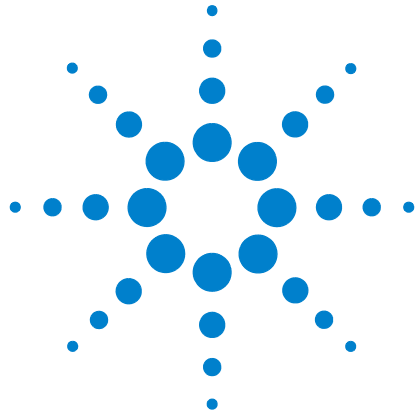




**Agilent M9502A and M9505A
AXle Chassis
Firmware Revision**

Firmware Update Guide



Agilent Technologies

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Chassis Ground.



Alternating Current (AC).



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Introduction

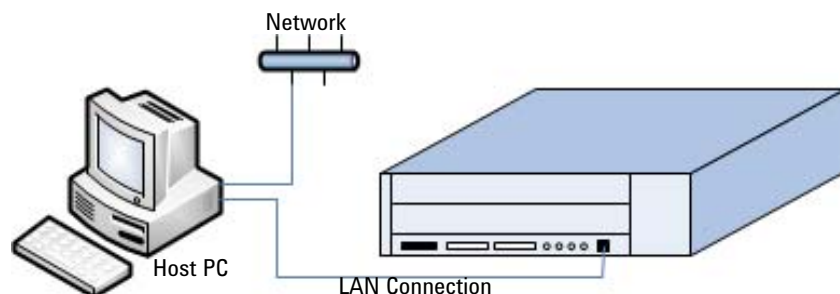
This document describes the procedure to update the chassis firmware on M9502A 2-Slot and M9505A 5-Slot AXIe chassis, which includes the Embedded Systems Module (ESM) and chassis backplane.

This document does not describe methods or procedures to update AXIe instrument modules. Refer to the instrument module documentation for details.

The firmware on the AXIe chassis is made up of several subsystem components. There are components located on the Embedded System Module (ESM) and components on the chassis backplane. During the update process, each of the target components in the chassis is checked against the candidate component in the package. When a component does not match, the target component is updated with the candidate revision.

The chassis shelf manager module handles this update process and is physically located on the ESM. The shelf manager is a LAN device, so LAN connectivity is required to perform the update. LAN connectivity to the shelf is available through the PCIe fabric connection using a network adapter (NIC) located on the ESM. Additionally, LAN connectivity may be made directly to the chassis LAN fabric with the RJ-45 connector on the ESM front panel.

The interface connection between the host PC and the chassis may be either by PCIe x8 cable or by LAN cable. If the chassis you are updating is already installed in a system and operating correctly, you do not need to change the interface connection. If you will connect the chassis to a different PC for the purpose of updating the firmware, a LAN connection between the host PC and the chassis is perhaps the easiest to configure. See the figure below.



NOTE

An update may take up to 60 minutes depending on the type of components requiring an update. During this time, instrument modules installed in the chassis are deactivated to the ATCA service state to reduce power consumption and are unavailable for applications. The chassis fan speed may change during the update as well. Following the update, cycle chassis power to complete the installation.

Overview of the steps involved

Updating the chassis firmware requires the following activities. These steps are fully described in this guide:

Step 1 Connect to the AXIe chassis' web interface page.

Access the AXIe chassis web pages to confirm connectivity and determine the chassis firmware version. If your host PC already has an established connection (either LAN or PCIe) then you can use that connections. Otherwise, if you will connect the chassis to a different host PC for the purpose of updating the firmware, then a LAN connection between the host PC and the chassis is perhaps the easiest to configure. Agilent's Connection Expert (part of IO Libraries Suite) may be needed to find the page.

NOTE

You may need to disable the Windows fire wall on your host PC.

Step2 Locate and install the latest firmware update package.

Download the AXIeChassisUpdate.zip file to your host PC. As a general rule, **c:\tmp** is a good location for the .zip file. Unzip the package to your PC. This must be the same PC that has Agilent Connection Expert installed and communicates with the chassis.

Step 3 From Microsoft® Windows Explorer®, run the chassisUpdater.exe application. This creates a temporary FTP server. This server is removed when the firmware update is complete.

Follow the instructions from the chassisUpdate.exe application. When the application finishes, then the chassis is finished updating. Close the chassisUpdate.exe window.

You will also need to open the AXIe chassis web page to install the update.

Revision string numbering format

The chassis firmware revision string is organized in the following format:

<Chassis Class>.<Firmware Version>-<Chassis Component>-<Acomponent>[-<Bcomponent>]...

Where:

<Chassis Class> is either

- F2AX** Identifies an M9502A 2 slot AXIe chassis
- F5AX** Identifies an M9505A 5 slot AXIe chassis
- F2A** Identifies an older AMP 2 slot style chassis (which is not supported by this update procedure.)

<Firmware Version> is structured as: **<major>.<minor>.<build>**

- <major>** Identifies the major release number.
- <minor>** Identifies the minor release number.
- <build>** Identifies a build number.

<Chassis Component> is a four digit number, **<xxxx>**

Where **<xxxx>** is a hexadecimal value identifying the backplane firmware revision. The backplane revision may be different between a 2 slot and 5 slot chassis. While it is possible to move an ESM from one chassis to another, the revision of the target chassis may not reside at the same revision level installed on the ESM (and its previous chassis). It is important to review the revision string after relocation to verify that the complete revision string is current. If not up-to-date, run through the firmware update process.

<Acomponent> is A**<xxxx>**

Where **<xxxx>** is a hexadecimal value for firmware component A

A firmware revision example: F2AX-1.3.22-0107-A002e-CA1.0-DA1.0-E1.3

This example identifies an M9502A AXIe 2 slot chassis using chassis firmware revision 1.3.22. The backplane revision number is 0107. Component A is at revision 002e, component CA is at revision 1.0, component DA is at 1.0, and component E is at 1.3.

NOTE

The chassis firmware consists of two pieces, one on the ESM and the other on the chassis backplane. While it is possible to move an ESM from one chassis to another, the revision of the target chassis backplane may not reside at the same revision level installed on the ESM. When replacing an ESM, always update the chassis firmware. View the chassis firmware revision string after relocation to verify that the complete version string is current. If not up-to-date, run through the firmware update process.

Step 1. Connect to the AXIe chassis' web interface page

Run Agilent's Connection Expert. This program is part of the Agilent IO Libraries Suite. Connecting to the chassis' web interface is the best way to identify the firmware revision currently installed in your AXIe chassis. If your AXIe chassis is already visible in the center pane of Connection Expert, then proceed to Step 2. Otherwise use one of the following two methods to connect to the chassis and it's web page.

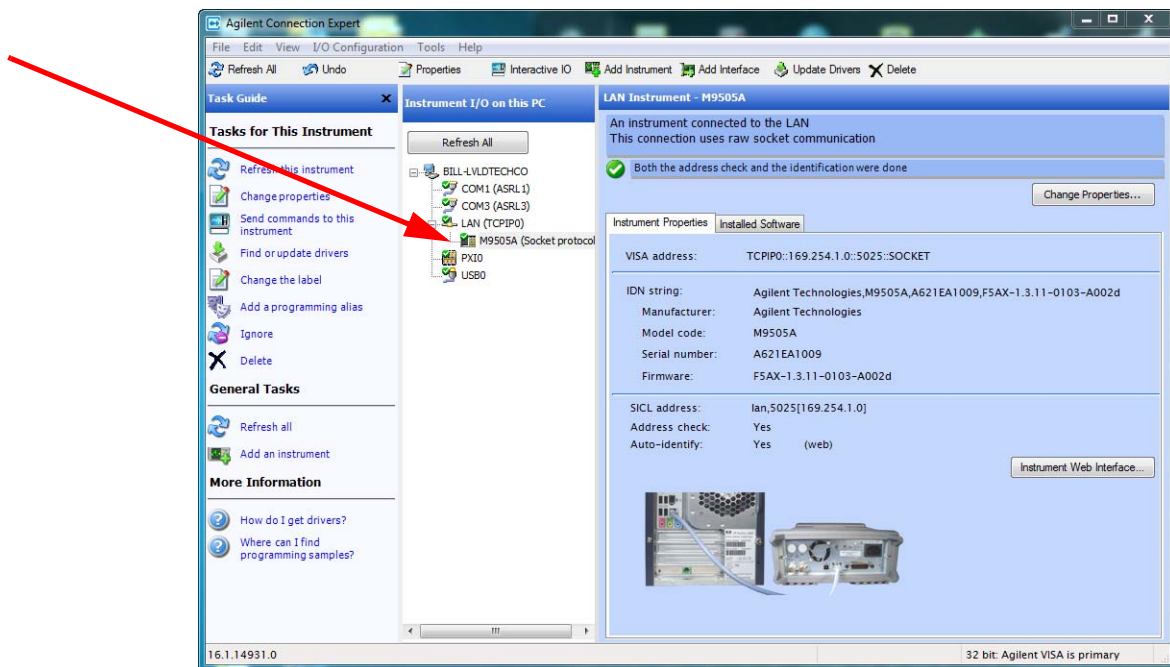


Figure 1 Identify the AXIe Chassis in Agilent Connection Expert

The following pages present two methods to find the chassis firmware revision currently used in your AXIe chassis. Compare that revision with the latest revision available on the web to determine whether the chassis needs an update. In general, you should always use the latest firmware revision.

Step 1. Connect to the AXIe chassis' web interface page

Method 1. How to find the firmware revision with Agilent Connection Expert

This is the preferred method if your AXIe chassis connects to the host PC via a LAN connection. The AXIe chassis must be powered on. Open Agilent Connection Expert from either the system icon tray or from the programs menu. Select the **Add Instrument** button and then choose **Add LAN instrument on LAN** and select **OK** as shown below.

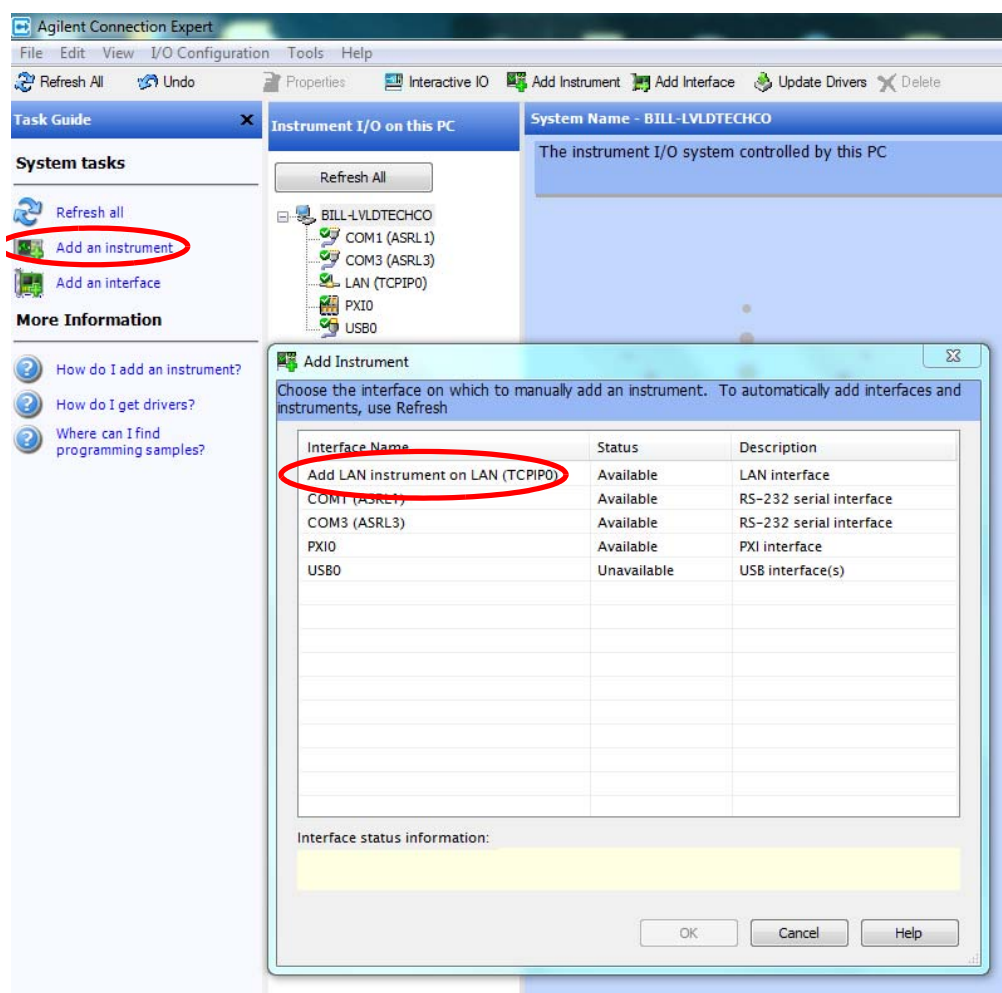


Figure 2 Agilent Connection Expert Add LAN Instrument

Step 1. Connect to the AXIe chassis' web interface page

Select the chassis and click the **OK** button (shown in Figure 3). Notice the web page button to directly open the chassis home page. There are other search options besides Auto Find which may be used as an alternative.

NOTE

If multiple LAN instruments appear in the instrument list, then you can shorten the list by using the “**Search this page for**” field. Enter either M9502A or M9505A and click the search button.

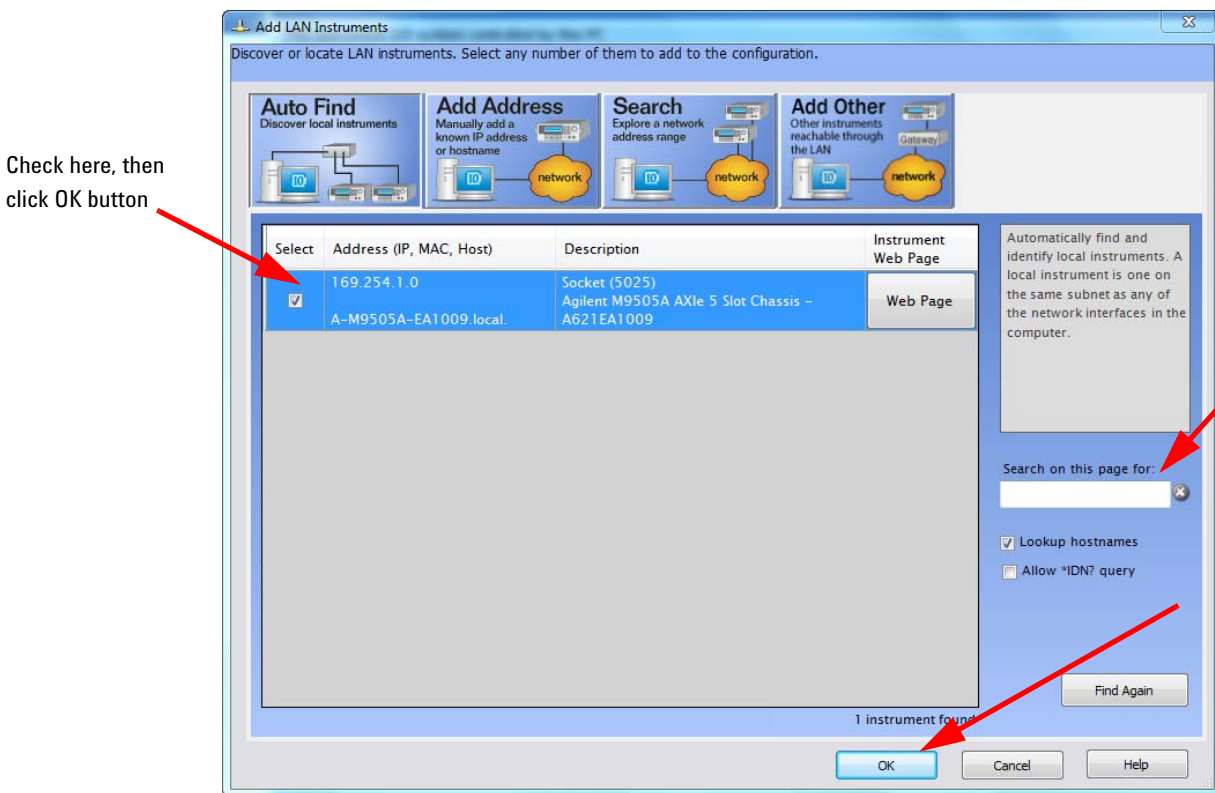


Figure 3 Agilent Connection Expert Auto Find

Step 1. Connect to the AXIe chassis' web interface page

The chassis is added to the Instrument I/O tree. The chassis firmware version string is highlighted in Figure 4. Additionally there is a button that accesses the chassis web home page.

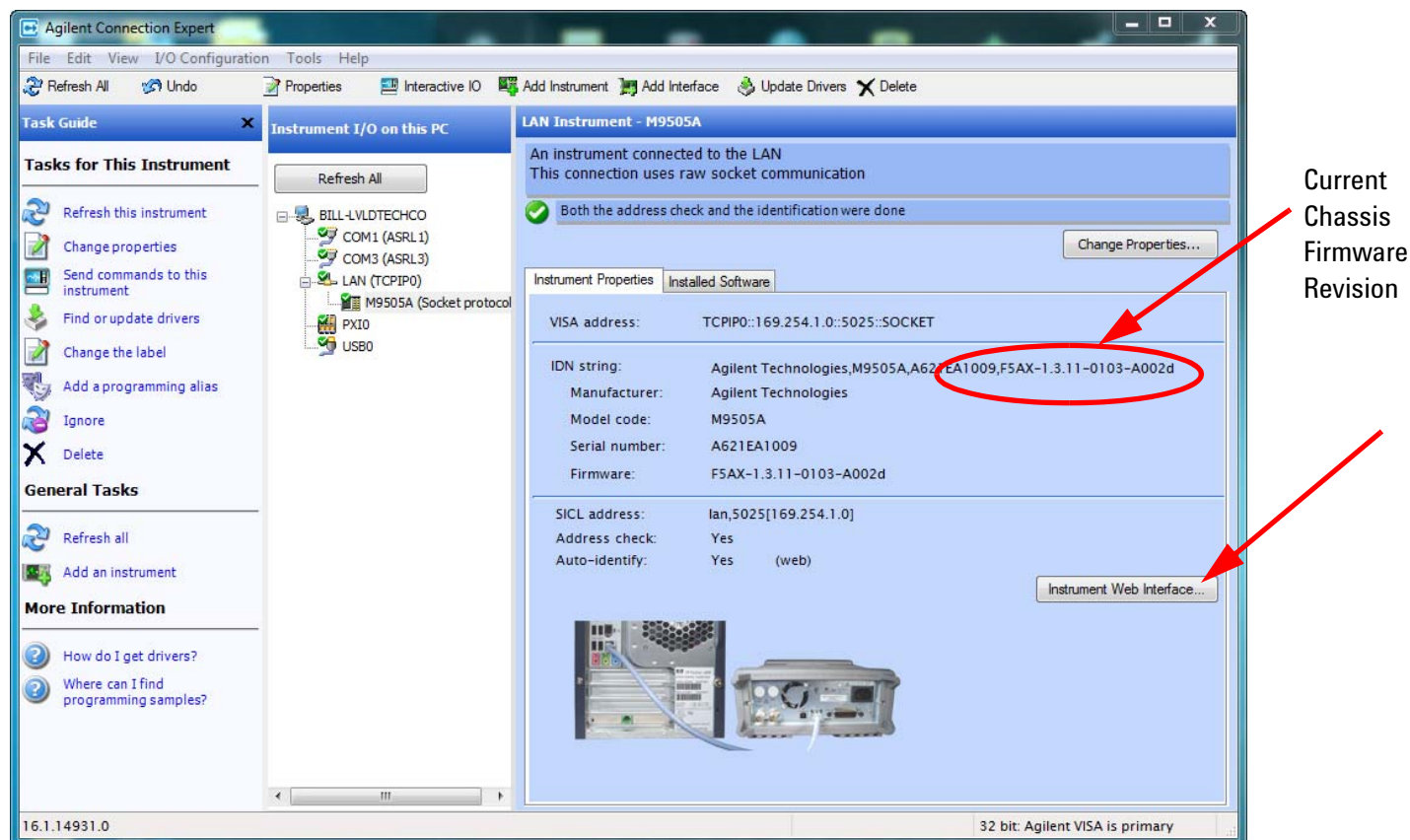


Figure 4 AXIe Chassis Web Page

Method 2. How to find the firmware revision with the chassis IP address

On the host PC, open a Windows® Internet Explorer® window and enter the IP address of the chassis. If the chassis configures with zero-config addressing and there is only one chassis connected to the PC, use 169.254.1.0.

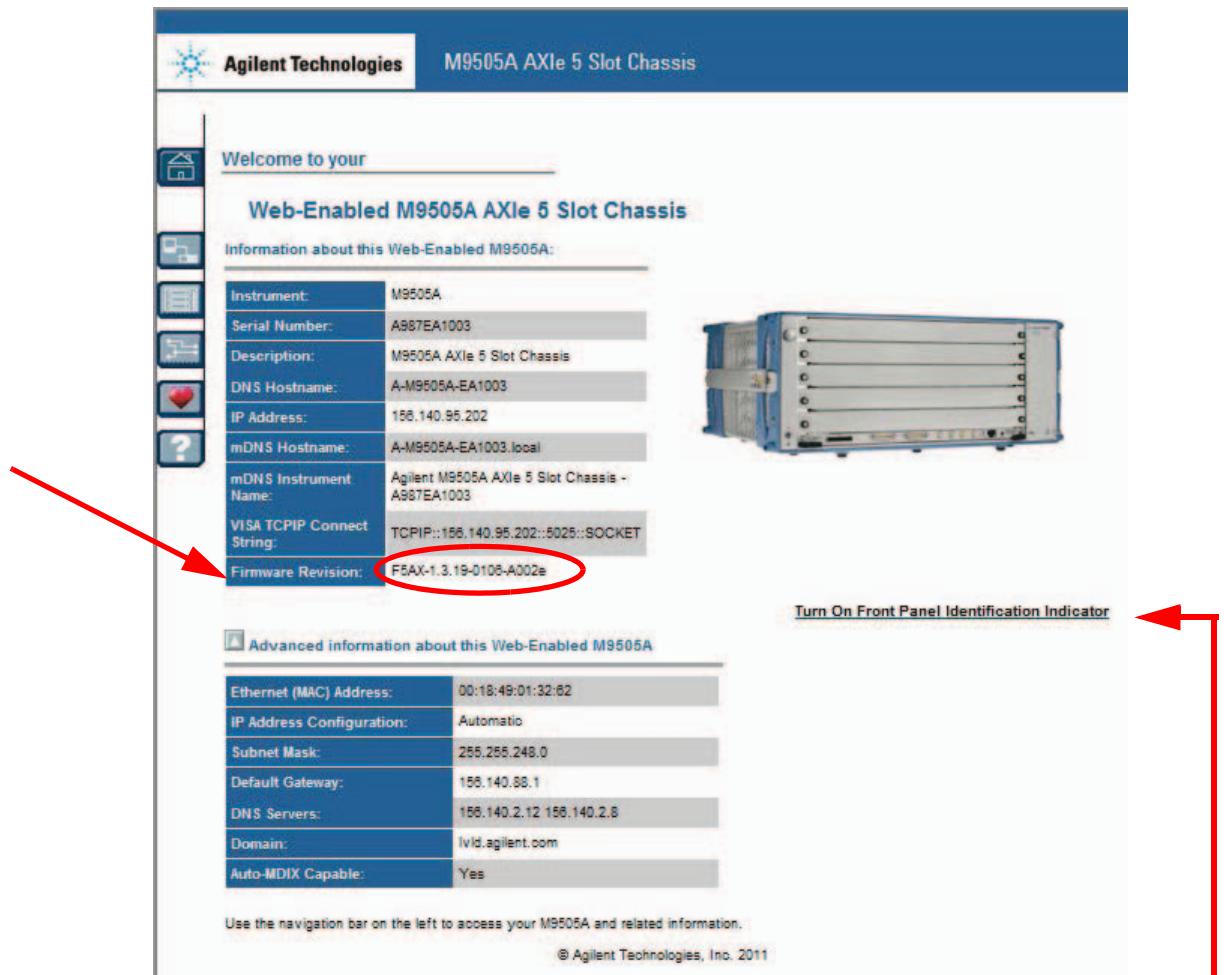


Figure 5 AXIe Chassis Web Interface Page

NOTE

Older chassis firmware versions had the chassis firmware versions number under the Advanced Information drop down.

Annunciate the chassis

If you are unsure of the chassis you are connected to, the chassis web interface home page provides a link that flashes the green **STATUS** indicator on the ESM front panel. Click "**Turn on Front Panel Identification Indicator**" link to blink the status light. Click the link again to stop the flashing.

Step 2. Locate and install the latest firmware update package

To get the latest AXIe chassis firmware update, go to:

www.agilent.com/find/M9502A

www.agilent.com/find/M9505A

In the right side of the page, click on **Technical Support** (under Support Center) followed by the **Drivers, Updates and Examples** tab. Click on the **AXIe Chassis Firmware Revision** link. This page provides a summary of the steps (described in this guide) used to update the AXIe chassis firmware.

Scroll down to the bottom of this page:

Click on the **AXIe Chassis Firmware Revision History** under the **Documents and Downloads** heading. This page provides a complete firmware revision history for the AXIe Chassis.

or

Click on the **AXIe Chassis Firmware Revision x_x_x.zip** file. The x_x_x represents the actual revision number. Download this file to your PC; the **c:\tmp** folder is suitable. Unzip the package. The file is a self extracting .zip file.

NOTE

The PC that you install the **AXIe Chassis Firmware x_x_x.zip** file on must also have Agilent IO Libraries Suite (with Connection Expert) and be able to communicate with the AXIe chassis.

Step 3. From Microsoft® Windows Explorer®, run chassisUpdater.exe

- a. Locate and run the **chassisUpdater.exe** file. This opens a command window as shown in Figure 6.

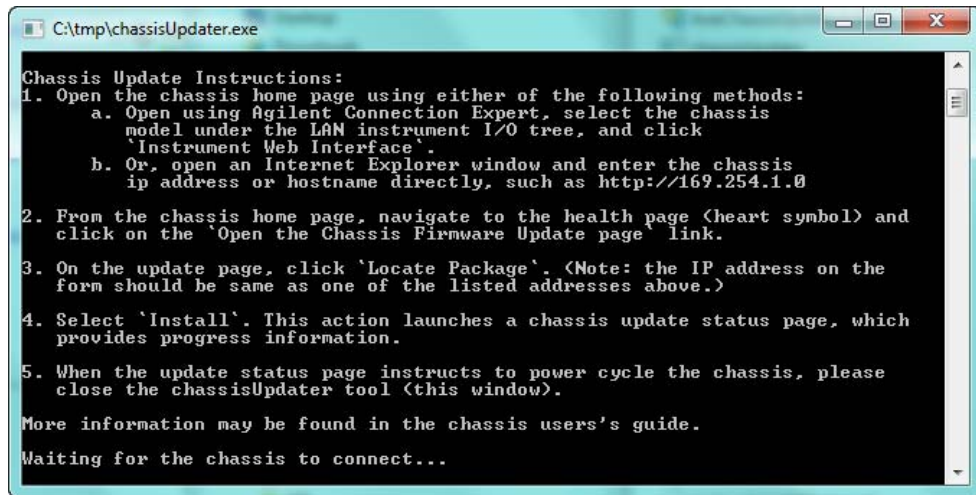


Figure 6 chassisUpdater.exe command window

Once the **chassisUpdater.exe** utility connects to the AXIe chassis (step c, [page 13](#)), it will continue to update.

NOTE

Only one instance of this application should be run at any one time.

Step 3. From Microsoft® Windows Explorer®, run chassisUpdater.exe

- b. If the AXIe chassis web page is not already open, then open the chassis web Home page. For instructions on how to open the page and confirm communication with the AXIe chassis, refer to “[Method 1. How to find the firmware revision with Agilent Connection Expert](#)” on page 5

Figure 7 shows the AXIe Chassis Web Home page. From the Home page, select the Chassis Health page (red heart on the left menu).



Figure 7 AXIe Chassis Web Home Page

Step 3. From Microsoft® Windows Explorer®, run chassisUpdater.exe

Figure 8 shows the AXIe chassis Health page. At the bottom of the Health page, select **“Open the chassis firmware update page”**.

Agilent Technologies M9505A AXIe 5 Slot Chassis

Chassis Health

Sensors

Module Slot	Instrument	State	Sensor Readings			
5	-empty-		ID	Type	Name	Value
	Status					
4	-empty-		ID	Type	Name	Value
	Status					
3	-empty-		ID	Type	Name	Value
	Status					
2	-empty-		ID	Type	Name	Value
	Status					
1	-empty-		ID	Type	Name	Value
	Status					
Chassis	5-SLOT-AXIe-MPO	Active				
	Status		ID	Type	Name	Value
	Nominal		120	Temperature	External Temp1	
	Nominal		121	Temperature	Internal Temp1	

Fan Control

Fan Status	Normal	
Cooling Status	Normal	
Present Fan Level	9	
Minimum Fan Level		Apply

Chassis Firmware Update

The following link opens a form to update the firmware components of this chassis. The components checked during an update are the Embedded Systems Module (ESM) and chassis backplane modules. Instrument modules not included in this update. For updating an instrument module, please follow the directions provided by the module vendor.

[Open the Chassis Firmware Update page.](#)

Figure 8 AXIe Chassis Health Page

Step 3. From Microsoft® Windows Explorer®, run chassisUpdater.exe

- c. This opens the Update Chassis Firmware page as shown in Figure 9. Click on the “**Locate Package**” button. The chassis will attempt to locate the firmware update package.

Update Chassis Firmware on M9505A AXIe 5 Slot Chassis:

Updating the chassis firmware will require anonymous FTP access to a local FTP server from the chassis and a complete firmware update package. During the update, instruments modules may be deactivated (standby mode) and afterwards the chassis must be power cycled.

Instrument:	M9505A
Serial Number:	A621EA1009
Installed Firmware Revision:	F5AX-1.3.11-0103-A002d
Update Package Revision:	

IMPORTANT: Temporarily disable the firewall on the FTP server before proceeding. The 'FTP Site' entry box below identifies the IP address of the machine running this window and is expecting an FTP server to be active on this machine. Alternatively a different FTP server may be used. In either case, the firewall --on the host FTP server-- must be disabled for the duration of the upgrade, which may take up to an hour to perform. Pop up windows are also used to present status information and may also require temporary permission to be displayed.

Enter the FTP site and subdirectory containing the update package:

FTP Site: Specify an IP address, such as: x.x.x.x

Source Directory: Specify a directory path, for example: /m9502a_update

Messages:

Figure 9 Update Chassis firmware Page

CAUTION

The chassisUpdater.exe file creates a temporary FTP server. Do not change any of the values in the FTP Site or Source Directory fields. The default values establish a location whose root is the directory where the installer is located.

- d. When the firmware update package is located, the page automatically refreshes and provides a choice of installation options (see Figure 10).

Update Chassis Firmware on M9505A AXIe 5 Slot Chassis:

Updating the chassis firmware will require anonymous FTP access to a local FTP server from the chassis and a complete firmware update package. During the update, instruments modules may be deactivated (standby mode) and afterwards the chassis must be power cycled.

Instrument:	M9505A
Serial Number:	A621EA1009
Installed Firmware Revision:	F5AX-1.3.11-0103-A002d
Update Package Revision:	F5AX-1.3.12-0103-A002d

☒ Typical Install
☐ Inspect and review only
☐ Force complete update

IMPORTANT: Temporarily disable the firewall on the FTP server before proceeding. The 'FTP Site' entry box below identifies the IP address of the machine running this window and is expecting an FTP server to be active on this machine. Alternatively a different FTP server may be used. In either case, the firewall --on the host FTP server-- must be disabled for the duration of the upgrade, which may take up to an hour to perform. Pop up windows are also used to present status information and may also require temporary permission to be displayed.

Enter the FTP site and subdirectory containing the update package:

FTP Site:

Source Directory:

Specify an IP address, such as: x.x.x.x

Specify a directory path, for example: /m9502a_update

Messages:

Server 169.254.117.93 contacted successfully.

Figure 10 Update Chassis Firmware page (with installation options)

There are three installation options with radio buttons on the right side of the page; “**Typical Install**” is checked.

- In a **Typical Install**, the program checks each firmware component against the update package, and only update those components which are earlier versions.
 - If you check **Inspect and Review**, the program advises you of firmware components which can be updated, but will not perform updates.
 - If you check **Force Complete Update**, the program replaces all firmware components with the update package versions.
- e. Click the **Install Package** button. The installer begins updating the chassis firmware.

Step 3. From Microsoft® Windows Explorer®, run chassisUpdater.exe

- f. The installer opens a Status Update window (Figure 11) allowing you to monitor progress. This screen updates periodically indicating progress.

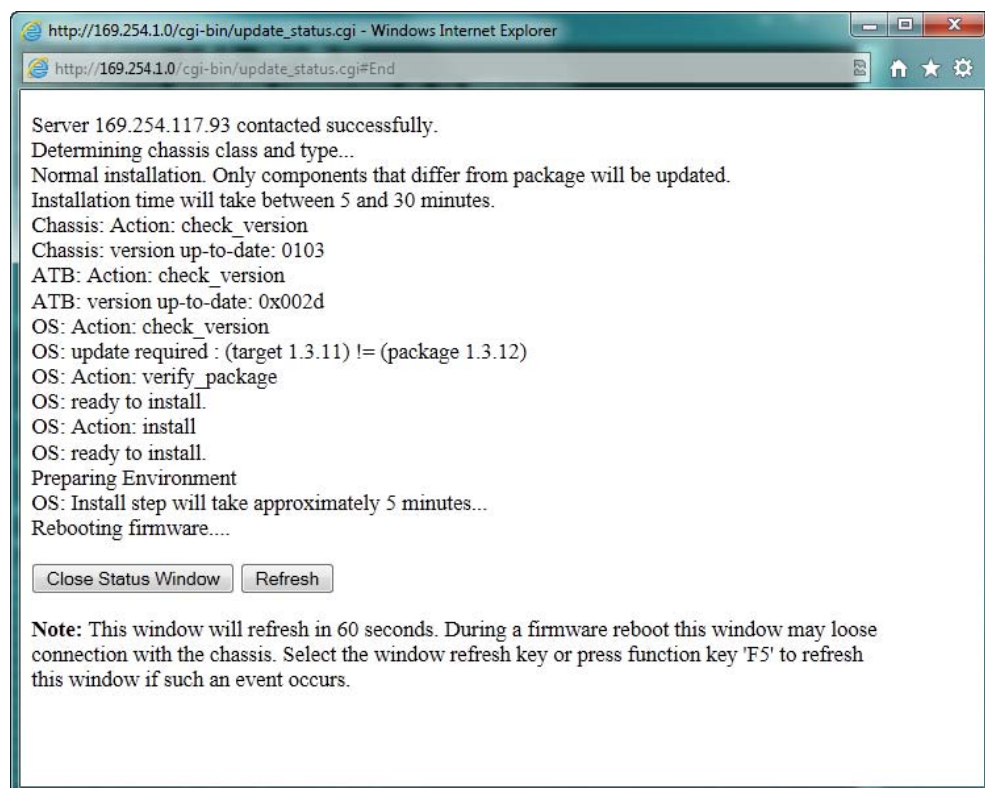


Figure 11 AXIe Chassis Firmware Update Progress Monitor (final screen shown)

NOTE

An update may take up to 60 minutes depending on the type of components requiring an update. During this time, instrument modules installed in the chassis are deactivated to the ATCA service state to reduce power consumption and are unavailable for applications. The chassis fan speed may change during the update as well. Following the update, cycle chassis power to complete the installation.

- g. Follow the instructions in the Status Update window. When the program is complete and you are directed to do so, cycle power to the chassis. Re-establish communication through the web interface, and verify the new firmware version on the chassis' web interface.

NOTE

External host PC with
PCIe connection to
chassis

If you are using an external host PC with a PCIe connection to the AXIe chassis, at the end of the firmware update process when you are instructed to cycle power on the AXIe chassis, you must shut down the host PC before powering off the chassis.

NOTE

External host PC with
LAN connection to
chassis

If you are using an external host PC with a LAN connection to the AXIe chassis, at the end of the firmware update process when you are instructed to cycle power on the AXIe chassis, only the chassis needs to be shut down. You do not need to shut down the host PC but you may need to restart Agilent Connection Expert.

NOTE

M9536A Embedded
Controller

If you are using an installed M9536A Embedded AXIe Controller, at the end of the firmware update process when you are instructed to cycle power on the AXIe chassis, you must shut down the controller (shut down Microsoft® Windows®) before powering off the chassis.

- h. After the update is complete, remove temporary files and applications used during this installation. Close unneeded Internet Explorer Windows.

Appendix A

Example windows device manager PCIe enumeration of an AXIe chassis

Figure 12 shows a sample enumeration of an M9502A AXIe 2-slot chassis ESM attached to an HP Z400 workstation. There are seven PCI bridge connections identified on the ESM although only two are physically connected onto the chassis backplane. In the figure no module cards are plugged into the chassis. The network adapter on the ESM is identified at device entry #3.

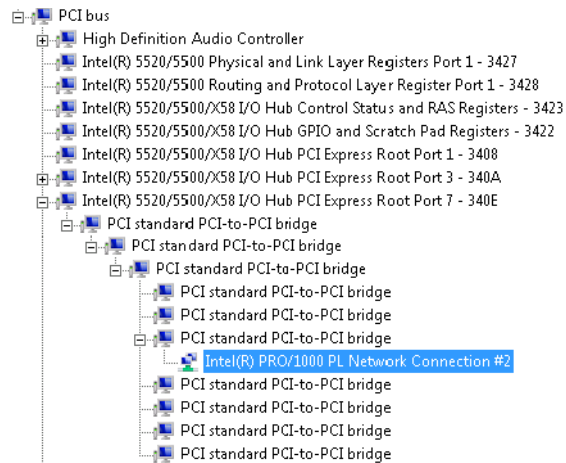


Figure 12 ESM Network Adapter

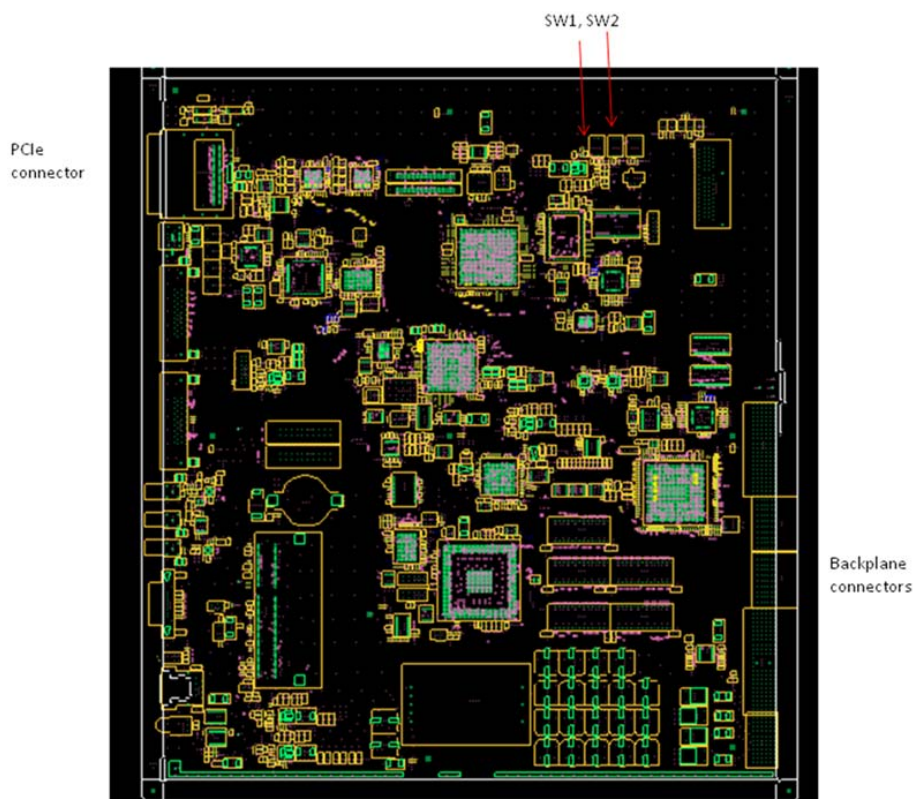
ESM JTag switch settings

The JTag switch settings allow programming of the EEPROMs on the ESM by either the shelf manager or through an external cable. These settings are properly set at the factory. In the event of a device programming error, the firmware status window may direct you to verify these switch settings. Refer to the ESM module model number (right side of the ESM front panel). The M9505-00130 ESM uses the two device switch setting. The M9505-00230 ESM uses the four device switch setting. Refer to Table 1 for the correct switch settings.

Table 1 DIP Switch Setting Table

	External JTAG port	Shelf manager JTAG port (default)
2-device chain	SW1.1 ON	SW1.1 OFF
	SW1.2 ON	SW1.2 OFF
	SW1.3 OFF	SW1.3 ON
	SW1.4 OFF	SW1.4 ON
	SW2.1 ON	SW2.1 ON
	SW2.1 OFF	SW2.2 OFF
4-device chain	SW2.3 OFF	SW2.3 OFF
	SW1.1 ON	SW1.1 OFF
	SW1.2 ON	SW1.2 OFF
	SW1.3 OFF	SW1.3 ON
	SW1.4 OFF	SW1.4 ON
	SW2.1 OFF	SW2.1 OFF
	SW2.1 ON	SW2.2 ON
	SW 2.3 ON	SW2.3 ON

The location of the switches on the ESM is shown in [Figure 13](#)

**Figure 13** ESM Switch Locations

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