



Quick Start Guide

980 Series Advanced Test Platforms

Rev: A9



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1 About the 980 Platforms

This chapter provides an overview of the 980 Advanced Test Platforms. The 980, 980B and 980R Advanced Test Platforms are modular based systems that can accommodate multiple modules.

- 1) 980 – Two (2) slot chassis with 10.4 inch touch display.
- 2) 980B – Five (5) slot chassis with a 15 inch touch display.
- 3) 980R – Five (5) slot chassis with a 7 inch touch display.



980 Advanced Test Platform



980B Advanced Test Platform



980R Advanced Test Platform

1.1 Scope of this Quick Start Guide

This Quick Start Guide provides basic setup and configuration of the 980 series platforms and 980 GUI Manager.

Important Note: Please be sure to check the Quantum Data website for updates to the various 980 User Guides.

The following high level tasks are described in this Quick Start Guide:

- Sample module configurations.
- Provisioning the IP address of the 980 platforms.
- Installing the 980 GUI Manager on a PC.
- Establishing an IP session between a 980 platform and the host PC running the 980 GUI Manager.

This **Quick Start Guide does not include** descriptive or procedural information for any of the functions of the 980 series modules themselves. Procedures for the modules are covered in separate User Guides. The following is a list of the User Guides available with the 980 platforms and its modules. These are available from the downloads and product web pages of the Quantum Data website <http://www.quantumdata.com/downloads/index.asp>:

- 980 HDMI Protocol Analyzer Module – This User Guide covers source analysis features of the 980 HDMI Protocol Analyzer module.
- 980 HDMI Protocol Analyzer HDMI/MHL Source Compliance Test – This User Guide covers source compliance testing for both MHL and HDMI sources. These compliance test applications are provided by the 980 HDMI Protocol Analyzer module.
- 980 HDMI Protocol Analyzer HDMI/MHL Sink Compliance Test – This User Guide covers sink compliance testing for both MHL and HDMI sinks (and MHL dongles). These compliance test applications are provided by the 980 HDMI Protocol Analyzer module.
- 980 MHL CBUS Compliance Test Module - This User Guide covers MHL CBUS compliance testing for both MHL sources as well as sinks and dongles. This compliance test applications are provided by the 980 CBUS Compliance Test module.
- 980 HDMI 1.4 Video Generator Module – This User Guide covers the features and functions offered by the 980 HDMI Video Generator module as well as the optional analyzer features.
- 980 HDMI Protocol Analyzer HDCP Source Compliance Test – This User Guide covers source HDCP compliance testing for HDMI sources. These compliance test applications are provided by the 980 HDMI Protocol Analyzer module.
- 980 DP1.2 Video Generator Module – This User Guide covers the features and functions offered by the 980 DP1.2 Video Generator module.

- 980 HDMI 2.0 Video Generator Module – This User Guide covers the features and functions offered by the 980 HDMI 2.0 Video Generator module which operates up to 600MHz.
- 980 HDMI 2.0 Protocol Analyzer Module – This User Guide covers HDMI 2.0 source analysis features of the 980 2.0 HDMI Protocol Analyzer module which operates up to 600MHz.

1.2 Changes to this Quick Start Guide

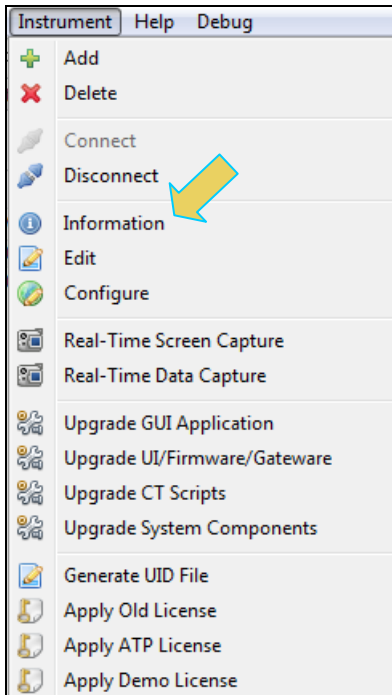
The following changes have been made to this Quick Start Guide since its last version:

- Updated to include new features on 980 HDMI 2.0 Protocol Analyzer module and various other corrections.

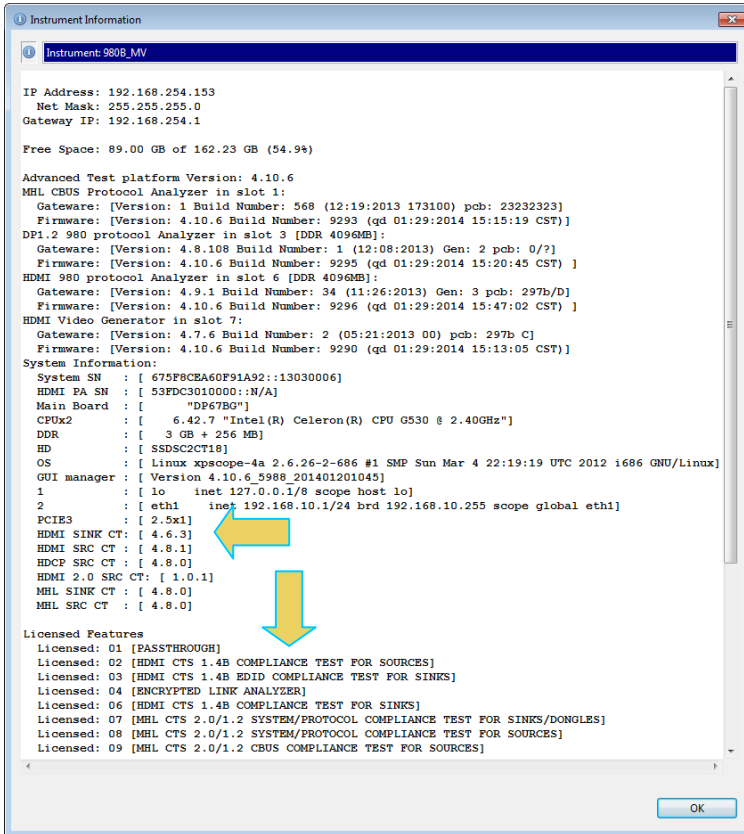
Important Note: Please be sure to check the Quantum Data website for updates to this Quick Start Guide and User Guides.

1.3 Determining what options the 980 platform is equipped with

You can determine what options the 980 platform and modules are configured with by accessing the Instrument Information screen either on the embedded 980 GUI Manager or external 980 GUI manager. When using the external 980 GUI Manager you must be connected to the 980 platform in order to read the Instrument Information. Refer to the following screen.



Select **Information** to view the **Instrument Information** panel.



1.4 980 User Interface

The 980 provides a graphical user interface (980 GUI Manager) for operation. This GUI can run on any 980 platform through the built-in color touch screen display (embedded 980 GUI Manager) or as a standalone application running on a PC (external 980 GUI Manager). The look and feel and functions are similar but not identical.

1.4.1 980 GUI Manager

The external 980 GUI Manager provides easy access to the captured data on your PC for sharing with others. Also the external 980 GUI Manager enables you to operate the 980 platform and its modules through a larger interface which allows you to use multiple panels at the same time.

2 980 Chassis Configurations

This chapter describes the configurations of each chassis type. There will always be one module installed when shipped. New modules can be added but they have to be installed by Quantum Data at a Quantum Data service center.

2.1 980, 980B and 980R – Modules Available

The 980B platform can be equipped with any or all of the following modules

Warning: Do not attempt to remove or replace 980 modules unless instructed to do so by Quantum Data technical support.

- 980 HDMI Protocol Analyzer module.
- 980 HDMI 1.4 Video Generator module.
- 980 CBUS Compliance Test module.
- 980 DP1.2 Video Generator module.
- 980 HDMI 2.0 Video Generator module.
- 980 HDMI 2.0 Protocol Analyzer module.

2.2 Module Descriptions

The 980 series platforms offer the following module options. You must have a license to use these optional modules:

- **980 HDMI Protocol Analyzer module (always present in first slot for 980).** The 980 HDMI Protocol Analyzer module provides compliance testing and full visibility into the HDMI and MHL protocol, timing, control and auxiliary data up to TMDS clocks of 300MHz (HDMI). The 980 HDMI Protocol Analyzer module captures and decodes encrypted or unencrypted metadata (protocol data, audio sample, infoframes and other data islands) as well as HDMI DDC transactions, HDMI CEC messages and MHL CBUS transactions. Unlike competing analyzers for HDMI protocol testing, the 980 captures all protocol data, data islands and control packets with accurate timestamps even when they are transmitted in rapid succession. The module supports HDMI source and sink compliance tests in accordance with HDMI 1.4x CTS and MHL 1.2, 1.3, 2.0 & 2.1 source, sink and dongle (MHL) compliance tests.
- **980 HDMI 1.4 Video Generator module.** The 980 HDMI 1.4 Generator/Analyzer module supports video and audio functional testing at data rates up to 300MHz for testing HDTVs with 4K x 2K resolutions. The module features two (2) HDMI outputs—both active

simultaneously—for testing HDTVs with multiple HDMI inputs. The module's optional analyzer provides functional testing of source devices such as basic video and audio analysis and timing analysis.

- **980 MHL CBUS Compliance Test module.** The 980 CBUS Compliance Test module provides complete test coverage of the CBUS Link Layer tests, RCP tests and Common tests in the MHL 1.2, 1.3, 2.0 & 2.1 CTS. The MHL CBUS Compliance solution enables you to conduct compliance tests on your MHL devices in accordance with the MHL Compliance Test Specifications (CTS). The 980 compliance tests are an ideal solution for pre-testing and/or self testing where permitted as they enable you to get your source product to market more quickly and to reduce the expense of testing or re-testing at the Authorized Testing Centers (ATCs).
- **980 DP1.2 Video Generator module.** The 980 DP1.2 Video Generator module supports video functional testing at link rates up to 5.4Gb/s with 1, 2, or 4 lanes for testing high-end displays. The module features two (2) DisplayPort 1.2 outputs—both active simultaneously—for testing displays with multiple DisplayPort inputs. The initial release of the module supports the video pattern testing for DP sink devices. Module also offers analysis for testing DisplayPort 1.2 source devices.
- **980 HDMI 2.0 Video Generator module.** The 980 HDMI 2.0 Generator/Analyzer module supports video and audio functional testing at TMDS character rates up to 600MHz for testing HDTVs with 4K x 2K resolutions at 60Hz.
- **980 HDMI 2.0 Protocol Analyzer module.** The 980 HDMI 2.0 Protocol Analyzer module provides visibility into the HDMI protocol, timing, control and auxiliary data up to TMDS clocks of 600MHz (HDMI). The 980 HDMI 2.0 Protocol Analyzer module captures and decodes encrypted or unencrypted metadata (protocol data, audio sample, infoframes and other data islands) as well as HDMI DDC (HDCP 2.2) transactions.

3 Getting Started

This chapter explains what is involved in getting your 980 up and operating.

3.4 What is in the 980 shipping box?

When a Quantum Data 980 platform is shipped it will contain a variety of items. The items it will contain depend on the module configurations and which 980 series platform you ordered. The following is a list of items that come standard with the 980 platform itself. This list does not include the items that come with each module.

- 980 HDMI Protocol Analyzer module (980 Platform only - preinstalled).
- Calibration certificate.
- Stylus.
- Quick Start Guide.

3.5 Operational Workflow for Getting Started

The following are the high level steps you will need to follow to get your 980 platform up and running:

1. Remove the 980 Platform from the shipping box.
2. Connect the 980 power cable (provided) to a suitable outlet (110-240V 50/60Hz) and apply power to the 980.
3. Power the 980 via the power switches on the front and rear of the chassis.

The following items are only required if you are going to operate the 980 via the external 980 GUI Manager residing on a host PC. If you are going to operate the 980 and its modules through the embedded touch screen 980 GUI, these steps are not required.

1. Select a suitable PC to host the 980 GUI Manager application. A minimum of 512MB of RAM is recommended. (Note that you do not need a PC because you can use the built-in Front Panel display; however the external 980 GUI Manager provides you with a larger viewing area).
2. Determine how you are going to connect to the 980/980B from the external 980 GUI Manager in order to operate the instrument:
 - Put the 980 on your corporate network and enable DHCP using an available Ethernet cable, or...
 - Connect directly with a host PC or laptop using the Ethernet cable provided.
3. Assign an IP address to the 980 either directly or by enabling DHCP.

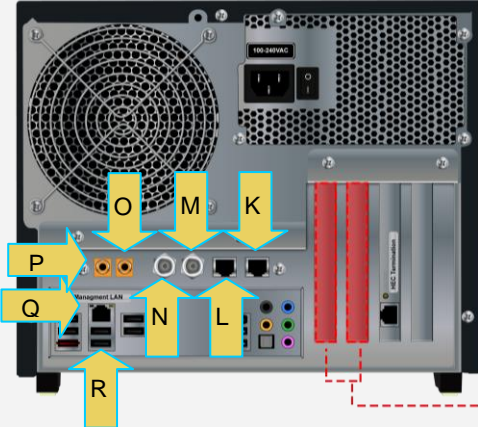
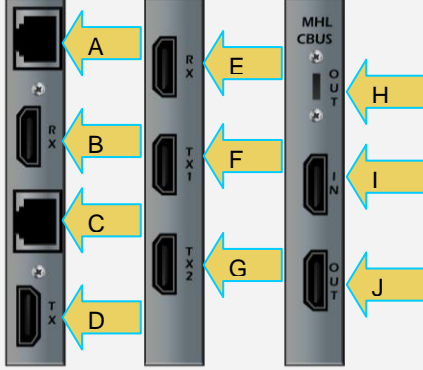
4. Download the latest 980 GUI Manager application from the Quantum Data website: www.quantumdata.com/downloads/index.asp.
5. Install the 980 Manager application on your host PC.
6. Establish a connection to the 980 from the 980 Manager resident on your host PC.
7. From the 980 Manager “Add” the 980 as an Instrument.

3.6 Connector Descriptions and Configurations

This section describes the connector configurations of the 980 platforms.

3.6.1 980 Chassis connector descriptions

Use the following table to identify the connector function and descriptions on your 980 system configuration.

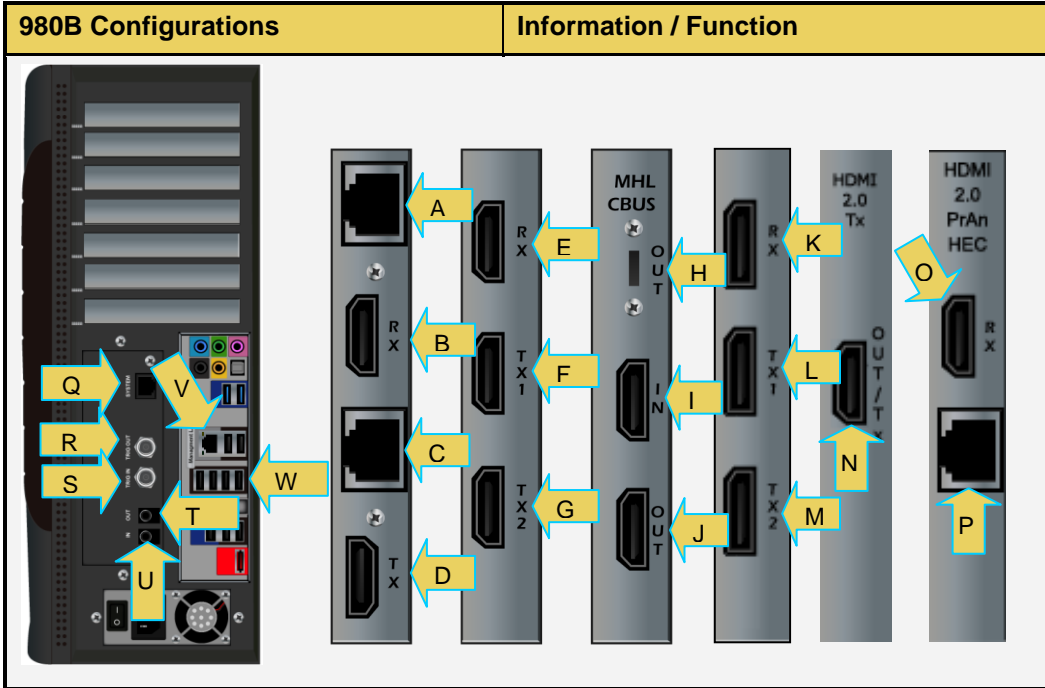
980 Configurations	Information / Function
 <p>The image shows the rear panel of the 980 chassis. Yellow arrows point to various connectors: O (Power), M (Management LAN), K (Management LAN), P (Management LAN), Q (Management LAN), N (Management LAN), L (Management LAN), and R (Management LAN).</p>	 <p>The diagram shows the 980 chassis connectors labeled A through J. A, B, and C are Ethernet connectors. D is an HDMI Tx connector. E, F, and G are MHL Tx connectors. H, I, and J are MHL CBUS connectors.</p>
<p>Note: 980 HDMI Protocol Analyzer module is always equipped in the first slot of the 980 ATP.</p>	
<p>The following is a description of each connector:</p> <p>980 HDMI Protocol Analyzer module (Rev D):</p> <ul style="list-style-type: none"> ▪ A – Ethernet Tx connector use for HEAC function. Extracted Ethernet can be connected to a NIC card. ▪ B – HDMI Rx port for analyzing HDMI and MHL sources or for running HDMI or MHL compliance tests on sources. 	

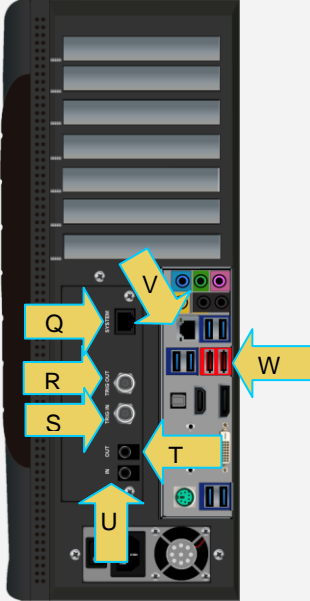
980 Configurations	Information / Function
<ul style="list-style-type: none"> ▪ C – Ethernet Rx connector use for HEAC function. Ethernet can be injected into the HDMI 1.4 outgoing stream. ▪ D – HDMI Tx port for HDMI and MHL pass-through to HDTVs and for playback captured files. <p>980 HDMI Video Generator module:</p> <ul style="list-style-type: none"> ▪ E – HDMI Rx port for analyzing HDMI sources (future). ▪ F – HDMI Tx1 port for testing HDMI sink devices. ▪ G – HDMI Tx2 port for testing HDMI sink devices (same output as Tx1). <p>980 MHL CBUS Compliance module:</p> <ul style="list-style-type: none"> ▪ H – MHL CBUS OUT connector for running CBUS compliance test on MHL dongle devices. ▪ I – MHL CBUS IN HDMI Type A connector for running CBUS compliance test on MHL source devices. ▪ J – MHL CBUS OUT HDMI Type A connector for running CBUS compliance test on MHL sink devices. <p>QD Bus Board:</p> <ul style="list-style-type: none"> ▪ K – Internal Ethernet connector; not used if Rev D Protocol Analyzer module is used. ▪ L – Internal Ethernet connector; not used if Rev D Protocol Analyzer module is used. ▪ M – BNC Trig OUT connector. Used to trigger and oscilloscope from the HDMI output. ▪ N – BNC Trig IN connector. Used for special sync to trigger a capture with Protocol Analyzer module. ▪ O – RCA OUT connector for SPDIF function. Extracted SPDIF from HDMI 1.4 ARC can be connected to external instrument. ▪ P – RCA IN connector for SPDIF function. SPDIF audio can be injected into HDMI 1.4 ARC function. <p>Lower Panel:</p> <ul style="list-style-type: none"> ▪ Q – Ethernet port for connection to PC host for 980 GUI Manager application, telnet for command line control and FTP for transferring files. ▪ R – Various USB ports for transferring files and restoring system. 	

3.6.2 980B Chassis connector descriptions

Use the following table to identify the connector function and descriptions on your 980B system configuration.

Note: There are two versions of the QD Bus board connection layout. These are both shown.



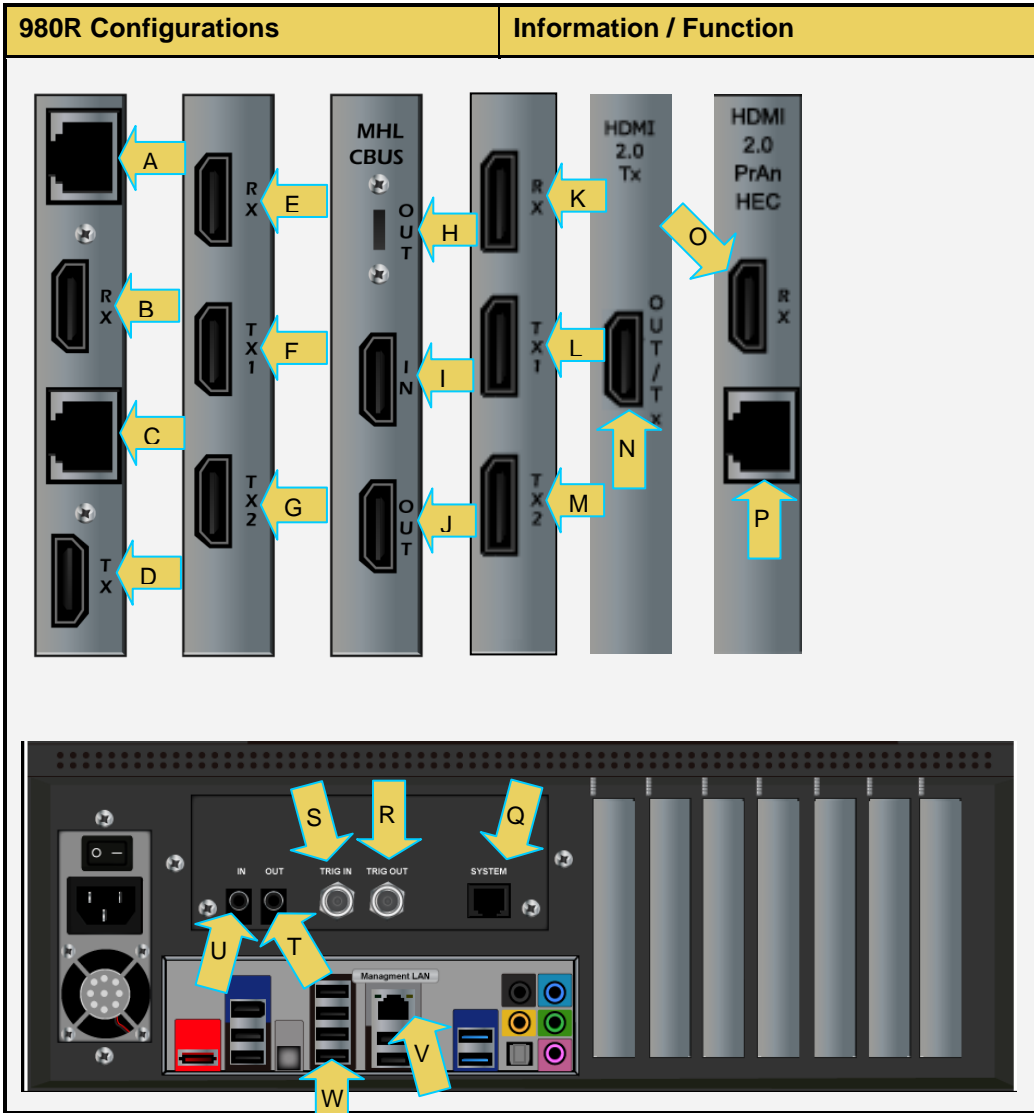
980B Configurations	Information / Function
 <p>The image shows the rear panel of a 980B test platform. Yellow callout boxes with letters Q through W point to specific ports and components: Q points to the Ethernet Tx port, R to the HDMI Rx port, S to the Ethernet Rx port, U to the power input, V to the HDMI Tx port, T to the HDMI Tx2 port, and W to the USB ports.</p>	
<p>The following is a description of each connector:</p>	
<p>980 HDMI Protocol Analyzer module (Rev D):</p>	
<ul style="list-style-type: none"> ▪ A – Ethernet Tx connector use for HEAC function. Extracted Ethernet can be connected to a NIC card. ▪ B – HDMI Rx port for analyzing HDMI and MHL sources or for running HDMI or MHL compliance tests on sources. ▪ C – Ethernet Rx connector use for HEAC function. Ethernet can be injected into the HDMI 1.4 outgoing stream. ▪ D – HDMI Tx port for HDMI and MHL pass-through to HDTVs and for playback captured files. 	
<p>980 HDMI Video Generator module:</p>	
<ul style="list-style-type: none"> ▪ E – HDMI Rx port for analyzing HDMI sources (future). ▪ F – HDMI Tx1 port for testing HDMI sink devices. ▪ G – HDMI Tx2 port for testing HDMI sink devices (same output as Tx1) 	
<p>980 MHL CBUS Compliance module:</p>	

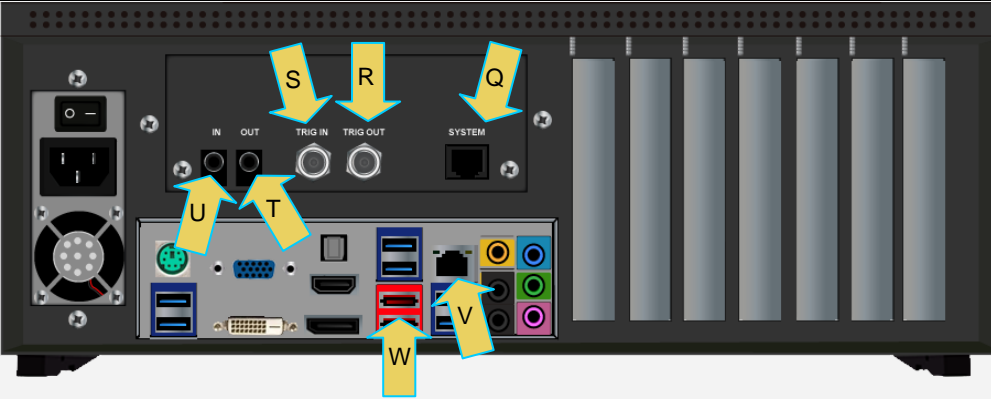
980B Configurations	Information / Function
<ul style="list-style-type: none"> ▪ H – MHL CBUS OUT connector for running CBUS compliance test on MHL dongle devices. ▪ I – MHL CBUS IN HDMI Type A connector for running CBUS compliance test on MHL source devices. ▪ J – MHL CBUS OUT HDMI Type A connector for running CBUS compliance test on MHL sink devices. 	
<p>980 DP1.2 Video Generator module:</p>	
<ul style="list-style-type: none"> ▪ K – DP Rx port for analyzing DisplayPort sources. ▪ L – DP Tx1 port for testing DisplayPort sink devices. ▪ M – DP Tx2 port for testing DisplayPort sink devices. 	
<p>980 HDMI 2.0 Video Generator module:</p>	
<ul style="list-style-type: none"> ▪ N – HDMI Tx port for testing HDMI 2.0 ultra-High-Def TVs. 	
<p>980 HDMI 2.0 Protocol Analyzer module:</p>	
<ul style="list-style-type: none"> ▪ O – HDMI Rx port for testing HDMI 2.0 sources. ▪ P – Ethernet Tx connector use for HEAC function. Extracted Ethernet can be connected to a NIC card. 	
<p>QD Bus Board:</p>	
<ul style="list-style-type: none"> ▪ Q – Internal Ethernet connector; not used. ▪ R – BNC Trig OUT connector. Used to trigger and oscilloscope from the HDMI output. ▪ S – BNC Trig IN connector. Used for special sync to trigger a capture with Protocol Analyzer module. ▪ T – RCA OUT connector for SPDIF function. Extracted SPDIF from HDMI 1.4 ARC can be connected to external instrument. ▪ U – RCA IN connector for SPDIF function. SPDIF audio can be injected into HDMI 1.4 ARC function. 	
<p>Lower Panel:</p>	
<ul style="list-style-type: none"> ▪ V – Ethernet port for connection to PC host for 980 GUI Manager application, telnet for command line control and FTP for transferring files. ▪ W – Various USB ports for transferring files and restoring system. 	
<p>Note: All other connectors are not used.</p>	

3.6.3 980R Chassis connector descriptions

Use the following table to identify the connector function and descriptions on your 980R system configuration.

Note: There are two versions of the QD Bus board connection layout. These are both shown.



980R Configurations	Information / Function
 <p>The image shows the rear panel of a 980R test platform. On the left side, there is a power switch and a fan. The main panel features several connectors: a power jack (labeled U), a DVI port (labeled T), a USB port (labeled W), a FireWire port (labeled V), a network port (labeled Q), and two sets of trigger ports (labeled S and R). The right side of the panel has five vertical slots for modules.</p>	
<p>The following is a description of each connector:</p> <p>980 HDMI Protocol Analyzer module (Rev D):</p> <ul style="list-style-type: none"> ▪ A – Ethernet Tx connector use for HEAC function. Extracted Ethernet can be connected to a NIC card. ▪ B – HDMI Rx port for analyzing HDMI and MHL sources or for running HDMI or MHL compliance tests on sources. ▪ C – Ethernet Rx connector use for HEAC function. Ethernet can be injected into the HDMI 1.4 outgoing stream. ▪ D – HDMI Tx port for HDMI and MHL pass-through to HDTVs and for playback captured files. <p>980 HDMI Video Generator module:</p> <ul style="list-style-type: none"> ▪ E – HDMI Rx port for analyzing HDMI sources. ▪ F – HDMI Tx1 port for testing HDMI sink devices. ▪ G – HDMI Tx2 port for testing HDMI sink devices (same output as Tx1) <p>980 MHL CBUS Compliance module:</p> <ul style="list-style-type: none"> ▪ H – MHL CBUS OUT connector for running CBUS compliance test on MHL dongle devices. ▪ I – MHL CBUS IN HDMI Type A connector for running CBUS compliance test on MHL source devices. ▪ J – MHL CBUS OUT HDMI Type A connector for running CBUS compliance test on MHL sink devices. <p>980 DP1.2 Video Generator module:</p>	

980R Configurations	Information / Function
<ul style="list-style-type: none"> ▪ K – DP Rx port for analyzing DisplayPort sources (future). ▪ L – DP Tx1 port for testing DisplayPort sink devices. ▪ M – DP Tx2 port for testing DisplayPort sink devices (same output as Tx1). <p>980 HDMI 2.0 Video Generator module:</p> <ul style="list-style-type: none"> ▪ N – HDMI Tx port for testing HDMI 2.0 ultra-High-Def TVs. <p>980 HDMI 2.0 Protocol Analyzer module:</p> <ul style="list-style-type: none"> ▪ O – HDMI Rx port for testing HDMI 2.0 sources. ▪ P – Ethernet Tx connector use for HEAC function. Extracted Ethernet can be connected to a NIC card. <p>QD Bus Board:</p> <ul style="list-style-type: none"> ▪ Q – Internal Ethernet connector; not used. ▪ R – BNC Trig OUT connector. Used to trigger and oscilloscope from the HDMI output. ▪ S – BNC Trig IN connector. Used for special sync to trigger a capture with Protocol Analyzer module. ▪ T – RCA OUT connector for SPDIF function. Extracted SPDIF from HDMI 1.4 ARC can be connected to external instrument. ▪ U – RCA IN connector for SPDIF function. SPDIF audio can be injected into HDMI 1.4 ARC function. <p>Lower Panel:</p> <ul style="list-style-type: none"> ▪ V – Ethernet port for connection to PC host for 980 GUI Manager application, telnet for command line control and FTP for transferring files. ▪ W – Various USB ports for transferring files and restoring system. <p>Note: All other connectors are not used.</p>	

3.7 Getting Started Procedures

The getting started procedures involve the following tasks:

- Downloading, unzipping and launching the 980 GUI Manager application to allow you to operate the 980. (Not required if using the embedded 980 GUI Manager on the built-in display exclusively.)
- Powering up the 980 platform.
- Changing the IP address of the 980 so that it is compatible with your PC and or corporate LAN. (Not required if using the built-in display exclusively.)
- Establishing an initial IP connection from the 980 Manager (residing on your host PC) and the 980. (Not required if using the built-in display exclusively.)

3.7.1 Powering up the 980

Use the following procedures to power up the 980.

1. If necessary, apply power by toggling the rocker type power switch on the back of the 980.



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Note: The power switch in the front is used when you are turning off the 980 for a short period of time. For extended off periods, it is best to power down the 980 by first using the power button on the front and then the rocker switch on the back.

2. Turn the 980 on by pressing and releasing the power button on the lower portion of the front panel.



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3. The 980 will boot and present Card Control window of the GUI.

3.7.2 Powering down the 980

Use the following procedures to power down the 980.

1. Turn the 980 off by pressing and releasing the power button on the lower portion of the front panel.

The following prompt will occur. Select the desired option.



Note: The power switch in the front is used when you are turning off the 980 for a short period of time. For extended off periods, it is best to power down the 980 by first using the power button on the front and then the rocker switch on the back.

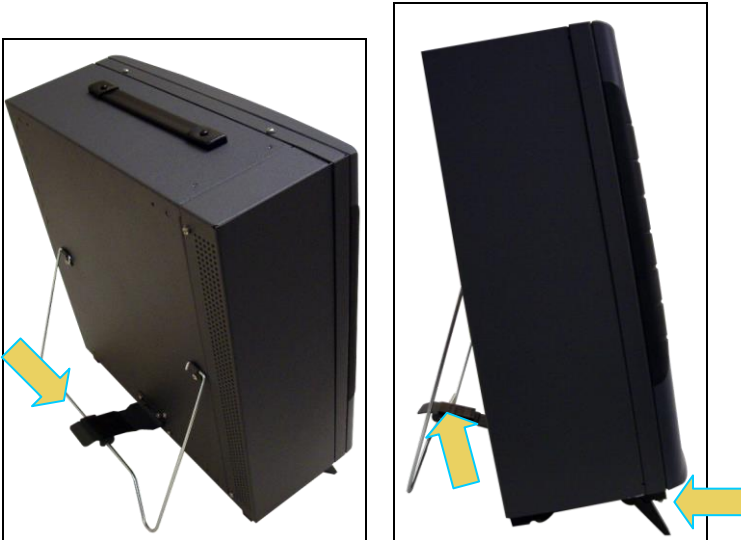
3.7.3 Using the 980B in tilt-back mode.

The 980B has foot pads on the bottom. The two front foot pads can be extended to elevate the front and lean the unit back. To utilize the 980B in this tilt-back mode you have to extend the front feet and extend the tilt-bail wire mechanism on the rear to ensure that the unit does not fall backward. The tilt-back position is depicted in the images below.

Note: Do not use the 980B in tilt-back mode without using the rear tilt-bail wire mechanism.

Use the procedures below to use the 980B in the lean-back mode.

1. Hold the 980B handle (on the top) securely.
2. Lean the 980B chassis back and pull the front feet out toward the front.
3. Pull-the metal tilt-bail mechanism out from the rear of the chassis. It is held in place magnetically.
4. Place the wire tilt-bail mechanism in the slot provided.



980B Advanced Test Platform in Tilt-Back position

3.8 Connection for external 980 GUI Manager

This subsection describes the options for connecting the *external* 980 GUI Manager to the 980. ***You do not need to connect from your PC to the 980 if you are going to operate the 980 system through the embedded 980 GUI via the touch panel.*** In order to operate the 980 with the external 980 GUI Manager you will need to establish a connection between the 980 and the PC hosting the 980 GUI Manager. The 980 GUI Manager will be running on your laptop or host PC. You will either be connecting directly from the 980 GUI Manager to the 980 through an Ethernet cable or you will be connecting through your corporate LAN network.

If you are connecting directly between your host PC and the 980 you will need to ensure that the IP addresses of the 980 and the network interface card on your host PC are compatible. To be compatible, the IP addresses must have the same network portions of their IP address but different host portions. You can either change the IP address of the host PC using standard Windows OS techniques or you can change the IP address of the 980. The 980 is provisioned with a default IP address (192.168.1.10). The procedures for changing the IP address of the 980 are provided in the next subsection.

If you are connecting through your corporate LAN, the PC that the external 980 GUI Manager is running on, will typically have an IP address assigned to it through DHCP services. You can either assign an IP address to the 980 directly or allow the network DHCP server to assign one to the 980 that is compatible with your corporate network. To be compatible, the IP address of the 980 must have the same network portion of the IP address as your network but a unique host portion. The 980 is provisioned with a default IP address (192.168.1.10). The procedures for changing the IP address of the 980 are provided in the following subsection. These procedures also describe how to enable the 980 DHCP client to allow the network to assign an IP address.

3.8.1 Making the physical Ethernet connections for 980 GUI Manager

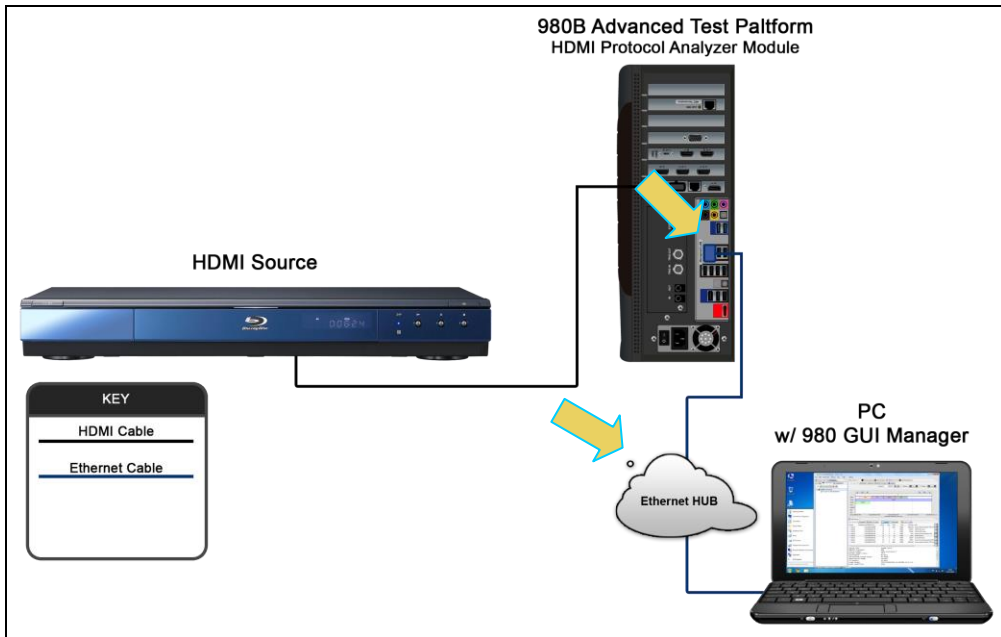
This section describes how to connect the 980 to your PC hosting the 980 GUI Manager. This procedure assumes that you have assembled the 980 and source device under test into your work area. There are three connection scenarios depending on whether you are using the embedded 980 GUI Manager or the external 980 GUI Manager and also depending on whether you are connecting your host PC to the 980 through your corporate LAN or directly.

Ethernet connections when using the embedded 980 GUI Manager:

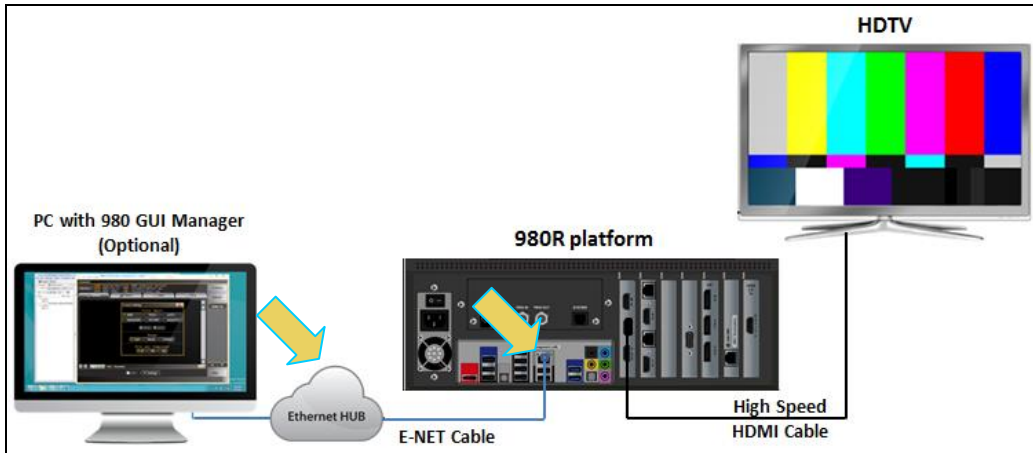
There are no Ethernet connections necessary when using the 980's embedded GUI manager.

To make the physical Ethernet connection when using the external 980 GUI Manager when connecting through your corporate LAN or local Ethernet hub:

This procedure is used when you are using the external 980 GUI Manager and connecting to the 980 through your corporate LAN network. This procedure is required to establish an IP session between the 980 GUI Manager running on the 980. This procedure assumes that you have assembled the 980, host PC and source device under test and applied power to all these devices. Refer to the procedures and diagrams below. The first diagram shows the Ethernet connections through a LAN or hub for testing an HDMI source. The second diagram shows the Ethernet connections through a LAN or hub for testing an MHL source. The Ethernet connections are the same regardless of whether you are testing HDMI, MHL or DisplayPort.



Ethernet connections for 980B using corporate LAN or hub.

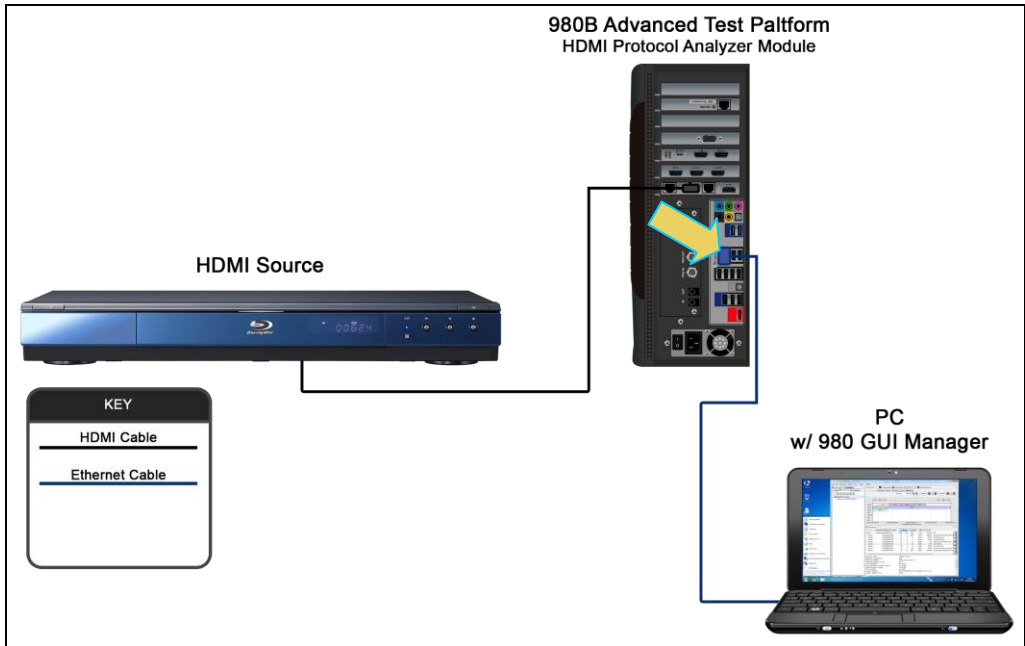


Ethernet connections for 980R using corporate LAN or hub

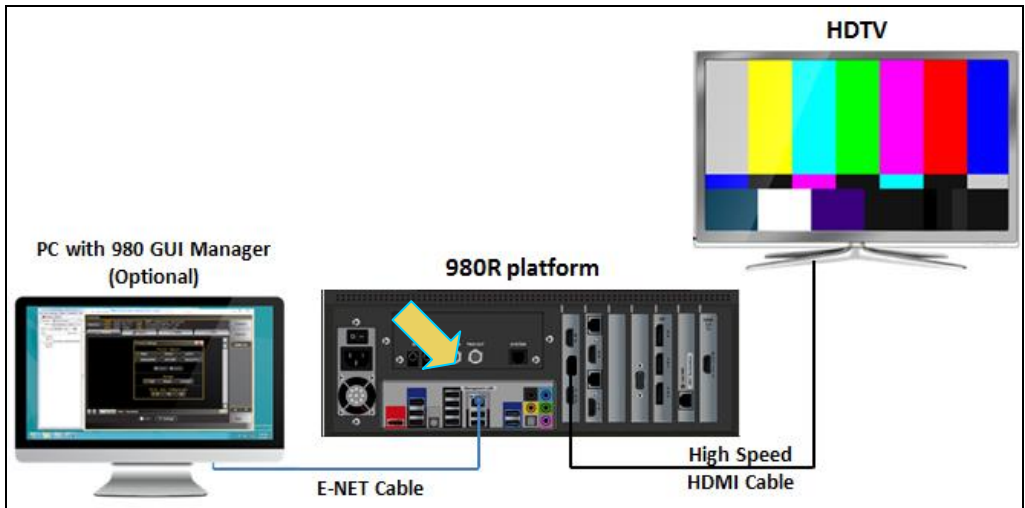
1. Connect an Ethernet cable from the 980 Ethernet jack on the back panel of the 980 to your corporate LAN or local Ethernet hub. The IP address on this 980B Ethernet port is configurable using the procedures that following. Refer to the diagrams above.
2. Connect an Ethernet cable from your PC hosting the external 980 GUI Manager to your corporate LAN or local Ethernet hub.

To make the physical connections using Ethernet Point-to-Point connection with the external GUI Manager:

This procedure is used when using the external 980 GUI Manager and connecting to the 980 directly with an Ethernet cable. If you are connecting through your corporate LAN, use the previous procedure. This procedure is required to establish an IP session between the 980 GUI Manager running on the 980. This procedure assumes that you have assembled the 980, host PC and source device under test and applied power to all these devices. Refer to the diagrams and procedure below. The first illustration shows a direct Ethernet connection when testing an HDMI source. The second illustration shows a direct Ethernet connection when testing an MHL source.



Ethernet connections for 980B using direct connect



Ethernet connections for 980R using direct connect

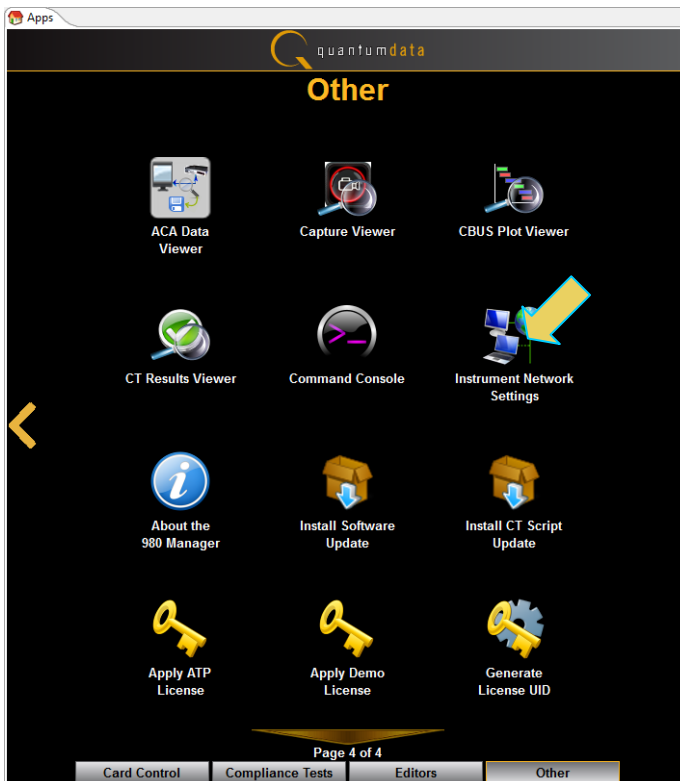
1. Connect an Ethernet cable from the 980 Ethernet jack on the back panel of the 980 frame to your PC hosting the 980 GUI Manager. The IP address on this 980 port is configurable using the procedures that follow.

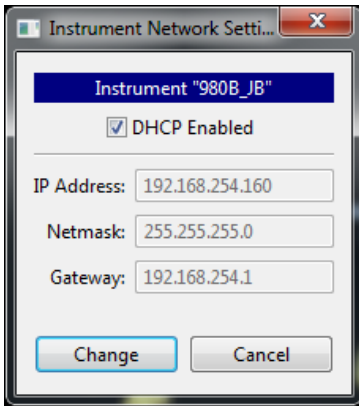
3.8.2 Setting the IP address of the 980

This procedure describes how to set the IP address of the 980. You can change the 980's IP address through the 980's front panel touch screen display manually or you can use the command line. You can also allow the network DHCP server to assign an IP address if you have the 980 on your corporate network that has a DHCP server. These procedures assume that you have powered up the 980 and that the embedded 980 GUI Manager has been launched and established a physical Ethernet connection between the PC hosting the 980 GUI Manager and the 980.

To set the IP address of the 980 through the embedded 980 GUI Manager:

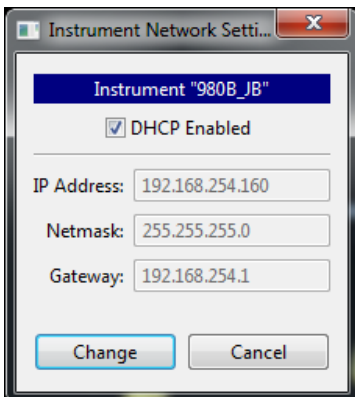
1. Touch select Instrument Network Settings icon on Page 4 (Other apps) page as shown.



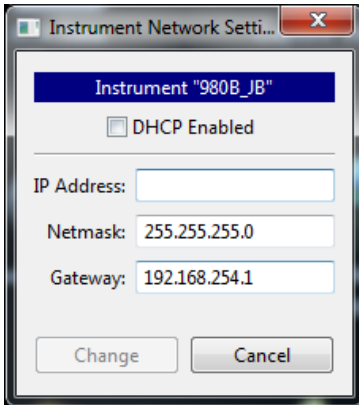


If the IP address of the 980 is compatible with IP address of your PC and corporate network, no further action is required.

2. If you wish to allow the 980's IP address to be set through DHCP services, select the DHCP Checkbox as shown below.

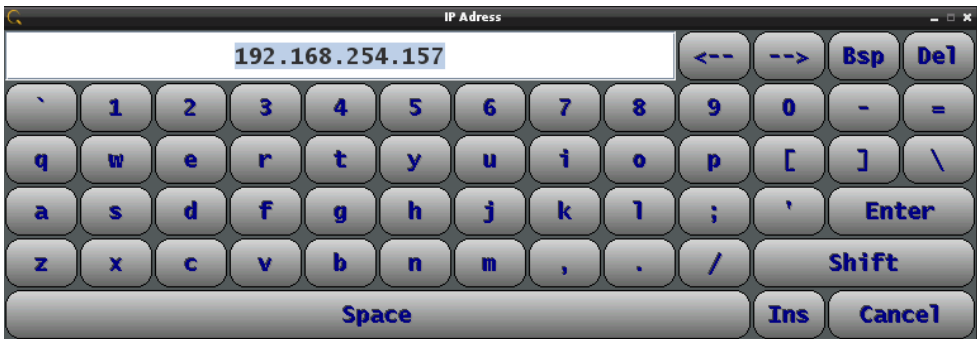


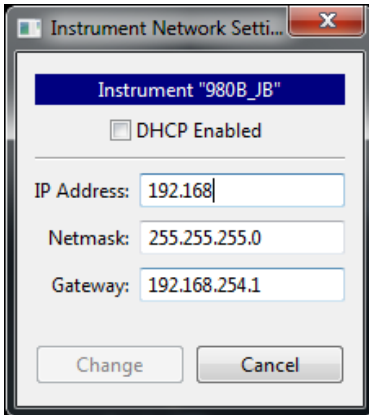
3. Touch select the **Change** activation button to initiate the change. You do not have to reboot the 980 for the IP address change to take effect.
4. Alternatively, if you wish to set the IP address without DHCP, deselect DHCP checkbox (below).



5. Touch select the IP address field to access the on-line keyboard which enables you to change the IP address. Edit the IP address and press the **Enter** key on the on-line keyboard.

Note: Be sure to use an IP address that is compatible with your corporate LAN as described above.

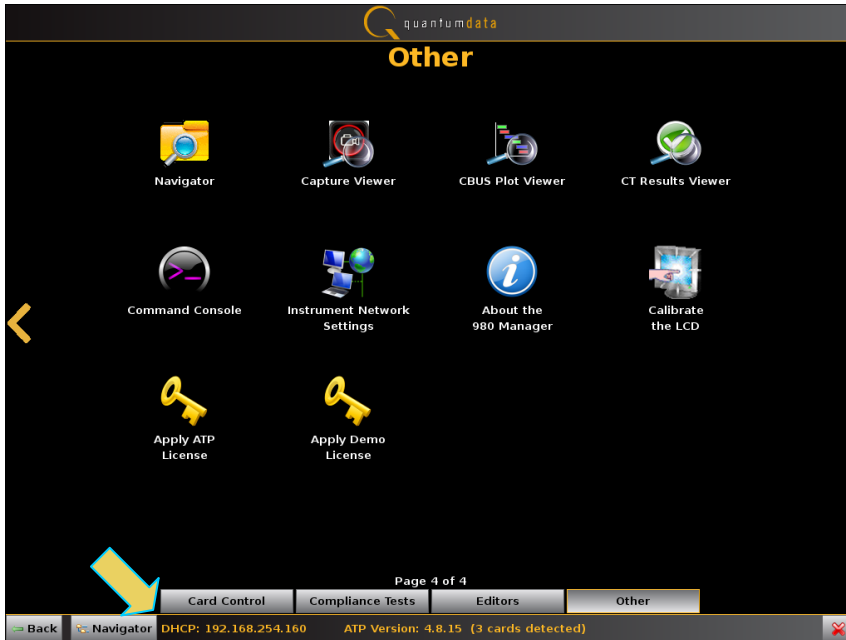




6. Touch select the **Change** activation button to initiate the change.

Note: You do not have to reboot the 980 for the IP address change to take effect.

A dialog box will appear indicating that the IP address is being changed and you will be able to view the new IP address on the bottom status strip next to the **Navigator** button. The information provided will tell you if the IP was set through DHCP or if it was set manually "Static."



To set the IP address of the 980 through the command line:

1. Open up a DOS window on your PC.

Note: This procedure requires a telnet session. Use standard Windows OS utilities or third party utilities.

2. Establish a telnet session to the 980/980B using the default IP address as follows:

```
telnet 192.168.1.10
```

You will be prompted with the `Pscope login:` prompt. Enter the following for a user name and password:

```
Pscope login: qd
```

```
Password: qd
```

When the `p-scope` prompt appears, you will need to execute a command to change its IP address using the following command:

```
Setip <IP_address> <subnet mask> <gateway>
```

Note: You will have to include the subnet mask and gateway address as arguments.

The following is an example:

```
p-scope> setip 192.168.254.100 255.255.255.0 192.168.254.1
```

If you wish to use DHCP to set the IP address, use the following command:

```
p-scope> setip dhcp
```

You will be able to view the new IP address on the bottom status strip next to the **Navigator** button. The information provided will tell you if the IP was set through DHCP or if it was set manually "Static."



3.8.3 Downloading and installing the 980 GUI Manager

1. Download the 980 GUI Manager from the Quantum Data *downloads* page to your PC. The link to the *downloads* page is: <http://www.quantumdata.com/downloads>.

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Industry Resources
Harmonic Video Timing

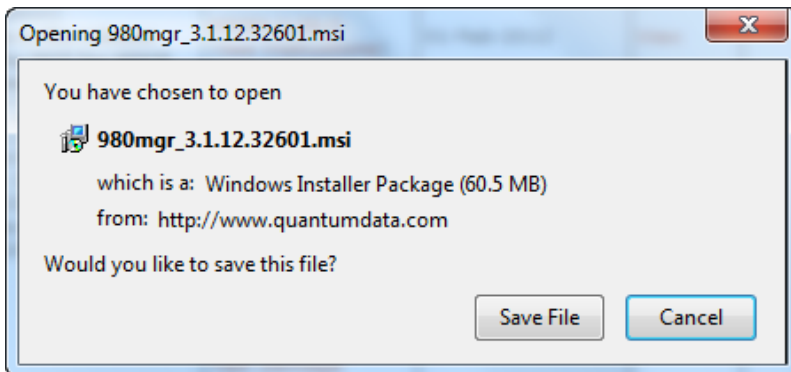
Downloads

Keep your Quantum Data products updated with the latest **firmware and gateware**, **manuals**, and **software** to take advantage of new features and improvements.


Firmware and Gateware

Product	Current firmware/gateware version	Updated	Release notes
Current Release	External Manager 4.10.6		
980B ATP (P/N 00-00231)	Release 4.10.6.a		
980 ATP (P/N 00-00229 980 Protocol Analyzer Generation 3)	HDMI Sink Compliance Test package 4.6.3 Sample EDID Files	27-Jan-2014	View 980

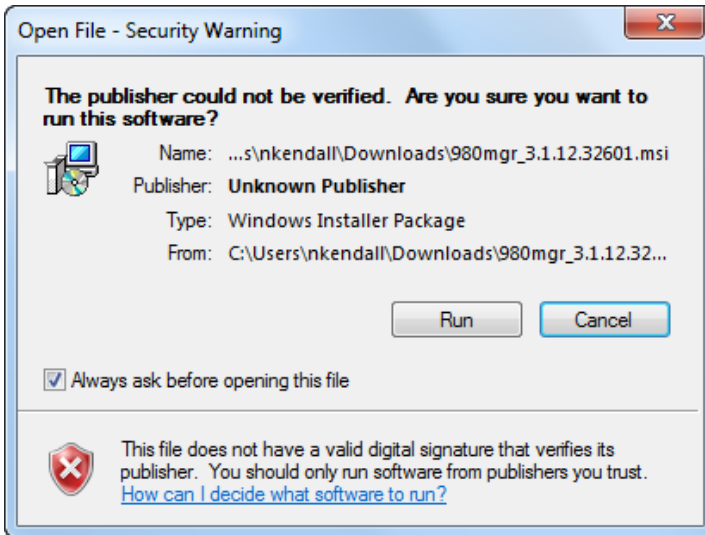
1. From the Quantum Data downloads page, double click on the External Manager link.
2. A dialog box will appear asking you to save the file:



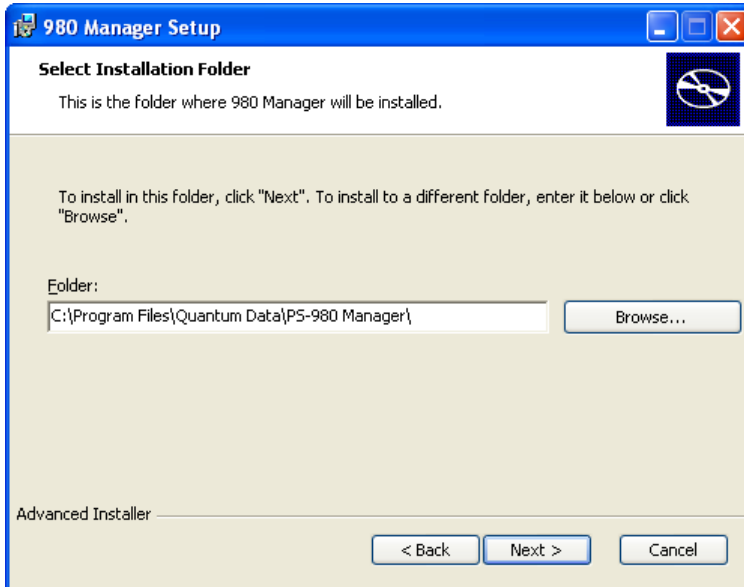
The file will be saved in the downloads folder on the PC.

Name	Date modified	Type	Size
 980mgr_3.1.12.32601.msi	4/20/2012 11:42 AM	Windows Installer ...	61,919 KB

3. Double click on the msi file to initiate the download. A dialog box will appear asking you to Run the installer program.



2. Run the installer program. You will be prompted to for the location of the application. Select the installation folder. We recommend installation in the default folder.



3. After installation completes, run the new 980 GUI Manager. It should be available in the Start Menu under **All Programs** → **Quantum Data**, and also from an icon on your Desktop.
4. Verify that the version number in the title bar matches the version on the website.

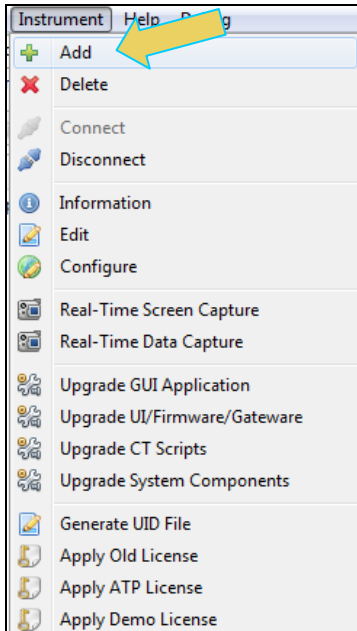
3.8.4 Establishing a Management Session between the 980 GUI Manager and the 980

This procedure describes how to establish a management session between your 980 GUI Manager and the 980. The procedure assumes that you have done the following:

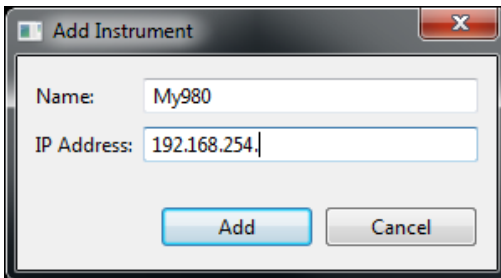
- Have downloaded the 980 GUI Manager application from the Quantum Data website.
- Have provisioned an IP addresses in the 980.
- Have an Ethernet connection and IP address assigned in your host PC.
- Have a suitable Ethernet cable connected between the PC and the 980.

To establish a management session to the 980:

1. Add your 980 to the 980 GUI Manager application using the green + icon or the + **Add** item on the Instrument pull-down menu identified below.

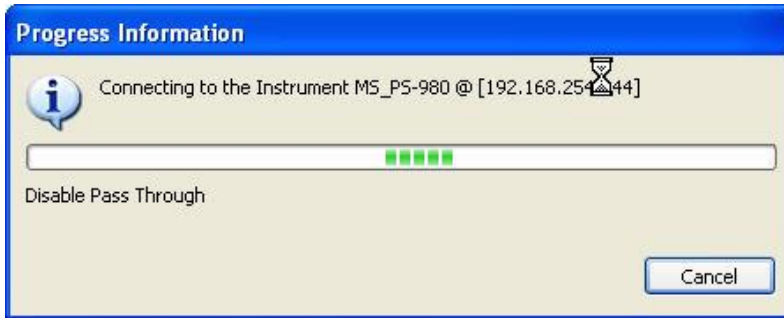


The **Add Instrument** dialog appears enabling you to enter the name and IP information for the 980 that you are trying to connect to (below).

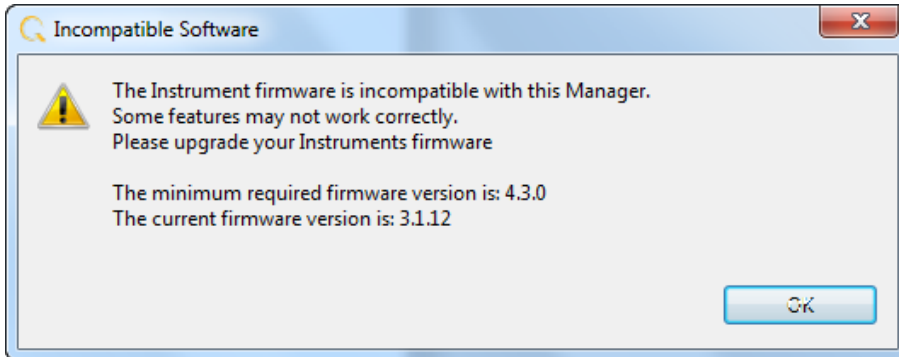


2. Enter the name (any suitable name) and IP address of the 980 that you want to connect to in the **Add Instrument** dialog box (above) and click on the **Add** activation button.

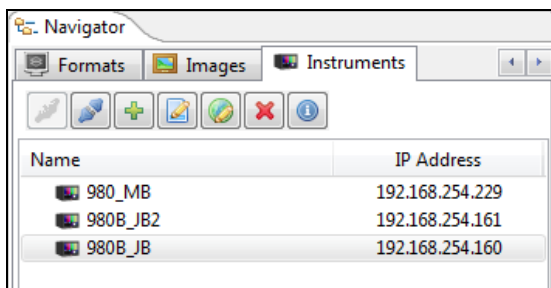
You will see a series of messages on a dialog boxes describing the progress. One example is shown below:



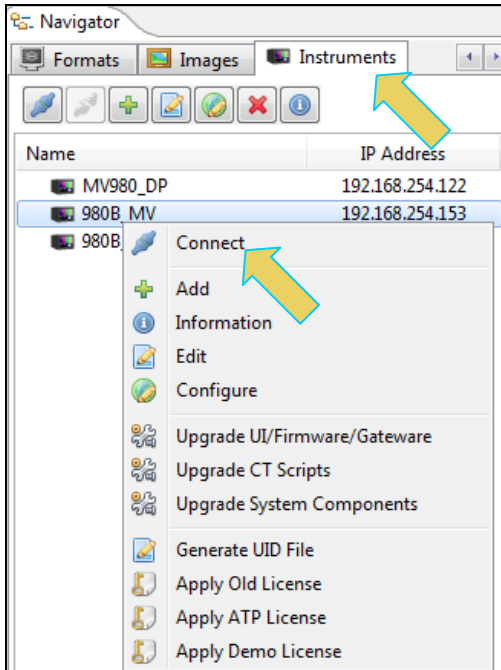
Note: If you receive an “Incompatible Software” error dialog (below); this means that you should upgrade your 980 with the latest firmware. Notify Quantum Data customer support if you receive this message.



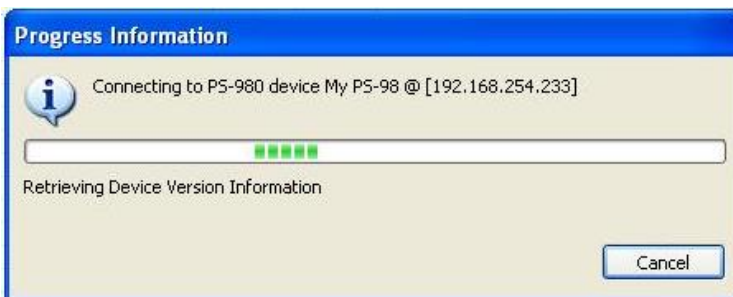
The 980 with the IP address you entered appears on the list in the **980 Navigator** panel (below). The 980 GUI Manager application will automatically connect to the 980 once you add the 980 to the application.



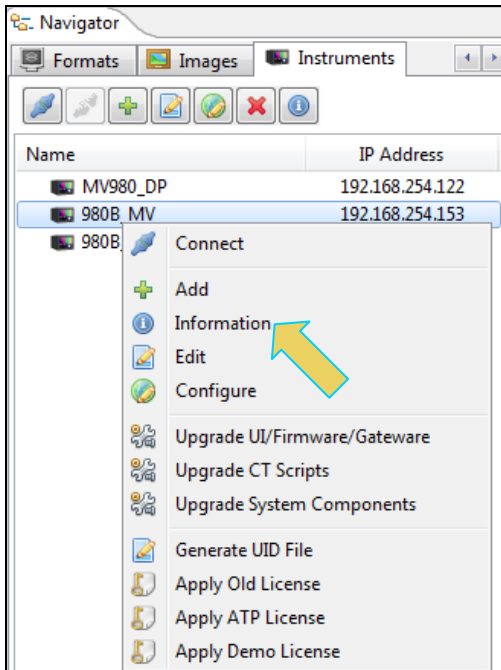
3. (If not already connected) Connect to the 980 using either the **Connect** icon or the **Connect** item on the right click menu as shown in the screen below. Note that you can also double click on the 980 in the **Instrument** dialog box in order to initiate a connection.



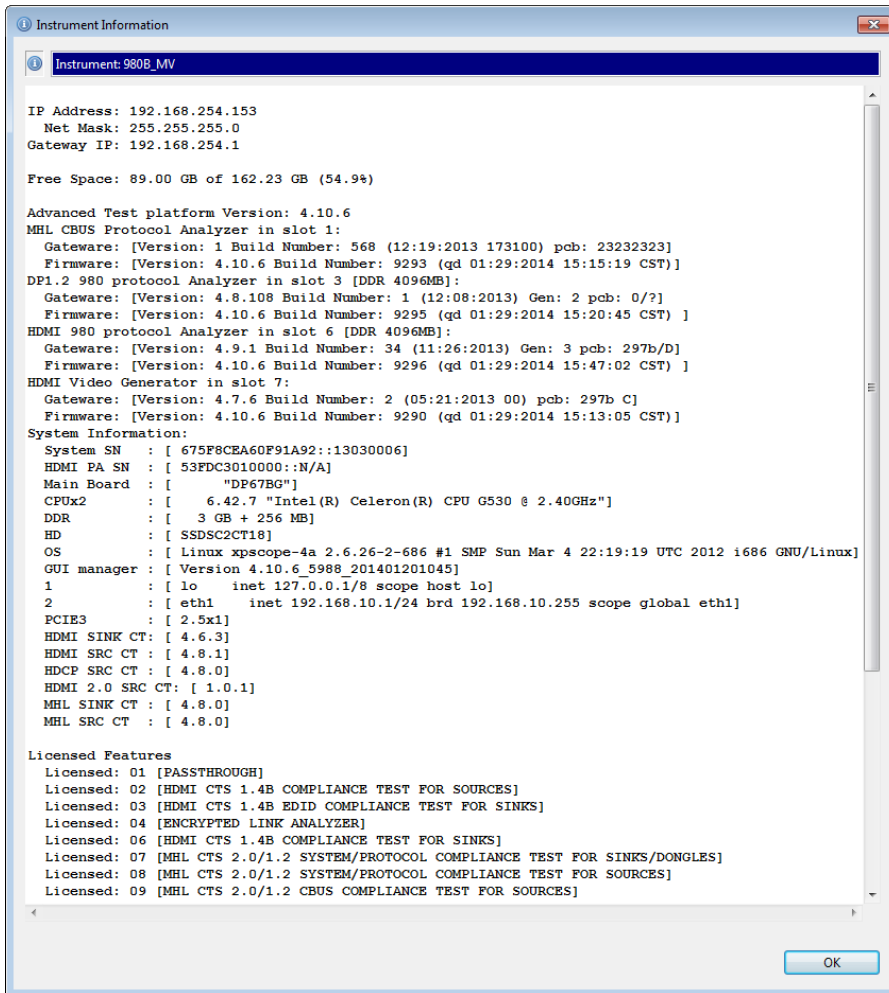
A dialog box appears indicating that a connection is in progress:



Once the connection is made the information about the connected 980/980B is available via the right click menu as shown below.



The information is then displayed in a separate window. The information on the **Instrument Information** window tells you the firmware and hardware release and version information as well as what options you have. This information will be helpful if you call Quantum Data customer support during an upgrade process.



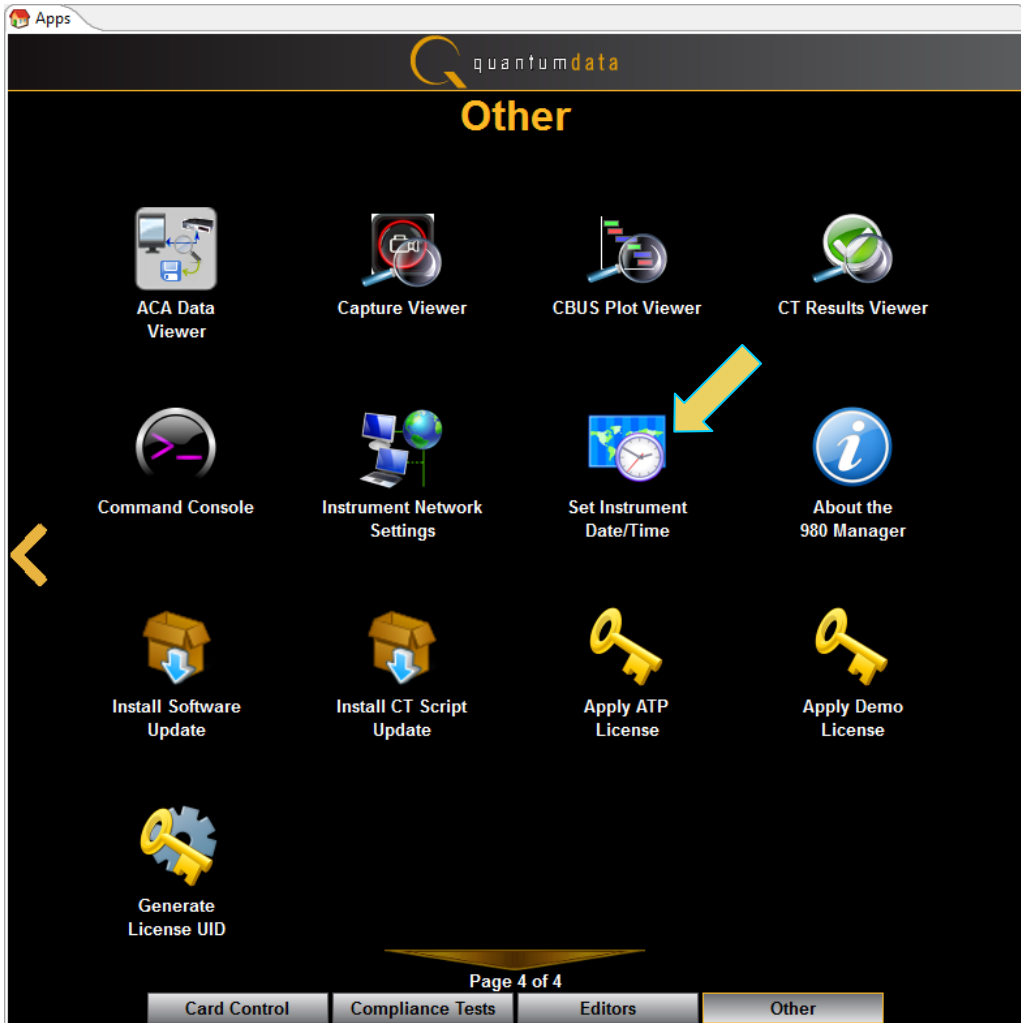
3.8.5 Setting the Instrument date and time

This procedure describes how to set a 980's data and time. This example will use the external GUI Manager. The procedure assumes that you have connected to a 980 through the external

980 GUI Manager. Please note however that you can also set the date and time through the 980's front panel:

To set the date and time of the 980:

1. From the **Other** page (Page 4) of the Apps Window select **Set Instrument Date/Time**.



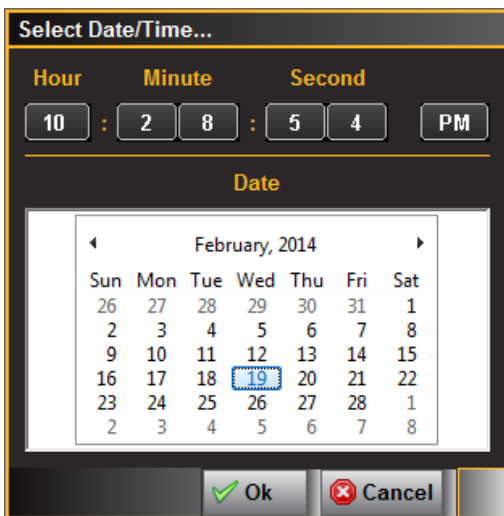
The **Select Date/Time...** dialog box appears as shown below:

- Set the month by selecting from the Calendar.



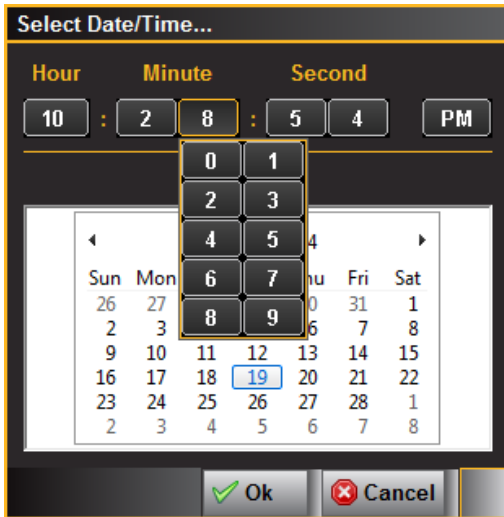
The screenshot shows the 'Select Date/Time...' dialog box. At the top, it displays the time '10 : 28 : 54 PM'. Below the time, the 'Date' section is active, showing a calendar for the year 2014. The month 'Feb' is highlighted with a blue dashed border. The calendar grid shows the months Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, and Dec. At the bottom of the dialog, there are 'Ok' and 'Cancel' buttons.

- Set the date from the calendar.



The screenshot shows the 'Select Date/Time...' dialog box. At the top, it displays the time '10 : 28 : 54 PM'. Below the time, the 'Date' section is active, showing a calendar for the month of February, 2014. The date '19' is highlighted with a blue dashed border. The calendar grid shows the days of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat) and the dates from 1 to 28. At the bottom of the dialog, there are 'Ok' and 'Cancel' buttons.

- Set the time for each element using the pop-out dialog boxes (example shown below for minutes).



3.8.6 Calibrating the 980 display

This procedure describes how to calibrate the 980 display. This procedure must be performed through the embedded 980 GUI Manager:

To calibrate the 980 display:

1. From the **Other** page (Page 4) of the Apps Window select **Calibrate the LCD**. Refer to the screen below.



Follow the instructions on the screen to complete the calibration.

4 Upgrading 980 GUI Manager and 980 Platforms

This Chapter provides information about upgrading your 980 and 980 GUI Manager. Detailed procedures are not provided in this document. **Please be sure to refer to the Release Notes for a specific release for detailed upgrade instructions.**

Quantum Data periodically provides maintenance release of software and firmware. The most recent versions are available on the downloads page of the Quantum Data website.

<http://www.quantumdata.com/downloads/index.asp>

The screenshot shows the Quantum Data website's Downloads page. The navigation menu at the top includes links for HOME, ABOUT, NEWS, PRODUCTS, DOWNLOADS, SUPPORT, and CONTACT. The Quantum Data logo is on the left. The main content area is titled "LEADING-EDGE PRODUCTS FOR THE VIDEO DISPLAY INDUSTRY" and "Downloads". It includes a sub-section "Firmware and Gateware" with a table listing products, current firmware/gateware versions, update dates, and release notes.

Product	Current firmware/gateware version	Updated	Release notes
882EA (882E with HDMI Analyzer option) Notice: This is the release approved by DCP for HDCP CTS 1.2 Compliance Testing.	882EA 2.26.0 (See Instructions)	01-Feb-2012	View
HDMI 1.4a 3D Test Tools	3D Test Tools	28-Jun-2010	App Note
980 Protocol Scope Generation 3 (P/N 00-00229) Notice: This release supports MHL CTS 1.2 Compliance Testing.	External Manager 3.1.12 980 Gen 3 HDMI Sink Compliance Test package Sample EDID Files	26-Mar-2012	View 980 Gen 3

Two software packages are available for upgrading the 980:

1. Embedded firmware and gateware package for the 980 instrument. This is a Debian software package for installation in the Linux-based instrument. (The file extension is .deb.) This package also includes the embedded Graphical User Interface that will be installed for the Touch Screen User Interface. The 980 software package includes the firmware and gateware for all available modules.

2. Graphical User Interface for Windows PCs. This is the 980 Manager GUI that can be used to control all 980 instruments from a Windows PC.

Notes:

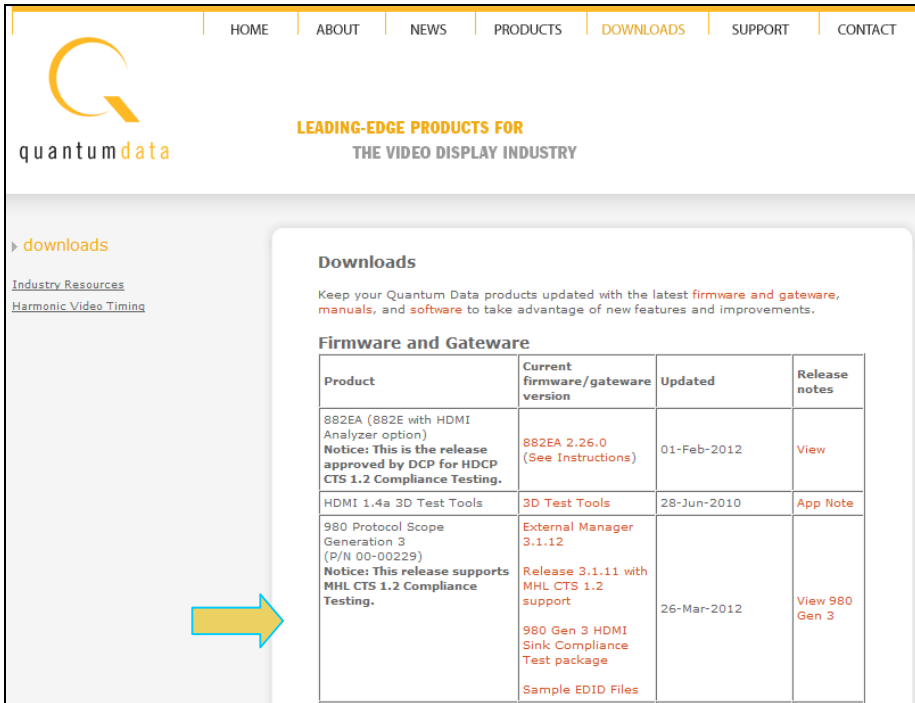
1. If the Windows-based 980 Manager GUI and the embedded firmware are both being upgraded, you will need to upgrade the 980 Manager first, and then upgrade the embedded firmware.
2. Be sure to check the release notes associated with the download files. Any special installation instructions will be noted in the release notes.
3. In some cases if your 980 is not at the most recent version, you may have to first upgrade to the most current version and then to the new version.

4.1 Workflow for Upgrading 980 Firmware/Gateware

This section describes the workflow of the upgrade process. It is not intended to be a detailed procedure. ***Please refer to the Release Notes for detailed upgrade procedures.***

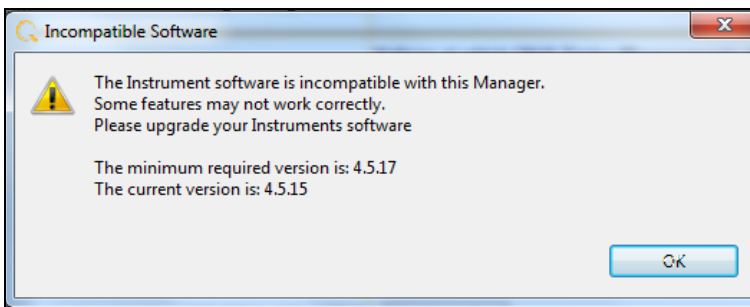
Please note that you have to upgrade the 980 GUI Manager before using the GUI Manager to upgrade the 980 firmware and gateware.

1. Download the GUI Manager and 980 Firmware/Gateware files from the Quantum Data website downloads page:

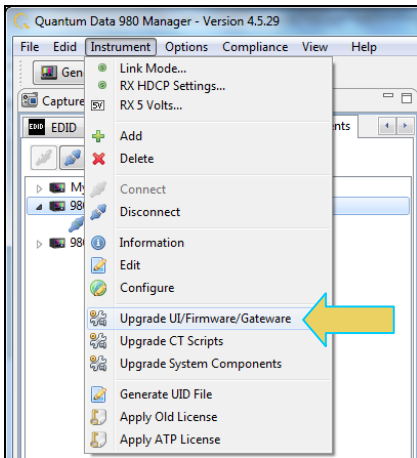


- Upgrade the 980 GUI Manager and restart.

Note: You may receive the following error indicating that you must update the 980 firmware/gateware.

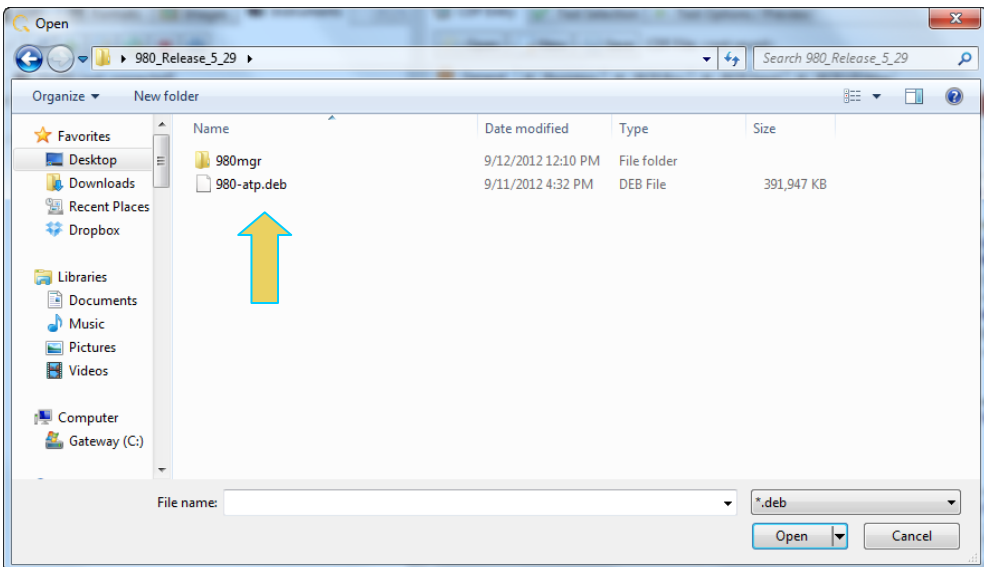


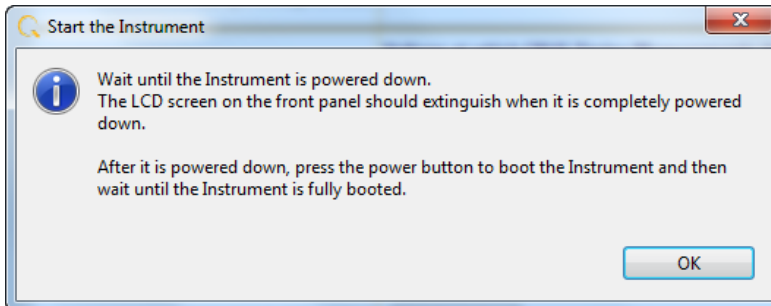
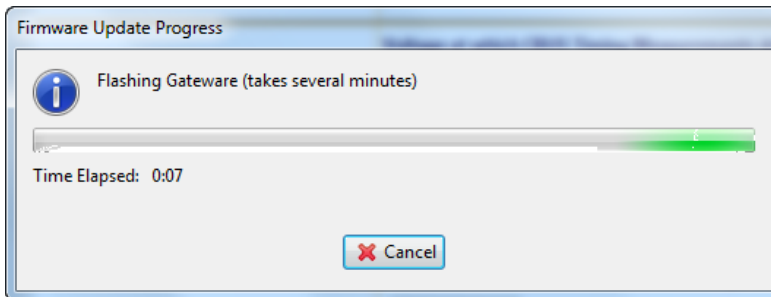
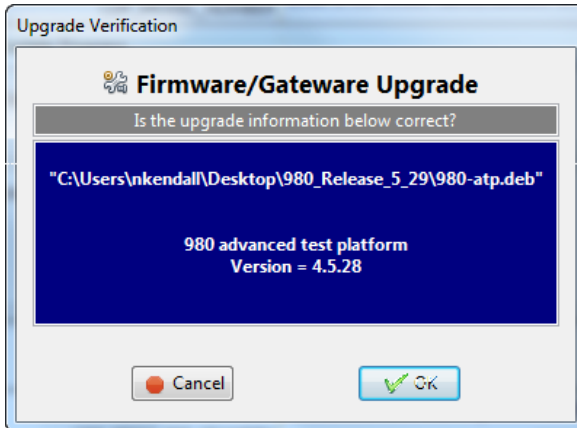
- Connect to the 980 that you wish to upgrade.
Access the **Upgrade Firmware/Gateware** option from the **Instrument** pull-down.



4. Update the 980 Firmware/Gateware.

Browse to the Deb file and select it. Follow the on-screen prompts.





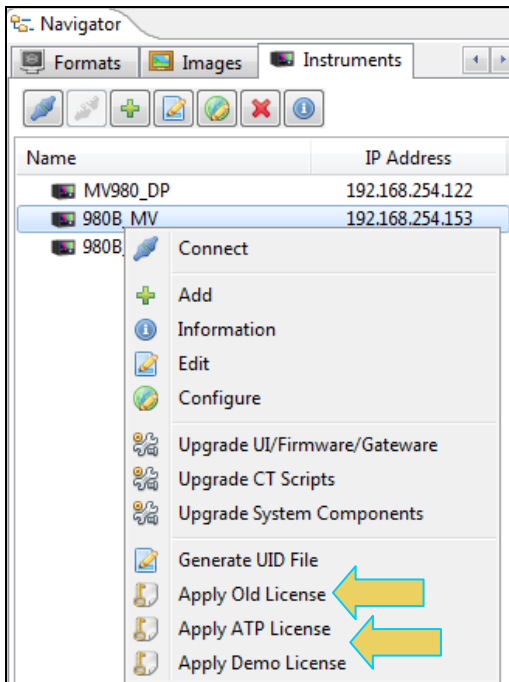
5. Reconnect the 980 GUI Manager to the 980.

4.2 Workflow for Adding License for optional feature

This section describes the workflow of the upgrade your 980 Protocol Analyzer with an optional feature using a license key. process. It is not intended to be a detailed procedure. ***Please consult Quantum Data Customer Support for details.***

Note: You must have purchased the optional feature through the normal channels of your Quantum Data representative or distributor.

1. Purchase optional feature from Quantum Data distributor or representative.
2. Call Quantum Data customer support.
3. Generate UID text file from the **Instrument** pull-down menu (below) and convey to Quantum Data customer support.
4. Quantum Data will provide a QDATP.lic file. Store this on your host PC.
5. From the **Instrument** pull-down menu (below) select Apply ATP License.



5 Command Line Interface

This chapter provides procedures on establishing a command line session with the 980 from a PC. Detailed descriptions of the commands themselves are not provided.

5.1 Overview

You can control the 980/980B and its modules through the command line via a telnet session or from the 980 Manager Console panel. You can execute commands to achieve certain functions which are module dependent and you can access the Linux shell to apply commands to capture data files for example.

You can access the Linux prompt from the p-scope> prompt available from the **Console** panel or through a separate telnet window. Procedures for both are shown below.

To establish a command line session through the 980 Console window:

1. Establish an Ethernet connection between the 980/980B using the procedures defined in: [Connection Scenarios for external 980 GUI Manager](#).
2. Highlight the 980/980B that you want to execute commands on.
3. Activate the **Console** tab to access the **Console** panel interface.
4. Click on the **Open Connection** activation button to establish a telnet session with the 980/980B.



5. The **p-scope>** prompt will appear allowing you to enter commands (example pcap mode all command shown above).

Note: You enter commands in the **Command** field above the terminal area.

The primary command for setting up and initiating the capture data is the **PCAP** command (not case sensitive). There are several arguments of the PCAP command and these are explained in the table in the procedures below.

To quit out of the 980 Console window session:

1. To quit out of the console session enter the following sequence:

```
p-scope>quit    // Takes you to the Linux shell prompt.  
qd@scope:~$
```

2. Enter the following to exit out of the console session:

```
qd@scope:~$ exit
```

To establish a command line session through a telnet session:

1. Launch the Command Prompt utility from the Windows Accessories.
2. Establish a telnet session with the 980 using the following command. Note you will enter in the IP address of the 980 (192.168.254.001 in example below):

```
>telnet 192.168.254.001
```

The 980 login prompt will then appear as shown below. The 980 login and password are **qd**.

```
Pscope login: qd
```

```
Password: qd // you will not be able to see the entry.
```

3. The **p-scope>** prompt will appear allowing you to enter commands.

The primary commands for setting up and initiating the capture data is the **PCAP** command (not case sensitive). There are several arguments of the PCAP command and these are explained in the table in the procedures below.

END OF QUICK START GUIDE