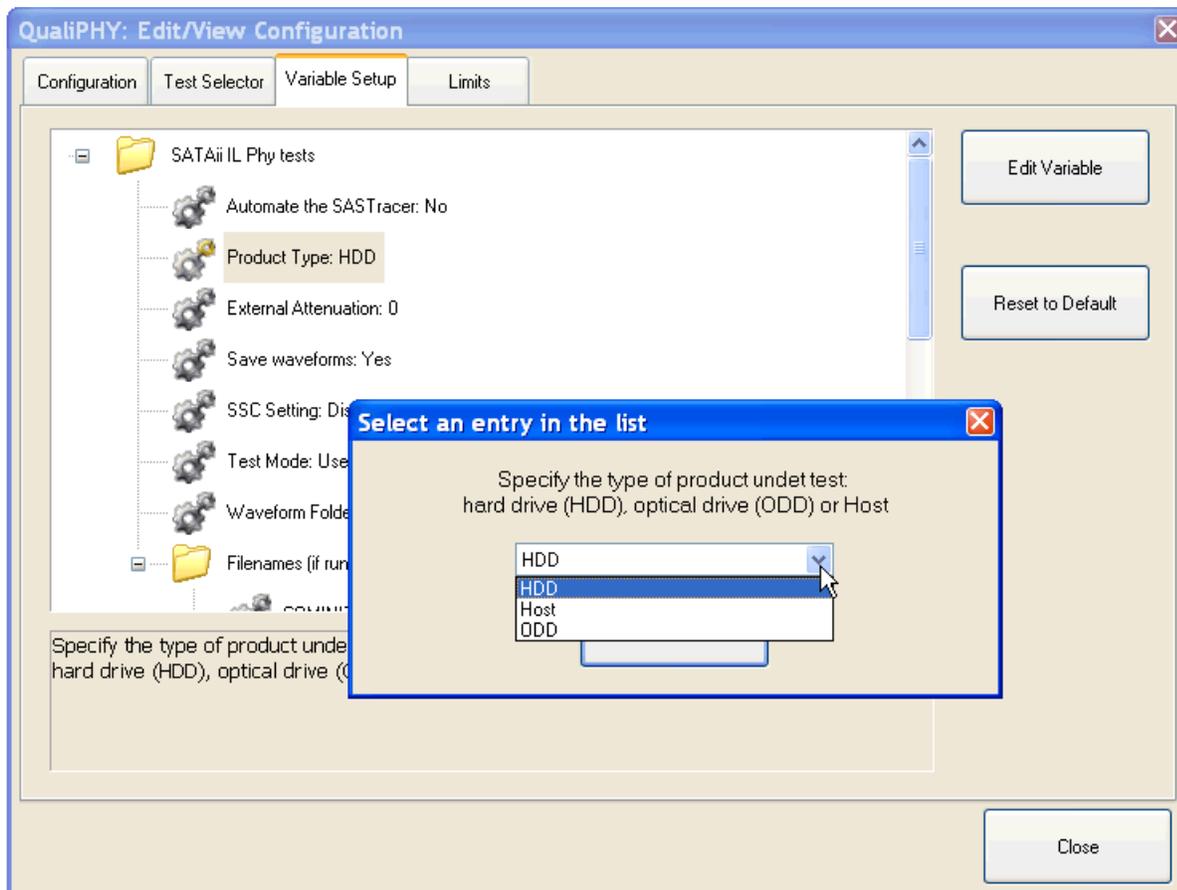


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Double-clicking a variable on the **Variable Setup** tab opens a window with a drop-down list. Alternately, select a variable and click the **Edit Variable** button.

Configuration variables are shown with gear icons to their left. Double-click a variable to edit and change its value. When a configuration variable is selected, a description of its function is shown in the text box at the bottom of the screen.

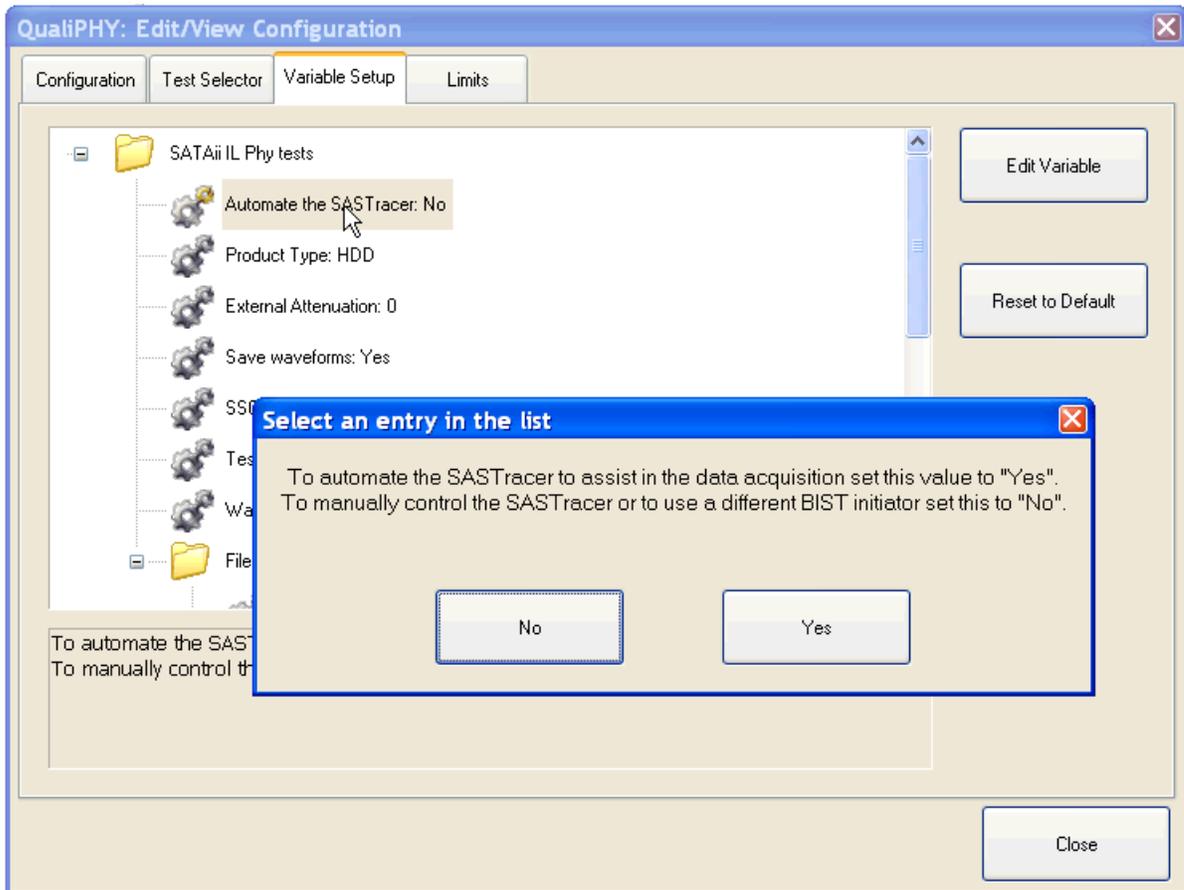
Again, variables can only be edited when working on a copied configuration file.



The **Reset to Default** button sets the variable back to its default value (hard-coded in the script).

When variable group folders are selected, the **Edit Variable** and **Reset to Default** buttons are deactivated.

If the selected variable only has two associated choices/outcomes, click the corresponding button on the prompt.

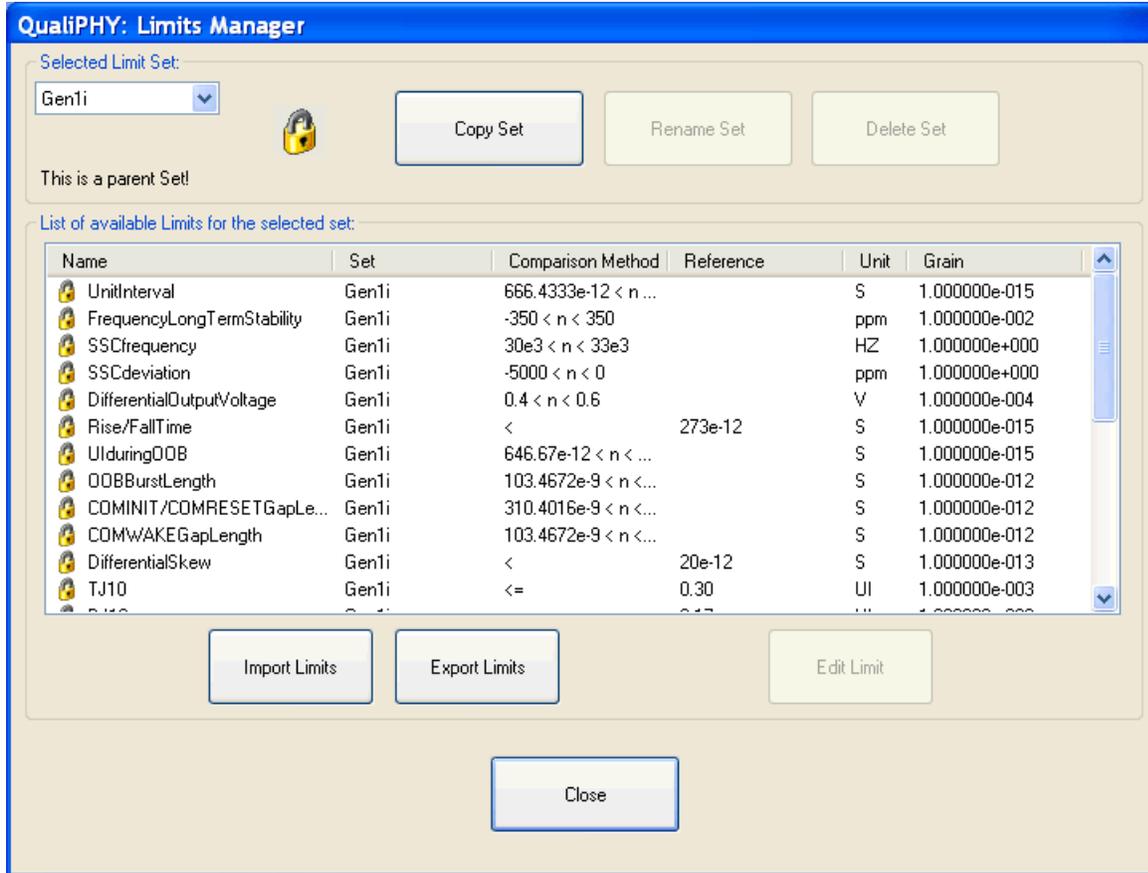




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Managing Limits

Click the **Limits Manager** button, The Limits Manager screen is shown. The functionality is similar to the **Configuration** tab with original limits locked and edits can only be made on a copy.

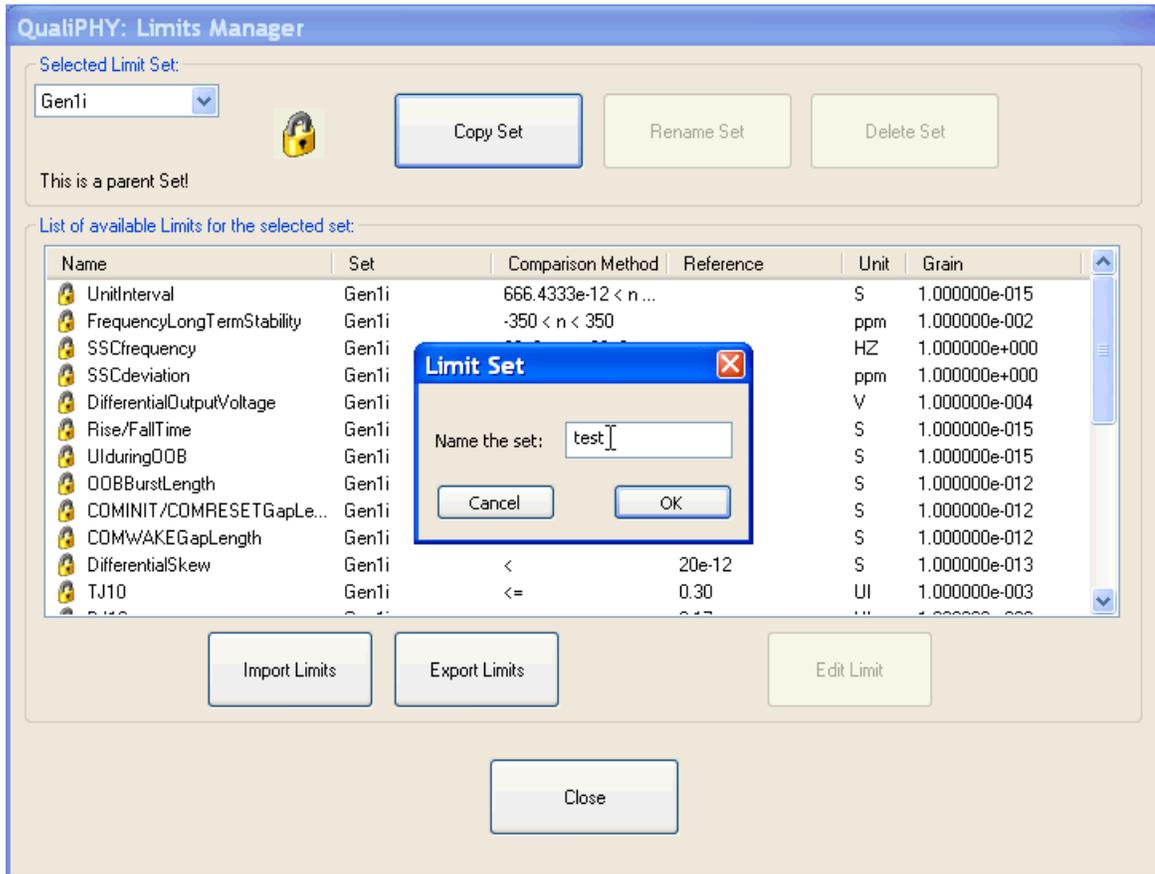


Note: Limit sets can be used by any configuration. However the limit set name must correspond to the variables used in the script.

Use the **Selected Limit Set** drop-down list (upper-left of the screen) to make a specific limit set selection

WARNING: At this point, all modifications under **Test Selector**, **Variable Setup** and **Limits** tabs are immediately saved. To be safe, make a new copy of the configuration **BEFORE** starting to edit.

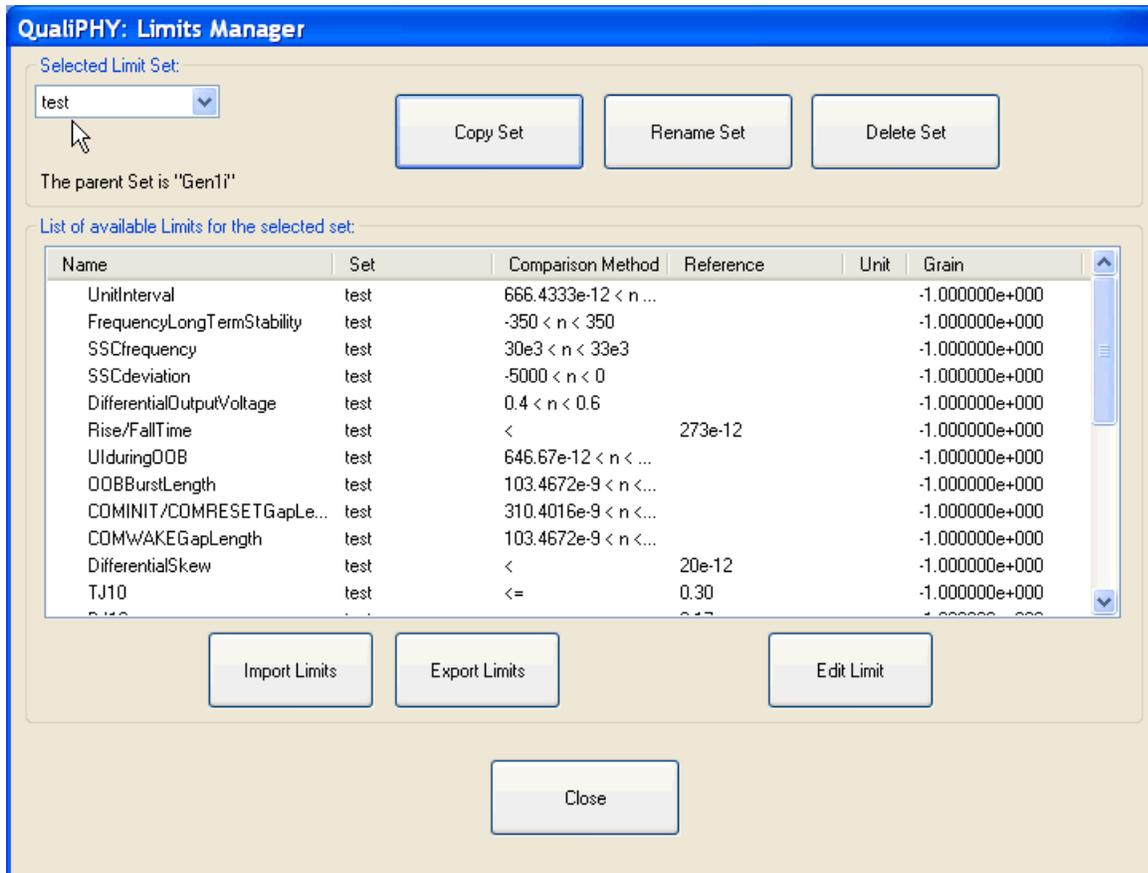
Edit limits by copying a limit set. Select a set and click the **Copy Set** button. A pop-up window appears for name entry.





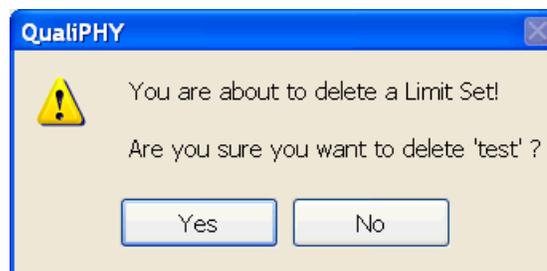
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After clicking the **OK** button, the new set is shown without a lock.



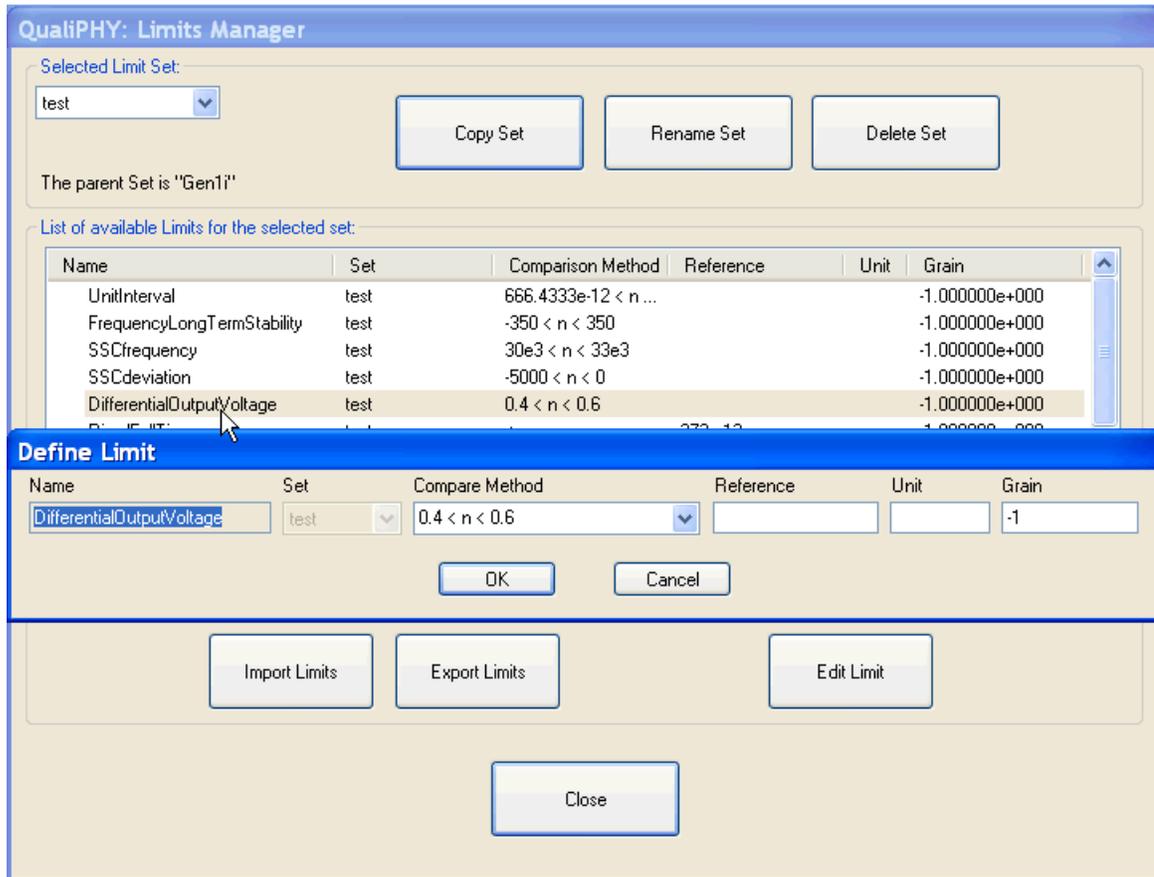
Notice how the **Rename Set**, **Delete Set**, and **Edit Limit** buttons are active.

- Clicking the **Rename Set** button shows the Limit Set naming pop-up.
- The **Delete Set** button deletes the set after a pop-up warning.



Note: The **Edit Limit** button only works if a limit is selected.

Edit limits by either double-clicking your selection or highlight it and click the **Edit Limit** button.



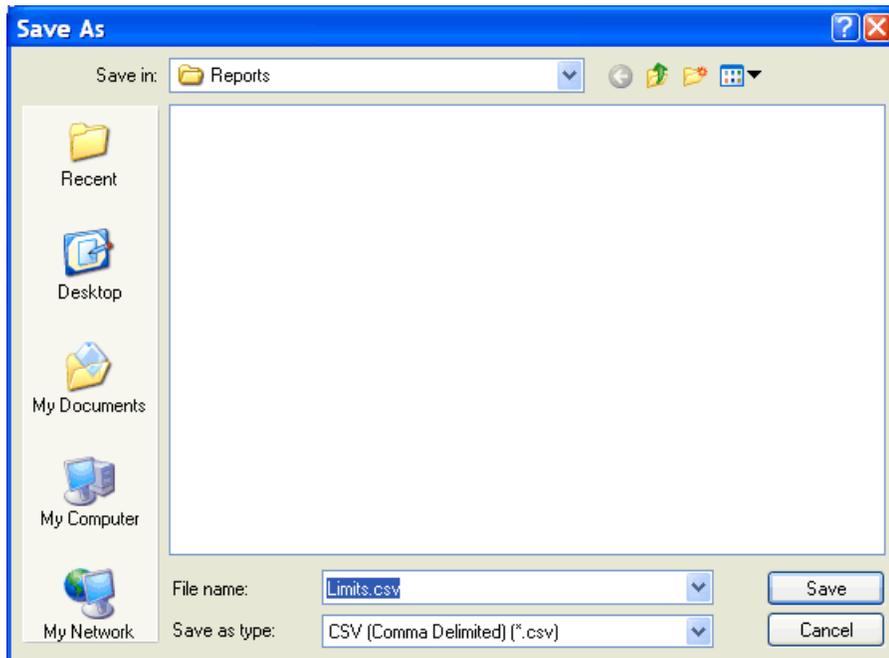
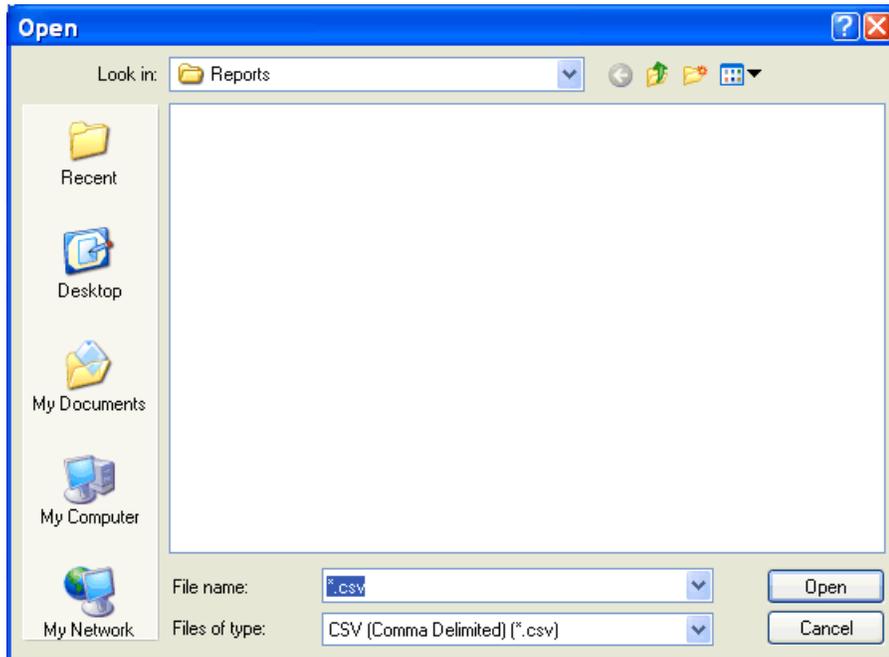
The **Name** and **Set** fields cannot be changed and are only shown for reference.

The **Compare Method** can be selected from a drop down list and its associated values can be changed. The **Reference**, **Unit** and **Grain** fields can be specified.

Click the **OK** button to accept the edits made or the **Cancel** button to ignore them.



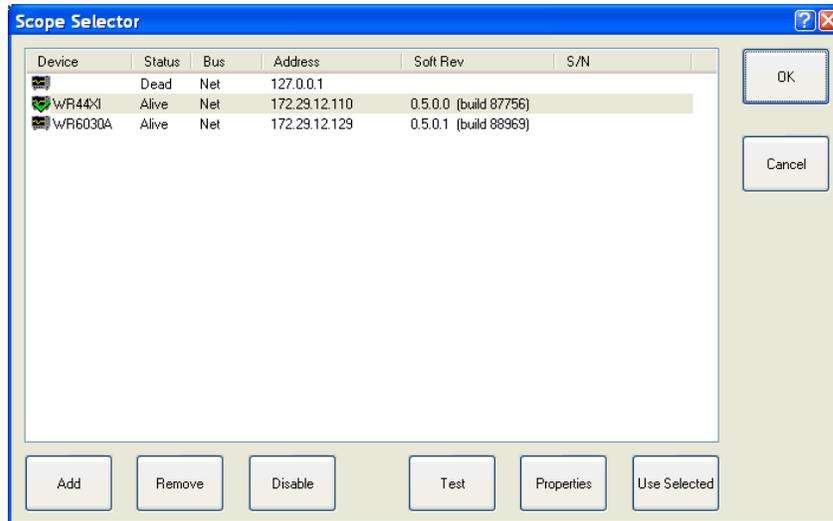
The **Import** and **Export Limits** buttons each open the following pop-up windows, respectively.



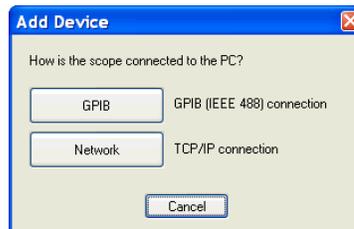
This functionality enables Limits imported from or saved to a CSV (comma separated values) file.

Scope Selector

After clicking the **General Setup** button, click the Scope Selector button on the **Connection** tab. The **Scope Selector** screen is shown listing the devices (in the order they were entered).



- Remove a device by selecting it and clicking the **Remove** button.
- Enable a device by selecting it and clicking the **Use Selected** button. A green check is shown on the corresponding icon.
- Test a device connection by selecting it and clicking the **Test** button.
- Add a device by clicking the **Add** button and selecting the connection type from the **Add Device** pop-up.

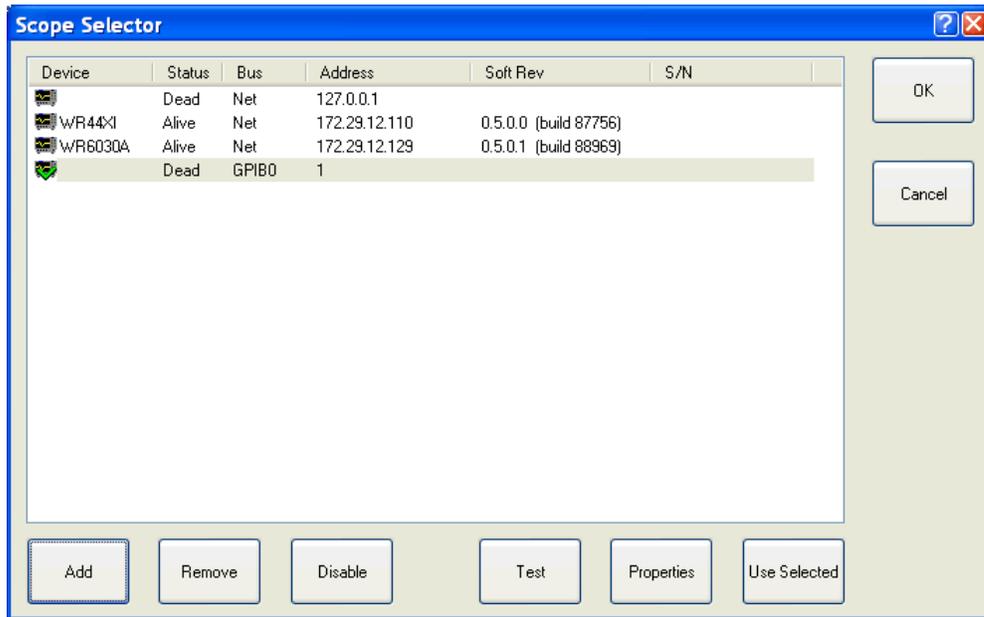


Clicking the **GPIB** button shows the following pop-up:

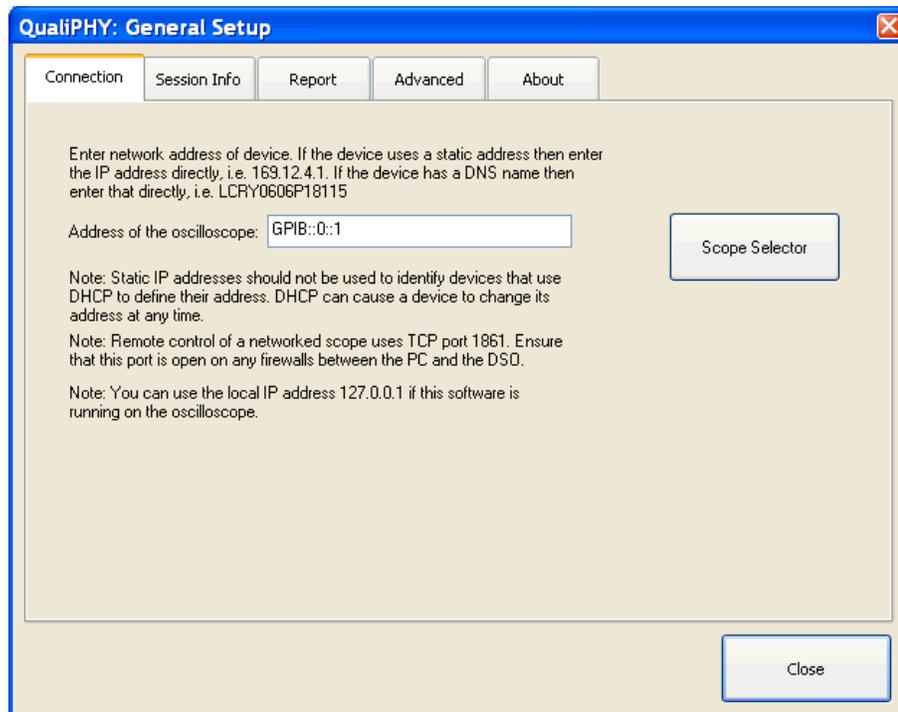


- Provide addresses as necessary.

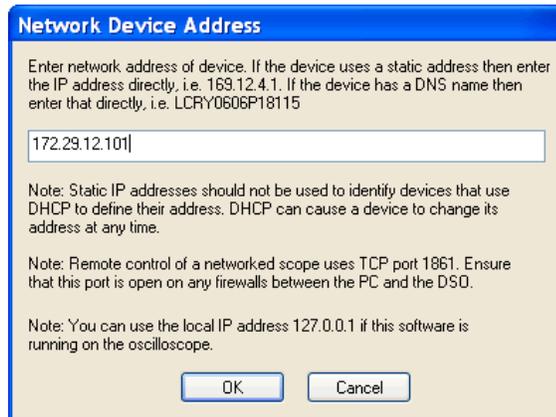
Connection to the device is then tested and added to the list.



Back on the **Connection** tab in **General Setup**, the GPIB address is shown in **GPIB::::<slave>** format as follows:

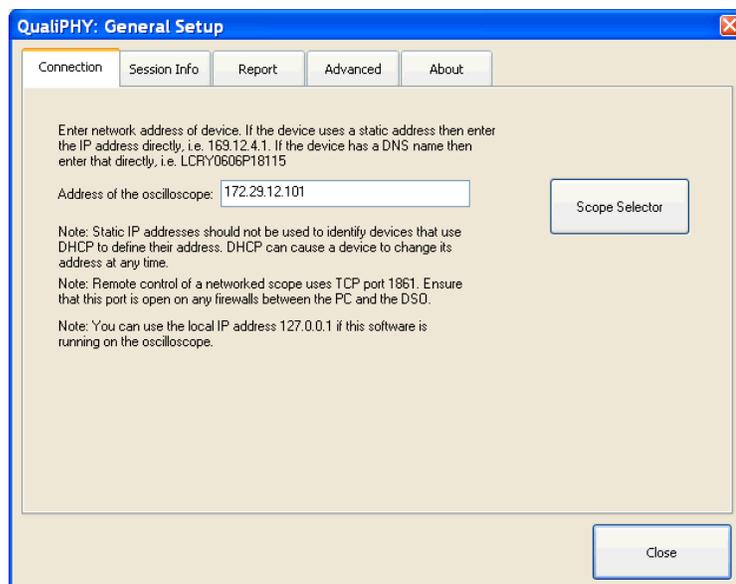


Clicking the **Network** button on the **Add Device** pop-up (previous), the following screen is shown:



When a valid **IP address** is entered, the connection to the device is tested and then added to the list.

Back on the **Connection** tab in **General Setup**, the Network address is shown in **nnn.nnn.nnn.nnn** format as follows:



A warning pop-up is shown when the device cannot be reached.

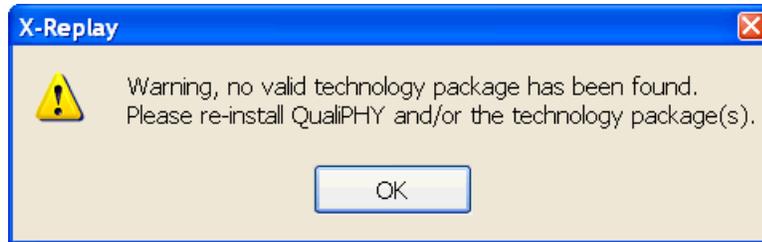




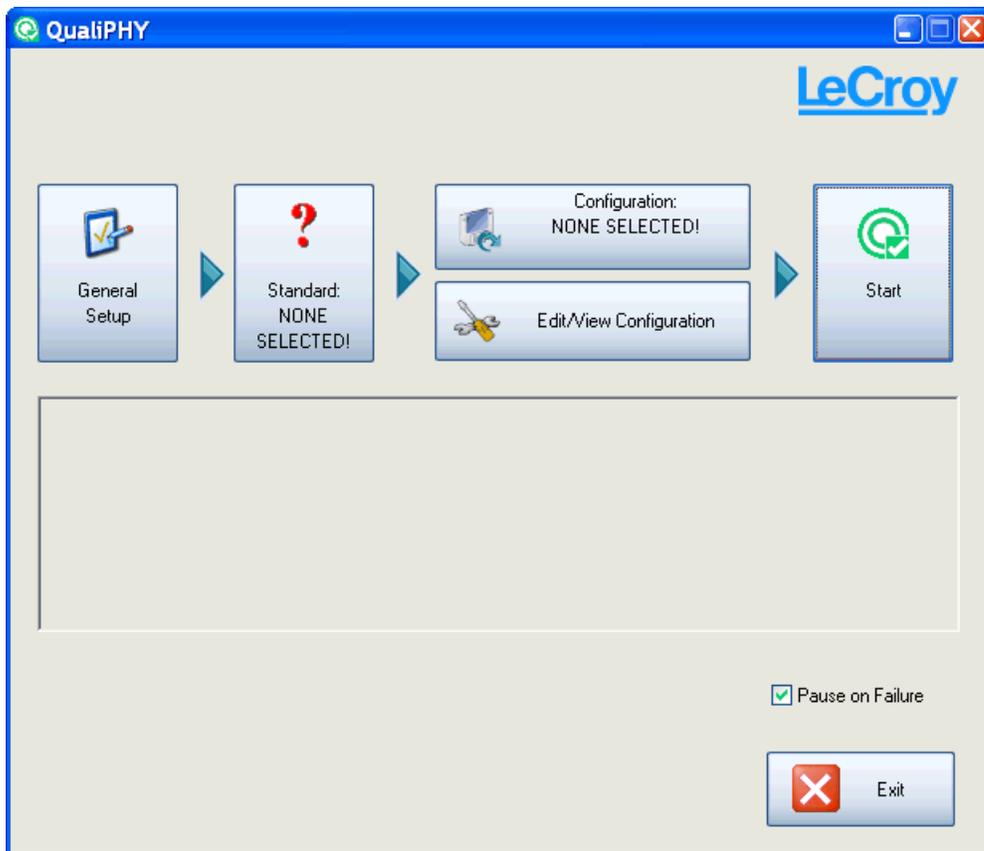
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ERROR MESSAGES

On launch of QualiPHY, if no standard is available (meaning none are enabled), the following pop-up message is shown.

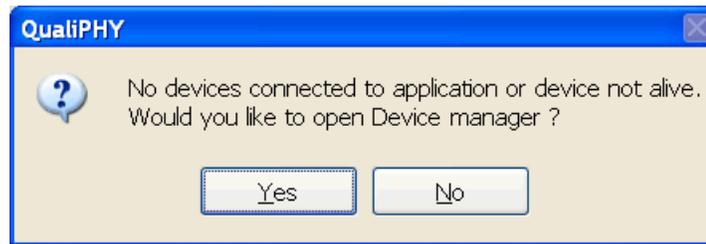


The main window then shows a red question mark on the **Standard** button.



Note: The QualiPHY version only appears on the first line of the log box when a standard is found.

If no device is detected when launching QualiPHY and clicking the **Start** button, the following pop-up message is shown.



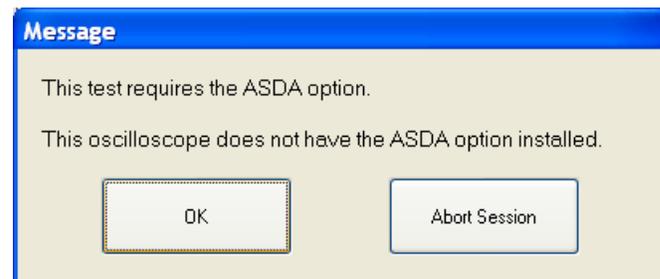
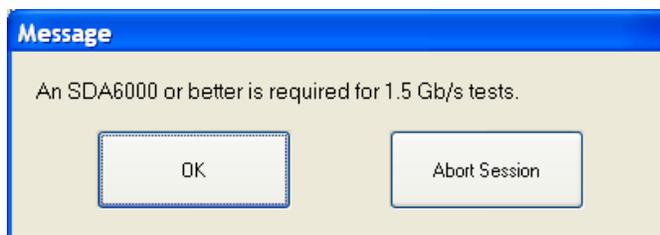
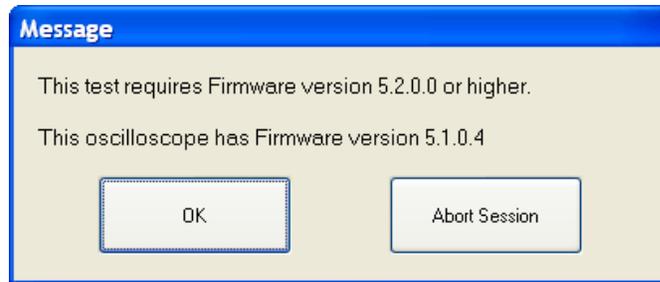
Clicking **No** ends the session with **Test Aborted** showing in the log.



Clicking **Yes** starts the **Scope Selector** procedure. Please see the previous **Scope Selector** topic of this manual for more details.

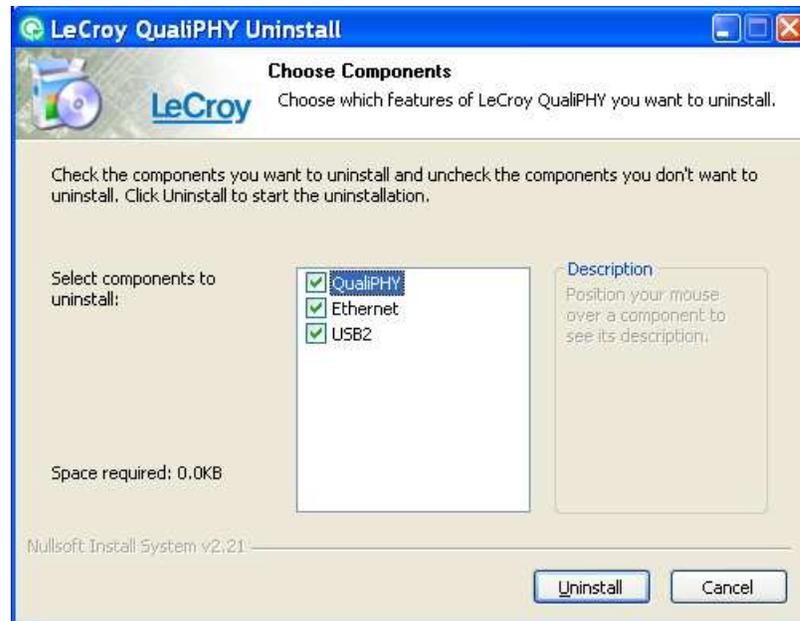


Any of the following error messages can be shown when starting a QualiPHY session and entering session information. These error messages are self-explanatory.

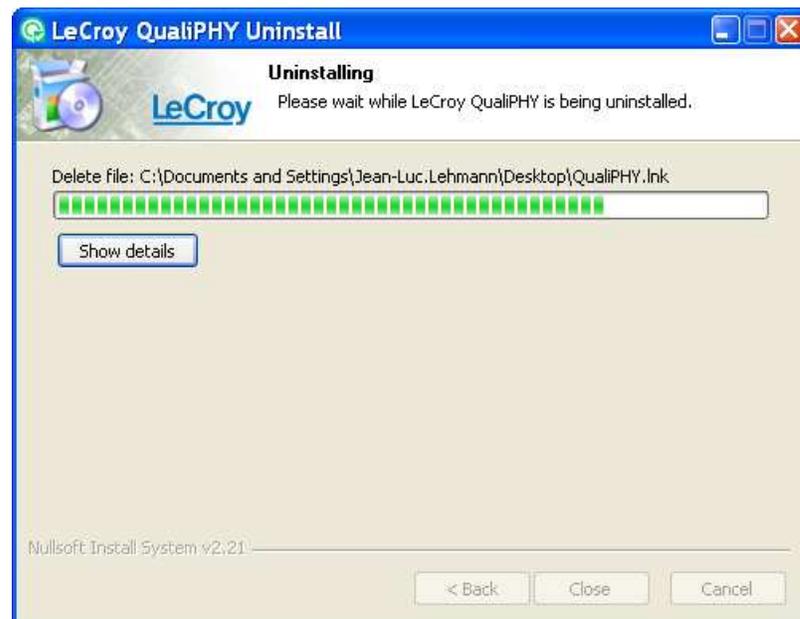


UNINSTALLING QUALIPHY

Uninstall QualiPHY by clicking the  Uninstall QualiPHY button and launching the uninstaller. The **Choose Components** screen is shown.

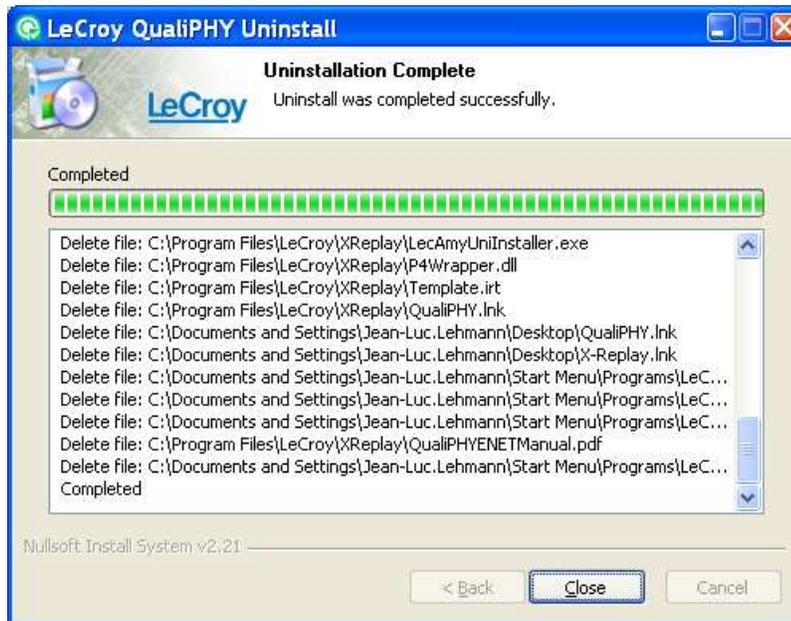


Select the components to uninstall and click the **Uninstall** button. While the process is underway, click the **Show details** button for more information about the files being removed.





A message is shown when the uninstall is successfully completed.



Click the **Close** button. A pop-up window confirms successful removal of the application.



If only a partial uninstall is done, a specific success pop-up message is shown as follows:



Note: Only the executable files initially installed are deleted during uninstall. All script files, reports, and any files added by the user, are **not** removed (even the original ones). They are left under "C:\Program Files\LeCroy\XReplay" in each specific Standard or Report folder.

§ § §