



Agilent N5998A HDMI Protocol Analyzer and Generator

**(Covers both HDMI 1.3 and 1.4
Compliance Testing)**

Installation Guide



Agilent Technologies

Notices

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Manual Part Number

N5998-97001

Edition

N5998-97001, January 2010

Printed in Malaysia

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Colorado Springs, CO 80907 USA

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
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 STANDBY and AC symbols. The STANDBY marks the position of the instrument power line switch. The AC symbol is used to indicate the required nature of the line module input power.

 The CE mark is a registered trademark of the European Community. ISM GRP 1-A denotes the instrument is an Industrial Scientific and Medical Group 1 Class A product. ICES/NMB-001 indicates product compliance with the Canadian Interference-Causing Equipment Standard.

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This symbol indicates the Environmental Protection Use Period (EPUP) for the product's toxic substances for the China RoHS requirements.

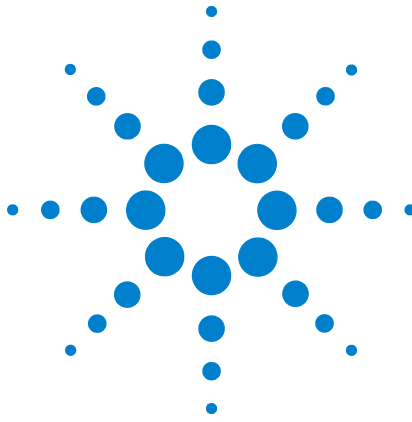


Recycle marking.

Safety Notices

CAUTION. A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING. A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.



Installing the N5998A

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This documents shows you how to install the N5998A and its software application. After completing the installation procedure, read the N5998A user's guide which is located in the products installation folder.

General Safety Considerations

This product has been designed and tested in accordance with the standards listed in the Manufacturer's Declaration of Conformity, and has been supplied in a safe condition. The documentation contains information which must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.

WARNING

No operator serviceable parts inside. Refer servicing to qualified service personnel. To prevent electrical shock do not remove covers.

WARNING

This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited.

CAUTION

This product is designed for use in INSTALLATION CATEGORY II and POLLUTION DEGREE 2 per IEC61010-1 and IEC60664 respectively.

NOTE

Install the instrument according to the enclosure protection provided. This instrument does not protect against the ingress of water. This instrument protects against finger access to hazardous parts within the enclosure.



General Safety Considerations

CAUTION

Do not connect ac power until you have verified the line voltage is correct as described in [Table 2](#), “Installation Requirements,” on page 8. Damage to the equipment could result.

CAUTION

Always use the three-prong AC power cord supplied with this instrument. Failure to ensure adequate earth grounding by not using this cord may cause product damage.

CAUTION

This instrument has autoranging line voltage input. Be sure the supply voltage is within the specified range.

NOTE

Install the instrument so that the detachable power cord is readily identifiable and is easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

Step 1. Inspect the Shipment

- 1 Inspect the shipping container and instrument for damage. Keep the shipping container and cushioning material until you have inspected the contents of the shipment for completeness and have checked the instrument mechanically and electrically.
- 2 Locate the shipping list. Verify that you received all the accessories on this list, and all the options that you ordered. The following list shows some of the items that may be on the shipping list. The information on your actual shipping list is more accurate and should supersede the information in this list.
 - N5998A
 - Power cord
 - USB cable
 - Installation CD-ROM (for Windows)

If anything is missing or defective or the shipment was damaged, contact the carrier, then contact the nearest Agilent Sales Office. Keep the shipping materials for the carrier's inspection. The Agilent Sales Office will arrange for repair or replacement at Agilent's option without waiting for claim settlement.

Step 2. Check the Capability of the N5998A

- 1** Inspect the N5998A's rear panel for a sticker indicating that the FPGA version is greater than 0x0141.
- 2** If the sticker is present, the N5998A includes full HDMI 1.4 testing capability.
- 3** If the sticker is not present and you want full HDMI 1.4 testing capability, you must purchase an N5998U-R14 upgrade. This upgrade requires that the N5998A be sent to your local Agilent Service Center. Go to www.agilent.com/find/contactus.

The N5998U-R14 upgrade updates the N5998A's internal field-programmable gate array (FPGA). Information on upgrading the FPGA version is documented in Service Note N5998A-03, FPGA Upgrade, on Agilent's web site.

Step 3. Install the Application

NOTE

To avoid installation problems, log in to the PC using Administrator permissions and install the application on a local drive. Do not install the application on a networked drive. If an older version of the application is installed on the PC, uninstall the older version before installing the new version.

- 1 If connected, disconnect the USB cable between the N5998A and the PC.

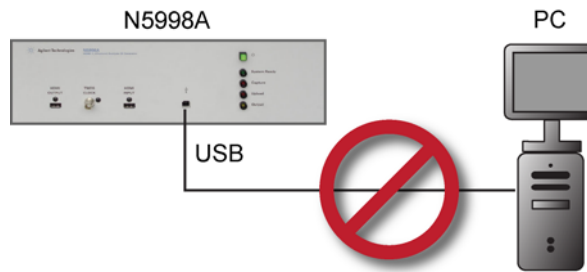


Figure 1 Disconnect the N5998A USB Cable

- 2 Turn on the PC, log in with Administrator permissions, and close all open applications.

Table 1 PC Requirements^a

Item	Description
Hardware	Pentium® processor 1 GHz or equivalent 512 MB available RAM VGA resolution 1024 x 768 5 GB or more free disc space USB 2.0 interface
Operating System	Windows® XP

^a Not included with the N5998A.

- 3 Use your web browser to open Agilent's home page at www.agilent.com
- 4 On Agilent's web page, enter N5998A into the search field and click Search.
- 5 When the search results appear, click Product Overview.
- 6 Click the Downloads & Trials tab. At the bottom of the page, select and download the latest software version of the N5998A.
- 7 Open the downloaded zip file and run the included exe file.
- 8 Complete the steps in the installation wizard.

Step 4. Connect the Power

Connect the line cord to the N5998A. The N5998A automatically adjusts for line input voltages of 100 VAC and 230 VAC. There is no voltage selection switch. The line cord provided is matched to the country in which the order originates.

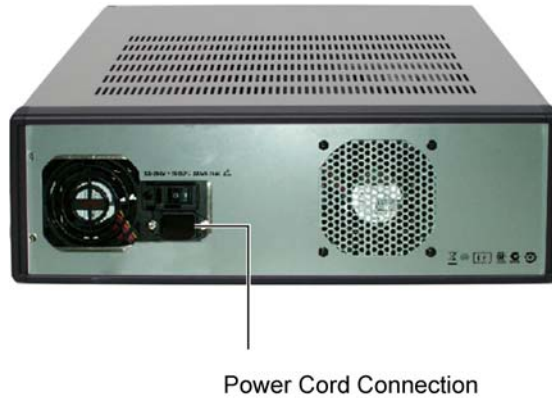


Figure 2 Power Cord

Table 2 Installation Requirements^a

Item	Description
Power requirements	100 – 240 V _~ (max. voltage fluctuation 10%) 300 VA maximum 50/60 Hz
Temperature	Operating: 0°C to +55°C Storage: –40°C to +70°C
Humidity	Operation: 15% – 95% @ 40°C (non-condensing) Storage: 90% @ 65°C

^a Refer to the N5998A user's guide for more information

Step 5. Install the Device Driver

- 1 Connect the supplied USB cable between the N5998A's front-panel USB connector and the PC.
- 2 Turn on the N5998A using the rear-panel power switch.



Figure 3 Power On Switch

- 3 Restart the PC.
- 4 The Found New Hardware Wizard starts automatically.



Figure 4 Found New Hardware Wizard

- 5 Click "Install from a list of specific location (Advanced)". Click Next.
- 6 As shown in [Figure 5](#), select "Search for the best driver in these locations" and "select Include this location in the search".

Step 5. Install the Device Driver

- 7 Browse to the driver folder: C:\Program Files\HDMI Evaluator\Driver.

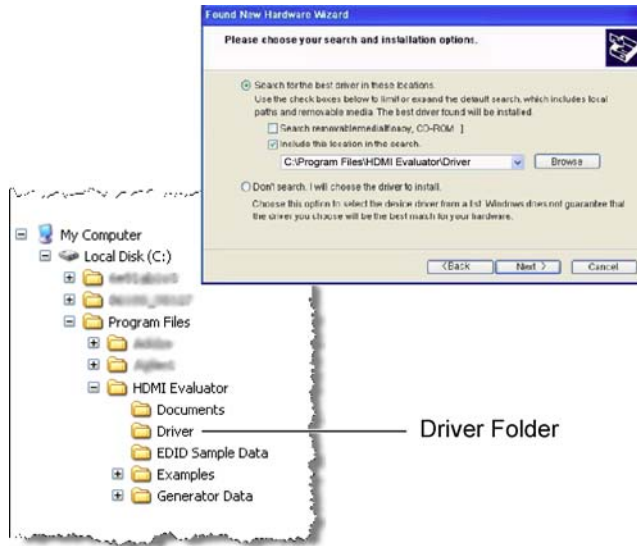


Figure 5 Installation Options

- 8 Click Next to begin installation.
- 9 Click Finish to complete the driver installation.

If the Device Driver Installation Fails

Sometimes the Agilent N5998A cannot be discovered by the PC when the USB cable is plugged into a different USB port in the same PC. This occurs because Agilent N5998A doesn't have a separate serial number of its own.

To resolve this issue, re-install the driver. If it still doesn't work, perform the following steps to get the Instance ID of the Agilent N5998A from the Device Manager:

- 1 Right-click the My Computer icon on the desktop and select Properties.
- 2 In the System Properties dialog box, click the Device Manager button in the Hardware tab.
- 3 Double-click the Universal Serial Bus controllers item in the tree structure.
- 4 Locate the USB Device item in the expanded tree structure. Right-click this item and select Properties.
- 5 In the USB Device Properties dialog box, select the Details tab and select the Device Instance ID option from the list box. The Instance ID of the USB device appears in the text box below.

Step 5. Install the Device Driver

- 6** Record the value of the Instance ID. For example, for a Device Instance Id of `USB\VID_054c&PID_02d0\5&3b8933dc&0&5`, the Instance ID value would be `5&3b8933dc&0&5`.
- 7** In the file, `Driver.reg`, replace the string `INSTANCEID` with the Instance ID value you have just recorded.
- 8** Double-click the `Driver.bat` file to refresh the Windows registry.

Step 6. Install the Conversion Utility (Optional)



Before you can use the optional conversion utility, you must purchase and install the N5998U-DBG software license upgrade for debug explorer.

The optional Generate Module CSV from HDMI Capture File utility converts N5998A data files into files that can be imported into logic analyzers. The conversion utility is installed with the HDMI Protocol Analyzer and is accessed from the Window's Start menu.

- 1 On the Windows Start menu, select All Programs > HDMI Evaluator > Generate CSV to open the conversion utility.
- 2 In the application, click Software Licensing.

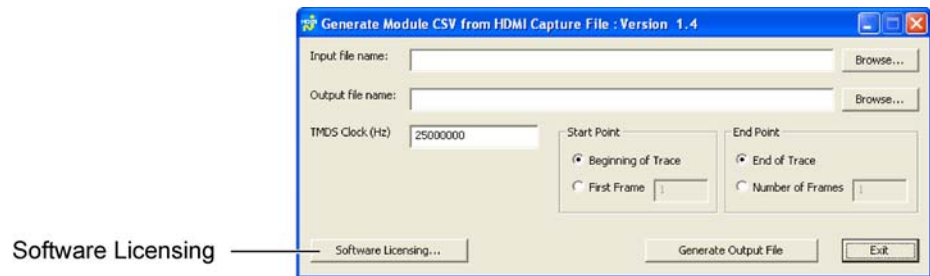


Figure 6 Conversion Utility Application

- 3 In the Software Licensing dialog box, click the Activation tab.
- 4 Note the Licensing Host ID. You will need this code to activate your license.
- 5 Close the Software Licensing dialog box.
- 6 Close the Generate Module CSV from HDMI Capture File utility window.
- 7 On your web browser, open the Agilent Software Licensing System at:
<http://www.agilent.com/find/softwarelicense>
- 8 On the web site, follow the instructions to generate your license file. When prompted, enter the following information:
 - Host ID of application
 - Agilent Order Number that is printed on the entitlement certificate.
- 9 Agilent will email you a license file. Open the email and follow the installation instructions that explain how to copy the license file to a specific folder on your computer or floating license server.

Step 6. Install the Conversion Utility (Optional)

NOTE

If you installed the license on a floating license server, more steps are required. On the HDMI Protocol Analyzer Generator application, click Software Licensing and then Help. As shown in [Figure 7](#), the online help provides complete documentation for using the License Manager.

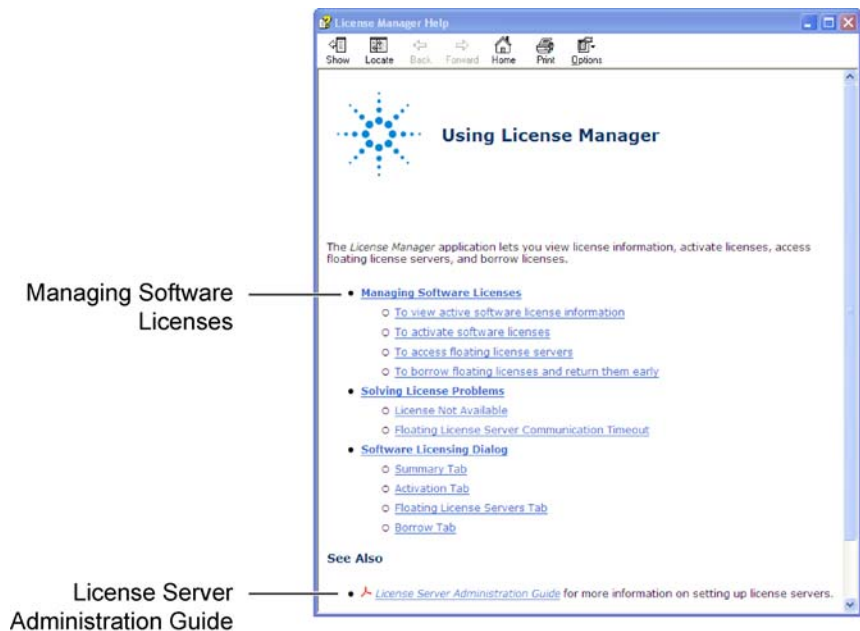


Figure 7 License Manager Help

Step 7. Locate the User's Guide

The N5998A HDMI Protocol Analyzer and Generator User's Guide provides in-depth product information which includes the following topics:

- Installing the N5998A
- Configuring the N5998A
- Source and Sink Testing with the HDMI Protocol Analyzer application
- Remote control of the HDMI Protocol Analyzer application
- Using the optional conversion utility for importing captured data into a logic analyzer

The user's guide is provided as a PDF document and is located in the Documents installation folder shown in [Figure 8](#).

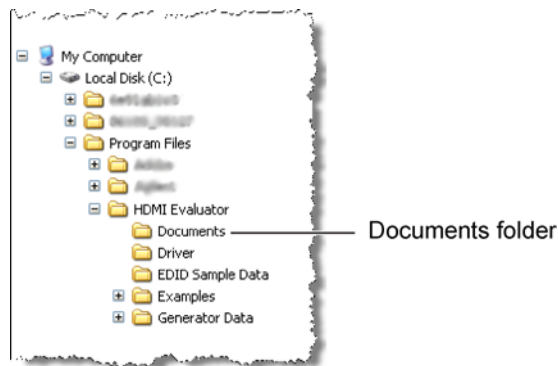


Figure 8 Location of User's Guide