

# Agilent U4154A Logic Analyzer



## Installation Guide

# Notices

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1900 Garden of the Gods Road  
Colorado Springs, CO 80907 USA

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### 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.

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Agilent Technologies certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology to the extent allowed by that organization's calibration facility, and to the calibration facilities of other International Standards Organization members.

## Additional Information for Test and Measurement Equipment

To comply with EMC regulations, supplied or recommended cables must be used on all appropriate connections. Otherwise, the user has to ensure that, under operating conditions, the Radio Interference Limits are still met at the border of the user's premises.

To ensure continued compliance to radiated emissions standards, all RJ45 connections must be made using shielded Category 5 (STP) cables.

## Warnings

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

**Before Applying Power** Verify that all safety precautions are taken. Make all connections to the unit before applying power. Note the instrument's external markings described under "Safety Symbols".

**Ground the Equipment:** For safety, Class 1 equipment (equipment having a protective earth terminal), an uninterruptible safety ground must be provided from the mains power source to the product input wiring terminals or supplied power cable. Before operating the equipment, guard against electric shock in case of fault by always using the provided 3-conductor power cords to connect the equipment to a grounded power outlet.

### **DO NOT use in hazardous environments:**

Do not operate the product in an explosive atmosphere or in the presence of flammable gases or fumes. This product is designed for indoor use only.

**Keep away from live circuits:** Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

### **DO NOT operate damaged equipment:**

Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to an Agilent Technologies Sales and Service Office for service and repair to ensure the safety features are maintained.

### **DO NOT substitute parts or modify equipment:**

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to an Agilent Technologies Sales and Service Office for service and repair to ensure features are maintained.

**DO NOT clean with fluids:** Doing so may make the equipment unsafe for use. Power down the equipment and disconnect the power cord before cleaning. To clean, use a soft dry cloth.

**DO NOT block the primary disconnect:** The primary disconnect device is the appliance connector/power cord when a chassis used by itself, but when installed into a rack or system the disconnect may be impaired and must be considered part of the installation.

**Modules can become hot during use:** DO NOT touch any of the components on a module as you remove it from the chassis. Beware especially of the power module, which is situated at the rear of the module.

## Cautions

**Do NOT block vents:** To ensure adequate cooling and ventilation, leave a gap of at least 50mm (2") around all vent holes.

**Do NOT operate with empty slots:** To ensure proper cooling and avoid damaging equipment, fill any empty slots with the AXle filler panel module.

**Do NOT stack free-standing chassis:** For benchtop use, do not stack chassis. Stacked chassis should be rackmounted. Exception—the bumpers, if installed on both chassis, are designed to safely stack one M9502A atop an M9502A or M9505A.

**All RFI gaskets must remain in place:** Any damaged gaskets must be replaced.

**All modules are grounded through the chassis:** During installation, tighten the module's retaining screws to secure the module to the chassis and to make the ground connection.

## Safety Symbols

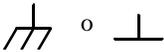
Products display the following symbols:



If you see this symbol on a product, you must refer to this guide for specific Warning or Caution information to avoid personal injury or damage to the product.



Indicates the field wiring terminal that must be connected to ground before operating the equipment. Protects against electrical shock in case of fault.



Frame or chassis ground terminal. Typically connects to the equipment's metal frame.



Alternating current (AC).



Direct current (DC).



Standby. This device is not completely disconnected from the AC mains when its power switch is off.



Indicates hazardous voltages and potential for electrical shock.



Indicates that antistatic precautions should be taken.



The CSA mark is a registered trademark of the Canadian Standards Association and indicates compliance to the standards laid out by them. Refer to the product Declaration of Conformity for details.



Notice for European Community: This product complies with the relevant European legal Directives: EMC Directive (2004/108/EC) and Low Voltage Directive (2006/95/EC).



Notice for the European Community: This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.

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This is the symbol for an Industrial, Scientific, and Medical Group 1 Class A product.



N10149

The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australia EMC Framework regulations under the terms of the Radio Communication Act of 1992.

## ICES/NMB-001

ICES/NMB-001 indicates that this ISM device complies with the Canadian ICES-001.

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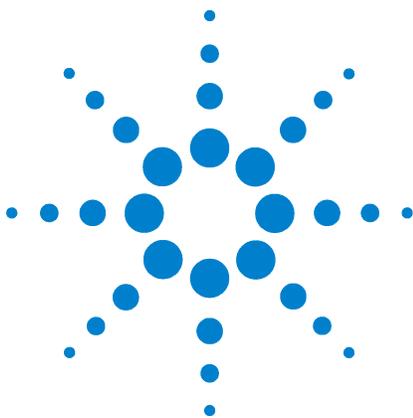
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# 1 Introduction

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This chapter introduces you to the U4154A Logic Analyzer module and other hardware components such as the AXIe chassis and host PC that are required in the module setup. The chapter also describes the U4154A module's components.



## U4154A Logic Analyzer Module

The Agilent U4154A Logic Analyzer is an instrument module installed in one of the module slots of an Agilent AXIe chassis (M9502A portable 2-slot chassis or M9505A 5-slot chassis).

U4154A is a 136 channel AXIe based high speed state and timing logic analyzer. It provides measurement capabilities, probing, and application support and analysis tools for digital testing and debugging.



Figure 1 U4154A Module

### Features included in the U4154A Logic Analyzer Module

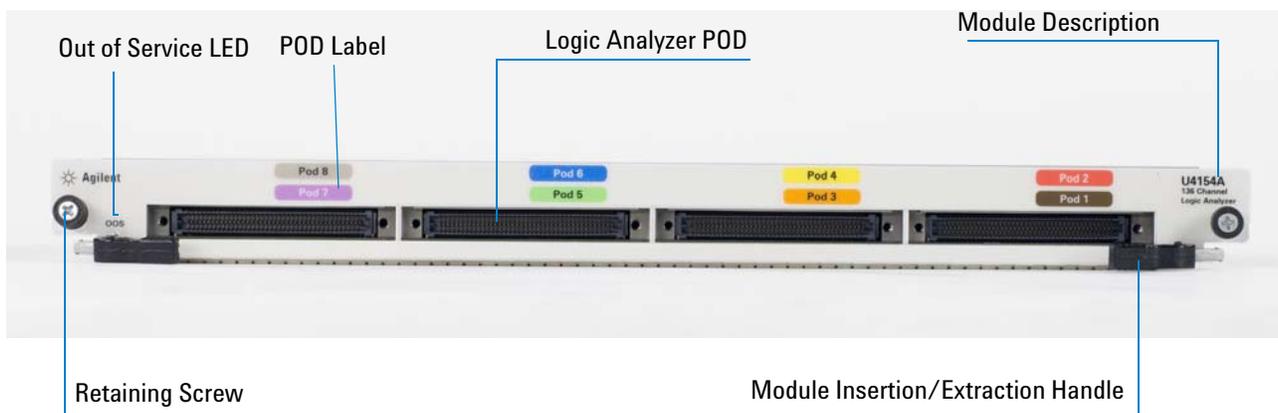
The following are the main features that are included in U4154A.

- 136 channels per module. Expandable to 272 channels by installing and connecting two U4154A cards in slots of an AXIe chassis as a two-card set.
- Memory depth ranging from 2 M to 200 M (depending on the memory depth license option that you purchased).
- Support for timing and state acquisition modes.
- Timing Zoom at 12.5 GHz.
- Eye scan feature for determining optimal threshold voltage and sample position settings for individual channels of U4154A.

Refer to the *Agilent Logic Analyzer Online Help* to learn more about the module's features, capabilities, and usage.

## U4154A Module Components

The U4154A module connects to a System Under Test (SUT) via pod connector cables and probes to make real-time measurements. The following figure displays the front panel of the U4154A module with its various components labelled.



**Figure 2** U4154A module

As displayed in [Figure 2](#), the U4154A module has the following components.

Component	Description
<b>OOS (Out of Service) LED</b>	<p>Indicates the U4154A module health: This LED turns red during the power-on-self-test execution and then turns off when the U4154A module is ready to connect to the host PC.</p> <ul style="list-style-type: none"> <li>• <b>Red, steady</b> - If the LED remains red and does not turn off, then it indicates that the module has detected a failure, for example, an unsuccessful bootup test or corrupted firmware. Contact your Agilent representative to replace or service the module.</li> <li>• <b>Off</b> - The module has detected no failures and is functioning properly.</li> </ul>
<b>Logic Analyzer Pods</b>	<p>The module has eight Pod inputs labelled as Pod 1-8 in different colors. You use these pod inputs to connect the U4154A module to probes via Pod connector cables.</p> <p>Each pod has 16 data channels and a clock channel.</p>
<b>Pod labels</b>	<p>A colored label assigned to each pod input on the front panel of the module. The color coding used in these pod labels should match the color coding for the labels that you put on the pod cables.</p>
<b>Retaining screws</b>	<p>The screws on both ends of the module are used to retain the module tightly inside the AXIe chassis slot once you have fully placed it inside the chassis. To remove the module, you first need to loosen these screws.</p>

Component	Description
Module Insertion/Extraction Handles	The handles on both sides of the module to insert or eject the module from the slot of the AXIe chassis.
Serial Number (on top of module)	Uniquely identifies the U4154A module. When contacting Agilent support, report this number so that any manufacturing information or past servicing associated with the module can be noted. The serial number is also provided in a Code 128 bar code for inventory purposes.
Module Description	Identifies the module's product number and title. When contacting Agilent support, report this information.

**CAUTION**

Components on the U4154A module are sensitive to the static electricity. Therefore, take necessary anti-static precautions, such as wear a grounded wrist strap, to minimize the possibility of electrostatic damage.

Refer to the topic [“Step 2 - Install the U4154A Module in the AXIe Chassis”](#) on page 20 to learn how to install this module in one of the slots of AXIe chassis.

## AXIe Chassis

The Agilent AXIe chassis is a modular instrument chassis that supports complex and high density testing. The chassis provides slots for installing multiple instrument modules such as the U4154A module. Besides providing a frame for the installation of the U5154A module, the AXIe chassis also provides power supply, cooling system, PCI Express (PCIe) Gen 2 data bus, Gigabit LAN hub, local bus for module-to-module signaling, and host PC connections to U4154A.

The following models of the AXIe chassis are available for the U4154A module:

- M9502A – a portable 2-slot AXIe chassis suitable for small system testing.
- M9505A - a 5-Slot AXIe Chassis

Refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* to get detailed information about these models of AXIe chassis.



**Figure 3** M9502A 2-slot AXIe Chassis and M9505A 5-slot chassis

### AXIe Embedded System Module (ESM)

The bottom slot of the AXIe chassis has the Embedded System Module (ESM) which is factory-installed. ESM has a PCIe (x8, Gen1 and Gen2 compliant) interface that connects an external host PC to the chassis via PCIe.



**Figure 4** M9505-00130 AXIe ESM

The ESM:

- tracks inserted modules and manages power requirements.
- monitors chassis temperature and controls variable-speed chassis fans.
- monitors module sensors and reports component failures to a system log.
- acts as a Gigabit Ethernet switch; forwards frames along the backplane.
- connects an external host PC to the chassis.
- synchronizes timing across all modules through the Agilent Trigger Bus, using an internal or external clock source.

Refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* to get detailed information about ESM.

## Host PC

A host PC is a laptop or a desktop PC with a PCIe interface.

The host PC connects to the Agilent AXIe chassis via PCIe x8 interface. This PC is used to host all the required software components of the U4154A module for configuring, controlling, and using this module.

Refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* to get more information on a host PC that can connect to AXIe chassis.

## Pod Connector Cables

The Agilent U4201A 90-pin pod connector cable is used to connect the U4154A module with the probes which then connect to the DUT/SUT. The module connector at one end of the cable is installed in the relevant pod input on the front panel of the Logic Analyzer module. The other end of the cable is connected to the probes.

The following figure displays a 90-pin U4201A cable followed by a figure displaying this cable connected to the Agilent Differential Soft Touch and Flying Lead Set probes.



**Figure 5** U4201A 90-pin Pod Connector Cable



**Figure 6** U4201A 90-pin Pod Connector Cable connected to Differential Soft Touch and Flying Lead Set Probes

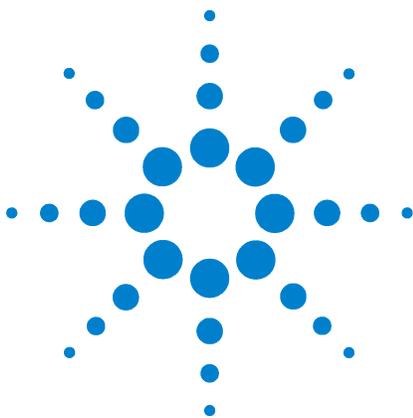
Refer to the topic "[Step 5 - Connect the U4154A Module to Probes](#)" on page 31 to know how to connect the U4154A Module with probes using the U4201A cables.

## Probes

Probing is the key to effective and efficient use of the U4154A logic analyzer module. Agilent Technologies offers a wide variety of probing accessories that support general-purpose and application-specific measurement needs. Agilent Technologies provides reliable, electrically and mechanically unobtrusive probes that make it easy to connect your U4154A logic analyzer to your system under test. For more information on Agilent probes:

- Go to [www.agilent.com/find/logic\\_analyzer\\_probes](http://www.agilent.com/find/logic_analyzer_probes) for the most up-to-date information on probe compatibility with a given logic analyzer and purchasing information.
- Go to [www.agilent.com](http://www.agilent.com) and search for Probing Solutions for Logic Analyzers (publication 5968-4632E) for a catalog of detailed probing information.

Refer to the topic “[Step 6 - Connect the Probes to the DUT](#)” on page 32 to know how to get introductory information on probe connectivity.



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## Step 1 - Inspect the Module Shipment

### What's Included in the Module Shipment

Unpack and verify the shipment contents to check if you have received all the items that you ordered. The shipment should contain the following items. However, the shipping list delivered with the shipment should supersede this list.

Item	Description
U4154A Module	The instrument module that you install in one of the slots of Agilent AXIe chassis.
Flex Cables (Model number U4154-61601)	2 flex cables to connect multiple U4154A modules in different slots of an AXIe chassis.
RoHS Addendum sheet	RoHS Addendum for Logic Analyzer
Customer Letter	The letter specifying the Web location from where you can download the Agilent Logic Analyzer software and the U4154A Module Installation Guide.
<b>Optional Items (You can order these separately. If ordered, these are included in the shipment.)</b>	
U4201A Cables	Ordered pod cables to connect the U4154A module to probes.
Probes	The Agilent probes that you ordered for use with the U4154A Logic Analyzer module.

**NOTE**

The AXIe chassis in which you need to install the U4154A module is delivered in a separate shipment. The chassis power cord is also shipped with the chassis.

### Inspect the Module and Other Items for any Damage

Carefully inspect the U4154A module and other items in the shipment for any damage. Check the instrument mechanically and electrically.

To check the warranty information on your U4154A module, go to [www.agilent.com/find/warranty](http://www.agilent.com/find/warranty) and specify the module's model number (U4154A) in the Product Number field, and specify the serial number from the top of the module in the Serial No. field.

### **Return the Damaged/Defective Item to Agilent for Repair/Replacement**

If anything is missing, defective or damaged, review the warranty information shipped with your product and then contact the nearest Agilent Sales Office. If you need assistance finding Agilent contact information, go to [www.agilent.com/find/assist](http://www.agilent.com/find/assist) (worldwide contact information for repair and service).

## Step 2 - Install the U4154A Module in the AXIe Chassis

The AXIe chassis and U4154A module come in separate shipments. The module is not pre-installed in the chassis. This step involves carefully inserting the U4154A module in an empty slot of an Agilent AXIe chassis. The slots are identified by the slot numbers written on the front panel of the chassis.

### CAUTION

- The U4154A module is not hot swappable: You must power down the AXIe chassis and host PC before inserting, replacing, or removing the module.

- The enclosure surface of the U4154A module may become hot during use. If you need to remove the module, first power down the AXIe chassis, allow the module to cool, and then pull the module out of the chassis.

---

### To insert the U4154A module into the chassis

- 1 Locate the module insertion/extraction handles at both ends of the U4154A module. Extend the ends of both handles, by pulling them inwards towards each other. Then fully open the handles by pivoting them out towards you.
- 2 Align the module's PCA board with the guide rails on both ends of the AXIe chassis. If the module has metal plates covering the board, be sure to insert the PCA board and not the metal plates into the rails.
- 3 Push the U4154A module into the slot of the chassis until the module insertion/extraction handles are pressed up against the chassis. Nudge the module gently to allow the handles to engage.
- 4 Using your thumbs, press inwards firmly until the module is seated firmly in the chassis backplane. The module's front panel should lie flush with the chassis front panel.
- 5 Push the handles ends towards the edge of the chassis to tuck them away.



- 6 Tighten the retaining screws on either end of the U4154A module to ensure the ground connection.

After you have installed the U4154A module in the chassis, ensure that you insert a filler module in any empty slot(s) of the chassis. Do not operate the chassis with empty slots. This is especially important for the slots on either side of the U4154A module. This allows proper air flow and cooling, and provides EMI shielding for the chassis and installed components. Leaving slots empty can increase fan speed, raise ambient noise, overheat components, and can cause the module to shut down.

### To remove the U4154A module from the chassis

#### CAUTION

The enclosure surface of the U4154A module may become hot during use. If you need to remove the module, first power down the AXle chassis, allow the module to cool, and then pull the module out of the chassis.

- 1 Loosen the retaining screws on both ends of the U4154A module.



- 2 Extend the ends of both module insertion/extraction handles, by pulling them inwards towards each other.



- 3 Remove the module: Open the module insertion/extraction handles by pivoting them out towards you. This unseats the module from the chassis backplane.
- 4 Use the module insertion/extraction handles to pull the module out from the chassis.

### CAUTION

Do not remove the AXIe ESM, which is integral to the operation of the chassis. AXIe ESM that needs servicing is to be removed by Agilent personnel only.

Refer to the *Agilent M9502A/M9505A AXIe Chassis User's Guide* to get general guidelines and steps on how to install a module in AXIe chassis. You can find this guide in a PDF format on the CD that came with the chassis.

### To install multiple U4154A modules in the AXIe chassis

You can install multiple U4154A modules in different slots of the same AXIe chassis to make a multi-card set. This multi-card set represents a single logical U4154A module in the Agilent Logic Analyzer application and thereby provides you an increased number of channels per module.

### NOTE

When multiple modules are installed and connected together in an AXIe chassis to form a multi-card set, pods are indexed from the bottom module up.

You can connect two U4154A modules in an AXIe chassis to form a multi-card set.

For setting up multiple U4154A modules in an AXIe chassis, use a pair of U4154-61601 flex cables (in the accessory pouch) to connect the U4154A modules.

The following figures display both the sides of a flex cable shipped with the U4154A module.

**NOTE**

Turn off the AXIe chassis and host PC power before removing, replacing, or installing modules.

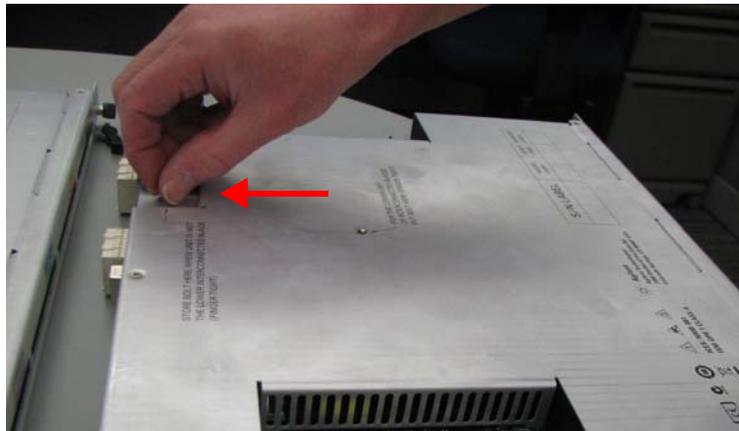
**CAUTION**

When removing modules that are connected together as multiple-card modules, be sure to eject the multiple modules simultaneously, otherwise, the flex cables and/or connectors could be damaged.

The enclosure surface of the U4154A module may become hot during use. If you need to remove the module, first power down the AXIe chassis, allow the module to cool, and then pull the module out of the chassis.

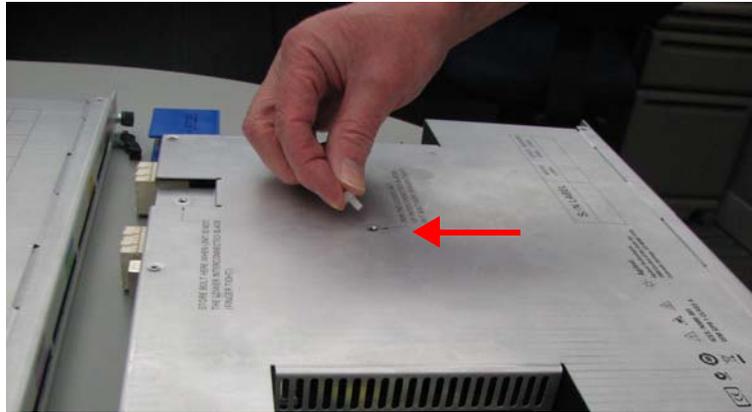
### To install multiple U4154A modules in an AXIe chassis

- 1 Remove the bolt from its holding position on the top cover of the U4154A module.

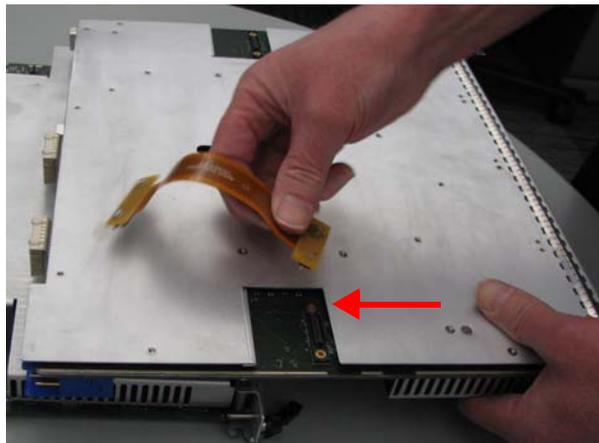


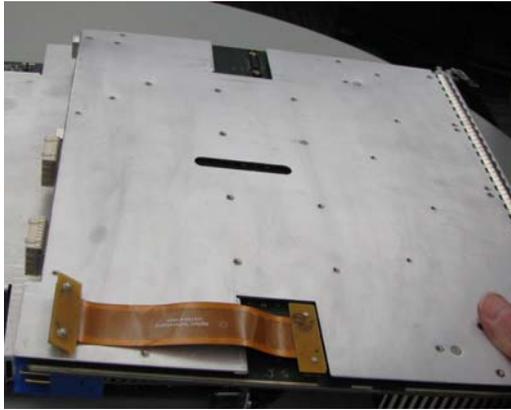
## 2 Setting up the Hardware for U4154A

- 2 Place the bolt (removed in step1) in its marked middle location on the top cover of the module. Hand tighten the bolt.

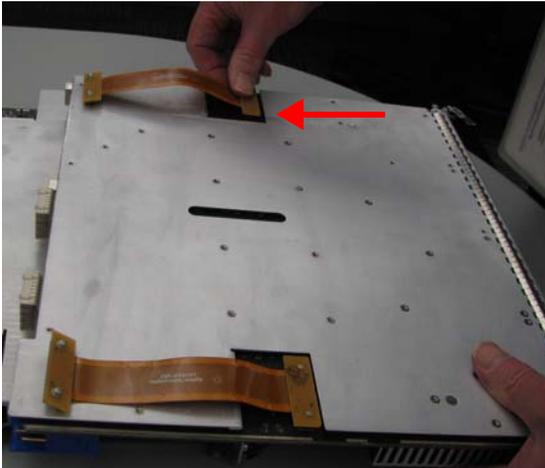


- 3 Perform step1 and 2 for all the U4154A modules that you want to include in the multi-card set except the module that you want to keep as the top most module in the set.
- 4 Turn the U4154A module (that you plan to keep second from the bottom in the set) upside down. The under side of the U4154A module has two connectors for connecting the flex cables. Attach the flex cable to one of the connector on the under side of the second module.





- 5 Attach the other flex cable to the opposite under-side connector of the second module.

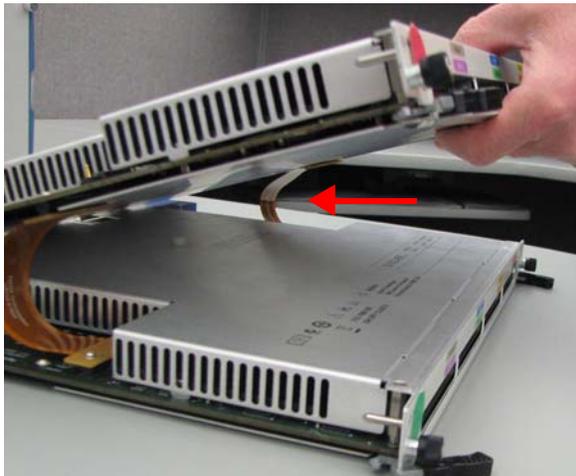
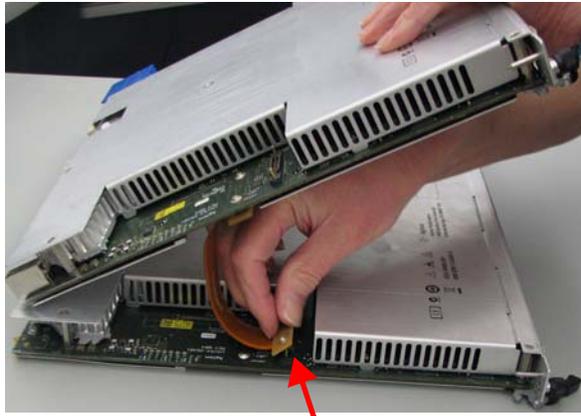


- 6 Now, align the second module (with the flex cables attached) on top of the first (lower) module.



## 2 Setting up the Hardware for U4154A

- 7 The top side of the U4154A module has two connectors to connect the other end of the two flex cables. Attach the other end of the flex cables to these connectors on the top side of the first (lower) module. Be careful not to bend the flex cables any more than is necessary to fit between the module connectors.



- 8 Repeat steps 4 to 7 for the remaining U4154A modules that you want to include in the multi-card set.
- 9 Align the set of connected U4154A modules.



- 10 Insert the aligned set of modules into the AXIe chassis, seat them, lock the module insertion/extraction handles, and tighten the retaining screws.



- 11 To verify that the flex cables are installed correctly, run the self test named *Resource Bus Connection Test* in the Agilent Logic Analyzer GUI. Refer to the Agilent Logic Analyzer Online Help to know how to run self tests. This test checks continuity and makes sure that the flex cables are firmly inserted into the connectors.

## 2 Setting up the Hardware for U4154A

If the test results indicate that a flex cable is not seated correctly in the connector, repeat the flex cable attachment steps, and run the test again.

### Step 3 - Set up the Agilent AXIe Chassis

If you are using the U4154A module in a portable application, then retain the plastic bumpers and carry handle(s) that ship with the chassis for benchtop use.



If you are using the module in a rack mounted configuration, remove the bumpers and carry handle(s) from the chassis, attach the rackmount brackets, and mount onto a rack.

Refer to the *Agilent M9502A/M9505A AXIe Chassis User's Guide* for detailed steps on mounting the chassis. You can find this guide in a PDF format on the CD that came with the chassis.

## Step 4 - Connect the AXIe Chassis to Host PC

The host PC is typically a laptop PC with an ExpressCard PCIe adapter or a desktop PC or any other PC with a PCIe interface.

In this step, connect the host PC to the PCI Express Gen1/Gen2 x8 port located on the front panel of the AXIe chassis ESM via a PCIe cable.



**Figure 7** PCIe port on the front panel of the AXIe ESM

Refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* for more information on host PCs.

**NOTE**

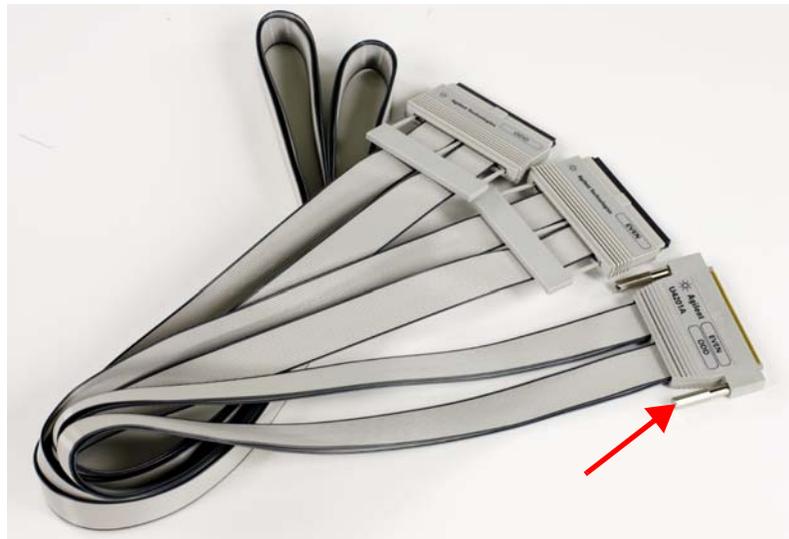
It is recommended that you turn off the standby mode and disable hibernation on the host PC connected to the AXIe chassis via PCIe.

For Windows 7, it is also recommended that you disable PCIe power management modes on the host PC.

## Step 5 - Connect the U4154A Module to Probes

In this step, you use the U4201A pod connector cables shipped with the U4154A module to connect the module to probes.

Tighten the thumb screws on the U4201A cables to connect the cable to the relevant pod input on the front panel of the U4154A module. Then connect the other end of the cable to the probe.



### CAUTION

- Do not over tighten the thumb screws. Hand tightening is recommended or maximum torque of 3in-lb.
- Disengage thumb screws completely from module and pull the pod straight out to remove.

Remember to put the correct pod labels on the pod connector cables matching the color coding of the pods on the front panel of the module.

## Step 6 - Connect the Probes to the DUT

As per the testing scenario, use the appropriate probe from the probing solutions available with Agilent.

You can use:

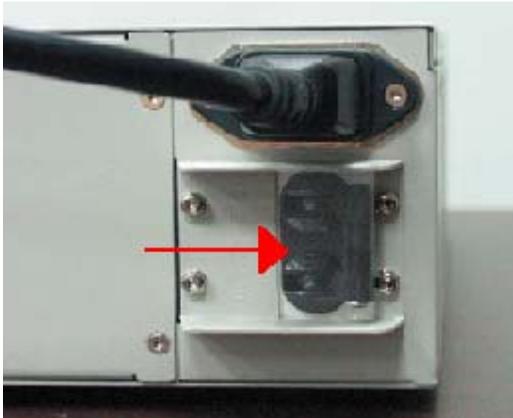
- Flying-lead probe sets. This is called general purpose probing. In this probing, connect probe connectors to individual IC pins or test points.
- Elastomeric probe adapter and 1/4 flex adapter products available for several types of QFP packages. This is called QFP package probing. In this probing, connect to all the pins of a specific QFP package.
- Soft Touch Connectorless Logic Analyzer Probes. This is called target connector probing or soft-touch connectorless probing. This probing removes the connector that is traditionally attached to the target board and replaces it with an array of probe pads.
- Processor or bus-specific probes. These are called analysis probes and are available for many processors and buses.

To connect and set up a probe, follow the instructions in the User's Guide that accompanies the probe.

## Step 7 - Power up the connected hardware components

Power up all the connected hardware components in the U4154A setup.

- 1 The U4154A module uses the power supplied by the AXIe chassis in which it is installed. The AXIe chassis power cord comes with the chassis shipment. Insert the power cord into the inlet at the rear of the chassis.
- 2 Connect the cord to an appropriate AC power main.
- 3 Push the circuit breaker to the right, which is the ON position.



- 4 Press the ON/Standby button on the front panel of the chassis to power on the chassis.



- 5 Power up the connected host PC.

Refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* for more information on powering up the chassis.

## Step 8 - Verify the Hardware Setup

After powering ON the connected hardware components, you can verify if you have correctly set up the hardware if:

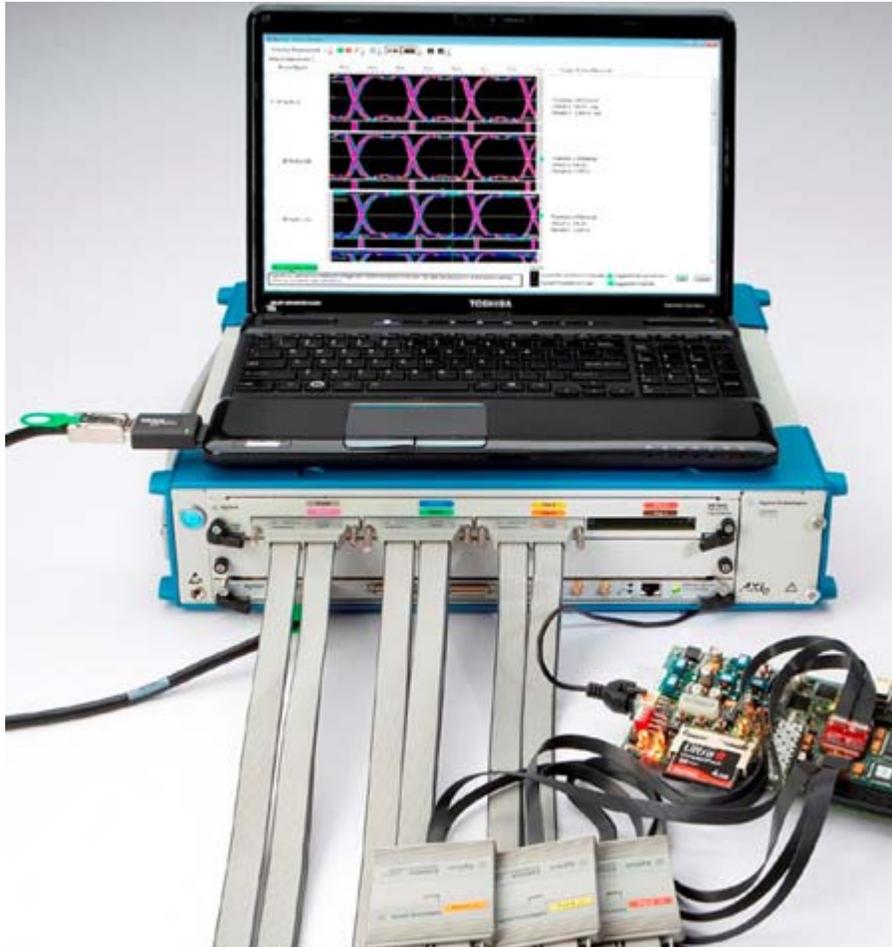
- a steady green status light is displayed on the ESM of the AXIe chassis.
- the Out of Service (OOS) LED on the front panel of the U4154A module turns off.

If the chassis does not power up to a steady green Status light, or powers up to a steady red light, the chassis has detected a failure and requires service.

If the OOS LED on the front panel of the U4154A module is steady red and does not turn off, it indicates that the module has detected a failure and requires service.

Contact your Agilent representative to replace or service the chassis/module.

## Sample Hardware Setup



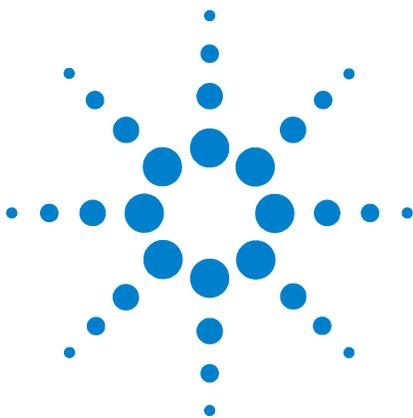
**Figure 8** U4154A module in Agilent AXIE chassis

Figure 8 displays a sample setup of the U4154A module. The module is installed in slot 2 of Agilent M9502A portable 2-slot AXIE chassis. A filler panel module is installed in slot 1 of the chassis.

A laptop is used as a host PC and connected to the ESM of the chassis via a PCIe cable.

Three U4201A cables are used to connect the U4154A module pods to Agilent E5845A probes, which then connect to the DUT.

## **2 Setting up the Hardware for U4154A**



## 3 Installing Software Components

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Once the hardware setup for the U4154A module is ready, you need to install the software components of U4154A on the designated host PC. This chapter describes the installation of software components.



## Hardware and Software Requirements

The following are the hardware and software requirements that should be met on the host PC before the installation of software components on this PC:

### Hardware requirements

- PCIe interface x8 (Gen1 and Gen2 compliant)
- Pentium® processor 1 GHz or equivalent
- 512 MB available RAM
- VGA resolution 1024 x 768
- 5 GB or more free disc space

### Software requirements

The following operating systems are supported:

- Windows XP Service Pack 3 (32 bit only)
- Windows 7 (32/64 bit)
- Windows Vista (32/64 bit)

## Installing Agilent Logic Analyzer

You need to install the Logic Analyzer application software, version 5.00 or greater, for the U4154A module.

You use the Agilent Logic Analyzer software to configure, control, and use the U4154A module to probe and capture the data from a DUT.

Refer to the *Agilent Logic Analyzer online help* to know how to use this software.

### To install Agilent Logic Analyzer

- 1 Download the Agilent Logic Analyzer software from the Agilent web site at: [www.agilent.com/find/u4154a](http://www.agilent.com/find/u4154a).
- 2 Once the application software install package is downloaded to the host PC, double-click the installer.exe file.

The Agilent Logic Analyzer Installation Welcome message is displayed.

- 3 Click **OK** to continue.
- 4 Click **Next** if the system controller meets the minimum system configuration requirements displayed by the wizard.
- 5 Accept the license agreement and click **Next**.
- 6 Choose the setup type and click **Next**.
- 7 Click **Install** to start the installation.
- 8 Click **OK** to install the additional components such as Demo center.

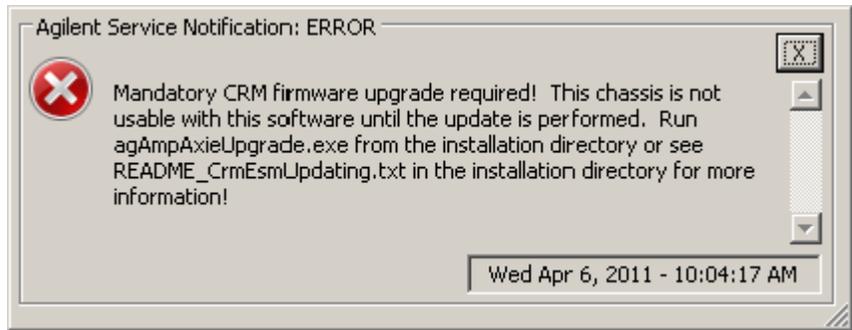
### Verifying the Installation

You can verify the successful installation of the Agilent Logic Analyzer software by performing the following steps:

- The Agilent Logic Analyzer folder is added in the Programs folder.
- The Agilent Logic Analyzer GUI is accessible by clicking **Start > Programs > Agilent Logic Analyzer > Agilent Logic Analyzer** option on the Windows task bar.

## Upgrading Chassis Firmware

At times, after installing the Agilent Logic Analyzer software, you get the following message to update the firmware of the chassis.



The message is displayed when Logic Analyzer software detects an older version of firmware while installation.

In response to this message, you must perform the following steps in the specified sequence on the host PC. This ensures that the latest firmware is upgraded and the chassis is usable with the Logic Analyzer software.

### Step 1 - Configure FTP Server Settings and Allow Anonymous Logon

Perform the following steps on the host PC: The steps are specific to Windows XP.

#### Configure FTP Server on the Host PC

- 1 Install FTP Service on the host PC.
  - a Click **Control Panel** -> **Add or Remove Programs**.
  - b Click **Add\Remove Windows Components**.
  - c Select the **Internet Information Services** checkbox from the list of components.
  - d Click **Details**.
  - e Ensure that the **File Transfer Protocol (FTP) Service** checkbox is selected.
  - f Click **OK**.
  - g Click **Next** to install the selected components.

- 2 Configure the FTP service to start automatically on host PC.
  - a Right-click the **My Computer** icon and then select **Manage** from the menu.
  - b Expand the **Services and application** option and then click **Services** displayed under this option.
  - c Double-click the **FTP Publishing service** from the list.
  - d Select the Startup type as **Automatic** and click **Start** to start this service on host PC.

### Allow anonymous logon on FTP Server

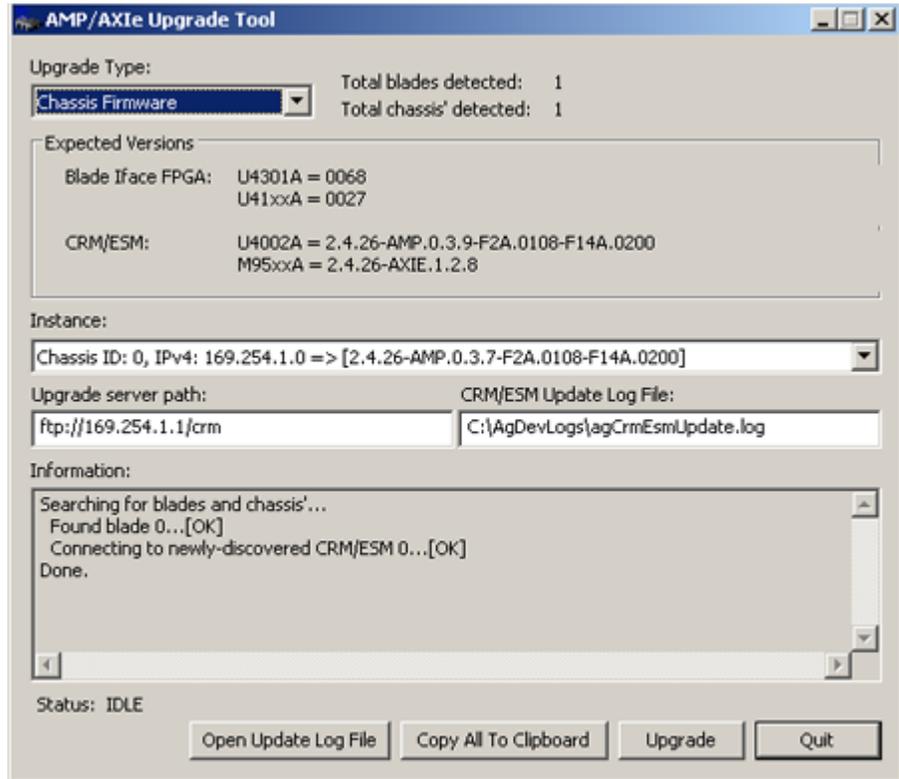
- 1 Right-click the **My Computer** icon and then select **Manage** from the menu.
- 2 Expand the **Services and application** option and then expand the **Internet Information Services** option from the list.
- 3 Access the properties of the Default FTP Site option under **Internet Information Services** option.
- 4 Click the **Security Accounts** tab and ensure that the **Allow Anonymous Connections** check box is selected. Do not change the default username and password.
- 5 Click the **Home Directory** tab and ensure that the FTP site directory is *C:\Inetpub\ftproot*.
- 6 Click **OK**.

### Step 2 - Extract the contents of the upgrade package to FTP root directory

- 1 Copy the contents of the upgrade package **ESMFirmware.zip** to *C:\Inetpub\ftproot*. This zip file is available at *<Program Files>\Agilent Technologies\Logic Analyzer*.
- 2 Create a subdirectory *esm* under *C:\Inetpub\ftproot*.
- 3 Extract the contents of the upgrade package to the *esm* subdirectory.

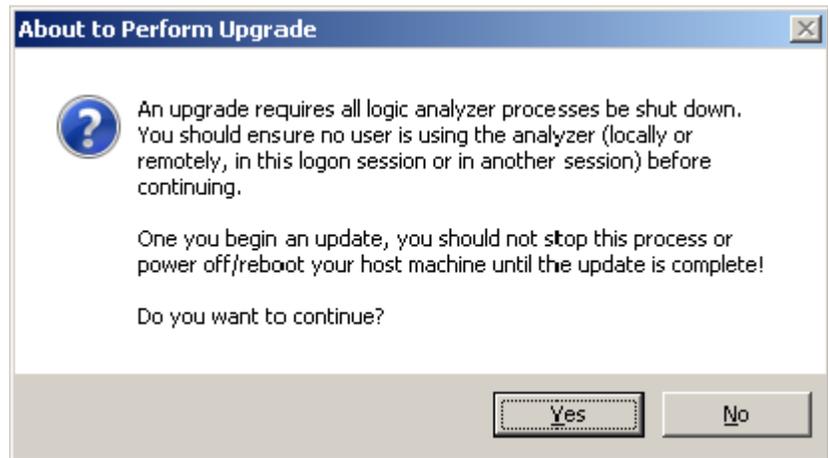
### Step 3 - Run the AMP/AXIe Upgrade Tool

You use the **AMP/AXIe Upgrade** tool to upgrade the firmware and FPGA.



To upgrade the chassis firmware using this tool

- 1 Access the upgrade tool by clicking *<Program Files>\Agilent Technologies\Logic Analyzer\agAmpAxieUpgrade.exe*.
- 2 Select the **Upgrade Type** as **Chassis Firmware**.
- 3 Specify the path of the FTP server from where you want to upgrade the firmware. This is the same FTP server and root directory where you extracted the upgrade package in “[Step 2 - Extract the contents of the upgrade package to FTP root directory](#).”
- 4 If required, change the name and location of the update log file.
- 5 Click **Upgrade**.
- 6 Click **Yes** to continue with the upgrade process after reading the upgrade information as displayed in the following message box.



- 7 The upgrade progress is displayed. You can check the Update Log file by clicking the **Open Update Log File** button.
- 8 Click **Quit**.

#### Step 4 - Restart the chassis and host PC

After upgrading the firmware, ensure that you restart the chassis and host PC.

To restart the chassis, use the ON/STANDBY button on the front panel of the chassis. Wait until the Status LED on the ESM of the chassis becomes steady green. After this, power up the host PC.

#### Step 5 - Verify the ESM upgrade

If the firmware upgrade is successful, the host PC should display the information for connected chassis and U4154A module.

## Installing Additional Software Packages

You can install a number of additional software packages for managing and using the U4154A Logic Analyzer module. These packages perform a specific function. For instance, the *DDR Setup Assistant* helps you properly set up a logic analyzer module based on the type of the module, DDR bus, and probing solution.

Some of the supported software packages for U4154A module are listed:

- DDR Setup Assistant
- DDR Bus Decoder
- Compliance Package

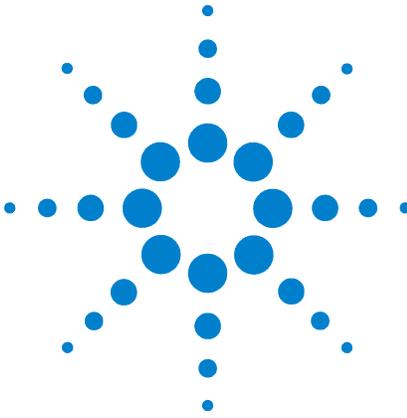
You can download these software packages from the Agilent web site at: [www.agilent.com/find/u4154a](http://www.agilent.com/find/u4154a). A complete list of the supported software packages is available here. Once the application software install package is downloaded to the host PC, double-click the installer.exe file to install it.

## Setting up Connection between the Host PC and ESM of AXIe chassis

When you have set up the hardware and installed the Logic Analyzer software on the host PC, perform the following steps to ensure that the ESM is communicating with the host PC and the chassis and U4154A module are ready to use.

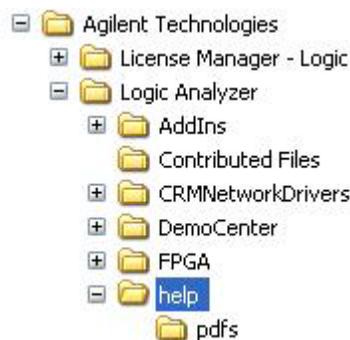
- 1 Power down both host PC and AXIe chassis in which the U4154A module is installed.
- 2 Power on the AXIe chassis.
- 3 Wait for the OOS (Out of Service) light on the U4154A module to turn off which indicates that the module is functional and ready to be connected to host PC.
- 4 Power on the host PC.
- 5 Wait for the green circle icon to appear in the system tray on the host PC. The green circle indicates that the chassis and the module are ready to use and the communication between the host PC and ESM of the chassis is functioning properly.
- 6 If a red circle appears in the system tray instead of a green circle, click this red circle to know the connectivity problem.

### **3 Installing Software Components**



## 4 Accessing U4154A Logic Analyzer Documents

The user documents for U4154A are installed at the following location.



**Figure 9** Location of U4154A Documents

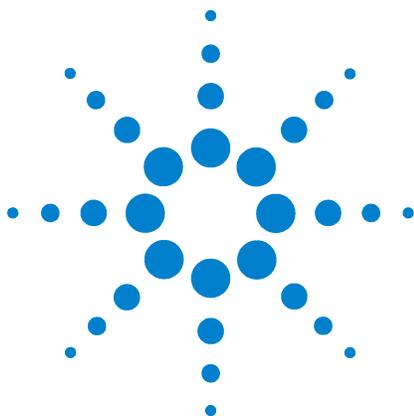
Besides this installation guide, the following are some documents which provide information about U4154A.

- **Agilent Logic Analyzer User Guide** - This user guide describes how to configure, control, and use the U4154A hardware to perform testing in various scenarios.
- **Agilent Logic Analyzer Online Help** - This online help is accessible as a standalone help from the help folder displayed in the [Figure 9](#) or from the Agilent Logic Analyzer GUI (as an integrated help). It describes how to configure, control, and use the U4154A hardware to perform testing in various scenarios.
- **Context-sensitive Help** - A context-sensitive HTML help page is available with each window and dialog box of the U4154A GUI components on clicking the Help button displayed within the GUI element.

Besides these documents, the CD that accompanies the AXIe chassis has the Startup and Installation Guides that provide information about the chassis and its setup.



## **4 Accessing U4154A Logic Analyzer Documents**



## 5 U4154A Characteristics

This section provides some safety-related specifications for the U4154A module. You can find complete specifications in the *Agilent U4154A Logic Analyzer Data Sheet*.

To get the safety-related specifications for the Agilent AXIe chassis, refer to the *Agilent M9502A/M9505A AXIe Chassis Startup Guide* available with the chassis or the *M9502A/M9505A Data Sheet*.

### Standards

The U4154A module complies with the following standards:

EMC	<ul style="list-style-type: none"> <li>IEC 61326-1:2005 / EN 61326-1:2006</li> <li>Canada: ICES-001:2004</li> <li>Australia/New Zealand: AS/NZS CISPR 11:2004</li> </ul>
Safety	<ul style="list-style-type: none"> <li>IEC 61010-1:2001 / EN 61010-1:2001</li> <li>CAN/CSA-C22.2 NO. 61010-1-04 / ANSI/UL 61010-1:2004</li> </ul>
Rackmounting	<ul style="list-style-type: none"> <li>IEC-60297-2 19" 4-post racks</li> </ul>

### Environmental

Use Condition	Location	Indoor use only
Altitude	Operating	up to 3000 m (9,843 ft)
	Storage	up to 4600 m (15,092 ft)
Temperature	Operating	0° to 40°C (32°F to 104°F)
	Storage	-25°C to 60°C (-13°F to 140°F)
Humidity	Operating	up to 80% non-condensing, 5° to 40° C (41°F to 104°F)
	Storage	up to 90% non-condensing, 12 hr max, -25° to 60° C (-13°F to 140°F)
Safety Conditions	Installation Category	II
	Pollution Degree	2

### Power

The backplane connector of the AXIe chassis supplies the necessary power to the U4154A module.



**Mechanical**

U4154A Module	Width	355.6 mm (14 in)
	Height	34.925 mm (1.375 in)
	Depth	311.15 mm (12.25 in)
	Weight	2.25 kg (4.96 lbs)

**Calibration**

The U4154A module does not require re-calibration.

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