



# **EX2500A**

## **LXI-VXI SLOT 0 INTERFACE**

### **QUICK START GUIDE**

**P/N: 82-0115-001**  
**Released April 22, 2009**

**VTI Instruments Corp.**

**2031 Main Street**  
**Irvine, CA 92614-6509**  
**(949) 955-1894**

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## **CERTIFICATION**

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

## **WARRANTY**

The product referred to herein is warranted against defects in material and workmanship for a period of one year from the receipt date of the product at customer's facility. The sole and exclusive remedy for breach of any warranty concerning these goods shall be repair or replacement of defective parts, or a refund of the purchase price, to be determined at the option of VTI.

For warranty service or repair, this product must be returned to a VTI Instruments authorized service center. The product shall be shipped prepaid to VTI and VTI shall prepay all returns of the product to the buyer. However, the buyer shall pay all shipping charges, duties, and taxes for products returned to VTI from another country.

VTI warrants that its software and firmware designated by VTI for use with a product will execute its programming when properly installed on that product. VTI does not however warrant that the operation of the product, or software, or firmware will be uninterrupted or error free.

## **LIMITATION OF WARRANTY**

The warranty shall not apply to defects resulting from improper or inadequate maintenance by the buyer, buyer-supplied products or interfacing, unauthorized modification or misuse, operation outside the environmental specifications for the product, or improper site preparation or maintenance.

VTI Instruments Corp. shall not be liable for injury to property other than the goods themselves. Other than the limited warranty stated above, VTI Instruments Corp. makes no other warranties, express or implied, with respect to the quality of product beyond the description of the goods on the face of the contract. VTI specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

## **RESTRICTED RIGHTS LEGEND**

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subdivision (b)(3)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013.

VTI Instruments Corp.  
2031 Main Street  
Irvine, CA 92614-6509 U.S.A.

## DECLARATION OF CONFORMITY

**Declaration of Conformity According to ISO/IEC Guide 22 and EN 45014**

<b>MANUFACTURER'S NAME</b>	VTI Instruments Corp.
<b>MANUFACTURER'S ADDRESS</b>	2031 Main Street Irvine, California 92614-6509
<b>PRODUCT NAME</b>	LXI-VXI Slot 0
<b>MODEL NUMBER(S)</b>	EX2500A
<b>PRODUCT OPTIONS</b>	All
<b>PRODUCT CONFIGURATIONS</b>	All

*VTI Instruments Corp. declares that the aforementioned product conforms to the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/366/EEC (inclusive 93/68/EEC) and carries the "CE" mark accordingly. The product has been designed and manufactured according to the following specifications:*

<b>SAFETY</b>	EN 61010-1:2001 (2 <sup>nd</sup> Edition)
<b>EMC</b>	EN 61326:1997 (w/A 1:1998 and A 2:2001) Class A CISPR 22 (1997) Class A VCCI (April 2000) Class A ICES-003 Class A (ANSI C63.4 1992) AS/NZS 3548 (w/A1 & A2:97) Class A FCC Part 15 Subpart B Class A

*I hereby declare that the aforementioned product has been designed to be in compliance with the relevant sections of the specifications listed above as well as complying with all essential requirements of the Low Voltage Directive.*

**February 2007**



A handwritten signature in black ink, appearing to read 'Steve Mauga'.

**Steve Mauga, QA Manager**

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## GENERAL SAFETY INSTRUCTIONS

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Review the following safety precautions to avoid bodily injury and/or damage to the product. These precautions must be observed during all phases of operation or service 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.

*Service should only be performed by qualified personnel.*

### TERMS AND SYMBOLS

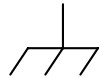
These terms may appear in this manual:

- WARNING** Indicates that a procedure or condition may cause bodily injury or death.
- CAUTION** Indicates that a procedure or condition could possibly cause damage to equipment or loss of data.

These symbols may appear on the product:



**ATTENTION** - Important safety instructions




Frame or chassis ground



Indicates that the product was manufactured after August 13, 2005. This mark is placed in accordance with *EN 50419, Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)*. End-of-life product can be returned to VTI by obtaining an RMA number. Fees for take-back and recycling will apply if not prohibited by national law.

## WARNINGS

Follow these precautions to avoid injury or damage to the product:

<b>Connect Cables Properly</b>	To avoid damage and potential loss of phone service, ensure that the RJ-45 connector on the front panel of the EX2500A is not connected to a standard telephone jack. This should only be connected to a network interface card, network router, or network hub.
<b>Avoid Electric Shock</b>	To avoid electric shock or fire hazard, do not operate this product with the covers removed. Do not connect or disconnect any cable, probes, test leads, etc. while they are connected to a voltage source. Remove all power and unplug unit before performing any service. <b><i>Service should only be performed by qualified personnel.</i></b>
<b>Ground the Product</b>	This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground.
<b>Operating Conditions</b>	To avoid injury, electric shock or fire hazard: <ul style="list-style-type: none"><li>- Do not operate in wet or damp conditions.</li><li>- Do not operate in an explosive atmosphere.</li><li>- Operate or store only in specified temperature range.</li><li>- Provide proper clearance for product ventilation to prevent overheating.</li><li>- DO NOT operate if any damage to this product is suspected.</li></ul> <b><i>Product should be inspected or serviced only by qualified personnel.</i></b>
<b>Class 1 Laser Product</b>	The SFP module in this instrument is a Class 1 Laser device. Do not attempt to disassemble this module. In the interest of safety, this equipment should only be serviced by an authorized VTI Instruments representative. Please observe the following safety precautions: <ul style="list-style-type: none"><li>• Do not open the unit</li><li>• If the unit requires service, contact VTI Instruments</li><li>• Ensure proper use by reading and following the instructions carefully</li><li>• Do not attempt to make any adjustments to the unit</li></ul>
 <b>Improper Use</b>	The operator of this instrument is advised that if the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired. Conformity is checked by inspection.

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## SUPPORT RESOURCES

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Support resources for this product are available on the Internet and at VTI Instruments customer support centers.

**VTI Instruments Corp.  
World Headquarters**

VTI Instruments Corp.  
2031 Main Street  
Irvine, CA 92614-6509

Phone: (949) 955-1894  
Fax: (949) 955-3041

**VTI Instruments  
Cleveland Instrument Division**

5425 Warner Road  
Suite 13  
Valley View, OH 44125

Phone: (216) 447-8950  
Fax: (216) 447-8951

**VTI Instruments  
Lake Stevens Instrument Division**

3216 Wetmore Avenue, Suite 1  
Everett, WA 98201

Phone: (949) 955-1894  
Fax: (949) 955-3041

**VTI Instruments, Pvt. Ltd.  
Bangalore Instrument Division**

642, 80 Feet Road  
Koramangala IV Block  
Bangalore – 560 034  
India

Phone: +91 80 4040 7900  
Phone: +91 80 4162 0200  
Fax: +91 80 4170 0200

**Technical Support**

Phone: (949) 955-1894  
Fax: (949) 955-3041  
E-mail: [support@vtiinstruments.com](mailto:support@vtiinstruments.com)



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Visit <http://www.vtiinstruments.com> for worldwide support sites and service plan information.

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# SECTION 1

## OVERVIEW

### INTRODUCTION

The EX2500A driver was written to be used with Agilent®VISA and, therefore, requires this software to be installed to function properly. Two software installation paths should be considered by users when installing the required EX2500A software:

- Use with Agilent VISA software, where Agilent VISA is installed as the primary VISA.
- Use with existing National Instruments®VISA (NI-VISA) software, which requires Agilent VISA to be installed as the secondary VISA and NI-VISA to be configured properly to support Agilent VISA.

**NOTE** The screenshots provided in this section were captured on a Windows®XP® system using specific VISA (Virtual Instrument Software Architecture) installations. As such, it is possible that the images provided in this guide may not be identical to the images seen during a specific installation.

### VISA REQUIREMENTS

In order to work properly in a test system, the EX2500A requires Agilent VISA to be installed on the host PC. Agilent VISA may be installed as either the primary VISA, or may be installed secondary to NI-VISA. The EX2500A is compatible with the following VISA software revisions:

- 1) Agilent VISA Revision 14.2 or later
- 2) NI-VISA Revision 2.6 or later for guaranteed operation (VTI Instruments Corp., however, recommends using revision 3.4 or later)

#### *Agilent VISA as Primary VISA Installation Path*

If Agilent VISA revision 14.2 or later is installed on the PC that will be connected to the EX2500A, go to page 14. If a different version of Agilent VISA is installed on the host PC, go to page 10 to install revision 14.2. It is recommended that previous versions of Agilent VISA be removed before installing revision 14.2.

#### *Agilent VISA as Secondary VISA Installation Path*

If NI-VISA revision 2.6 or later is installed on the host PC, go to page 23. If the version of NI-VISA installed on the host PC is lower than revision 2.6, please install an appropriate version of NI-VISA and then go to page 23.

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# AGILENT VISA AS PRIMARY VISA

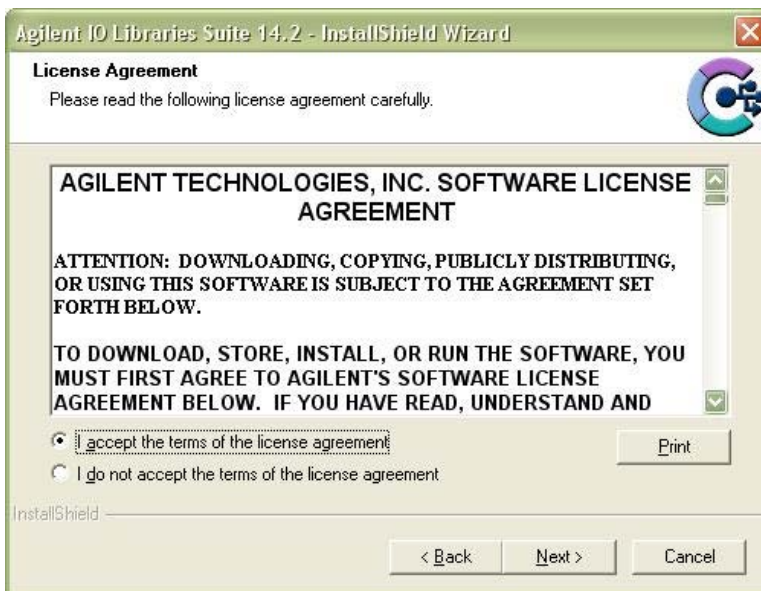
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## VISA INSTALLATION

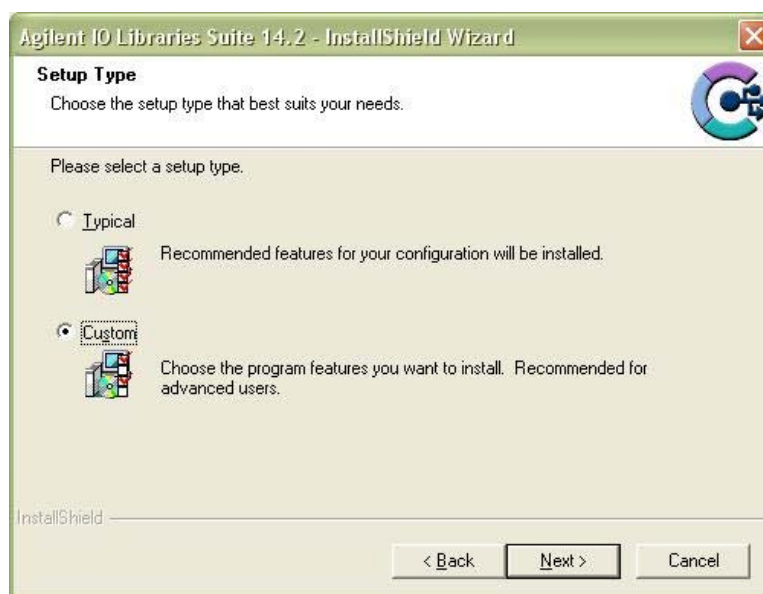
- 1) Start installation of Agilent VISA. From the Agilent IO Library Distribution CD, run the program *iolibs\_suite\_14\_2\_8931\_1\_multimedia.exe* (or later). At the **Welcome** screen, click the **Next** button.



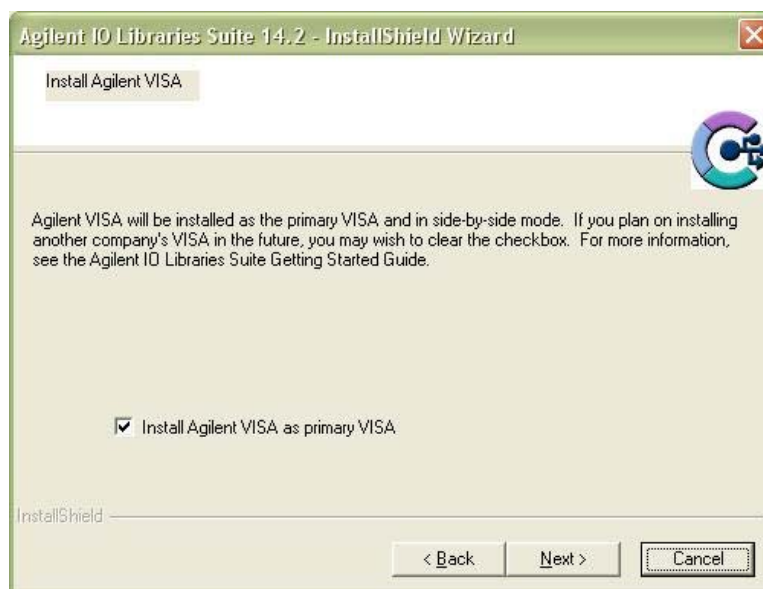
- 2) At the **License Agreement** dialog box, click on the “I accept” radio button to accept the license agreement, and then click **Next** to continue. If this is not done, installation will cease.



- 3) At the **Setup Type** dialog box, select the **Custom** radio button, then click the **Next** button.



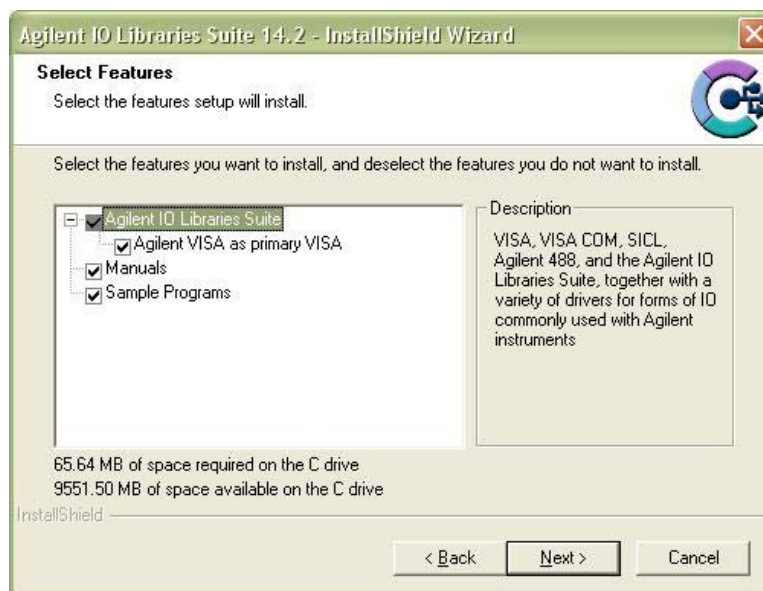
- 4) At the **Install Agilent VISA** dialog box, a prompt appears asking if Agilent VISA will be installed as the primary VISA. Ensure that **Install Agilent VISA as primary VISA** is selected, and then click the **Next** button.



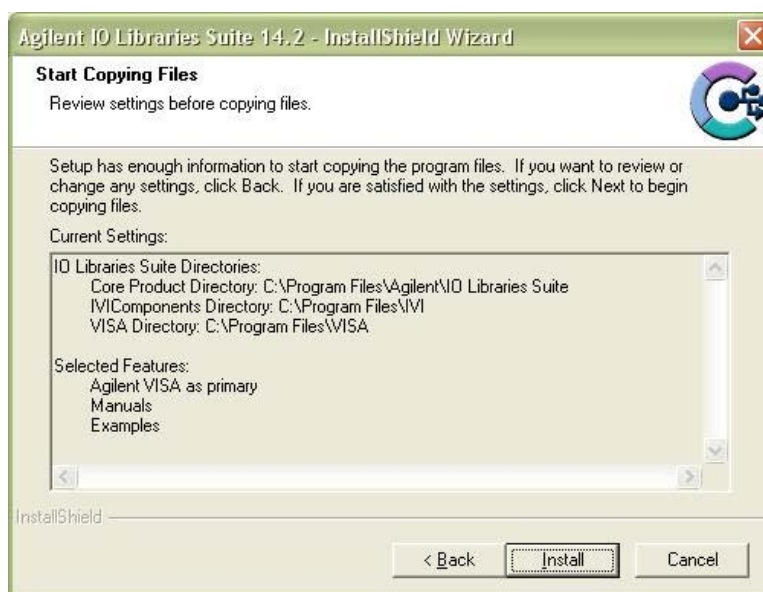
- 5) No changes are required at the **Choose Destination Location** dialog box. Click the **Next** button to continue.



- 6) At the **Select Features** dialog box, a summary of features that will be installed is provided. Make certain that the **Agilent VISA as primary VISA** check box is selected. Once this has been verified, click the **Next** button to continue.



- 7) Next, the **Start Copying Files** dialog box will appear. To begin software installation, click the **Install** button.



- 8) Once Agilent VISA installation is complete, the **InstallShield Wizard Complete** dialog box will appear. As the EX2500A driver must be installed before the Agilent Connection Expert can be used, ensure that both check boxes on this dialog box are not selected. Click the **Finish** button to complete VISA installation.



## EX2500A DRIVER INSTALLATION

### *VXI Plug&Play Driver*

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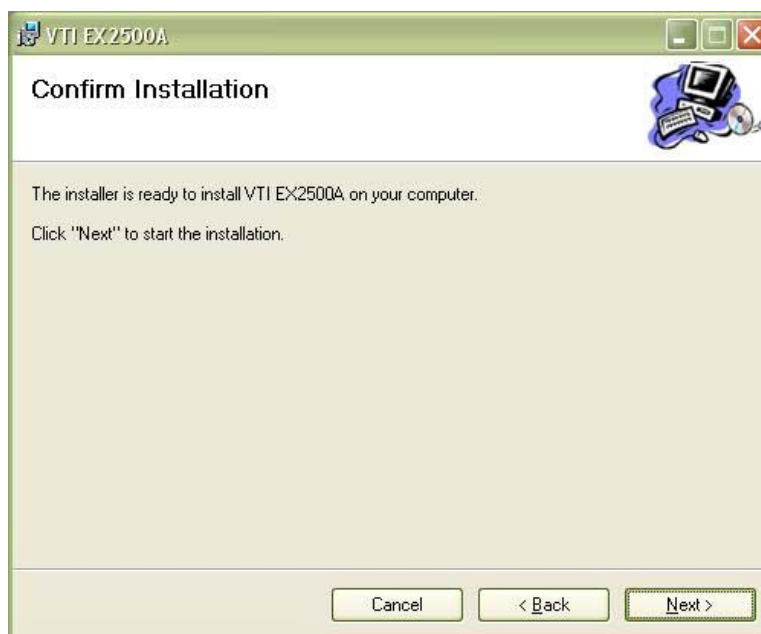
- 1) From the *VTI Instruments Corp. Drivers and Product Manuals* CD, run the program *Drv EX2500A\_R2p1p0.msi* (or later). At the **Welcome** dialog box, click the **Next** button.



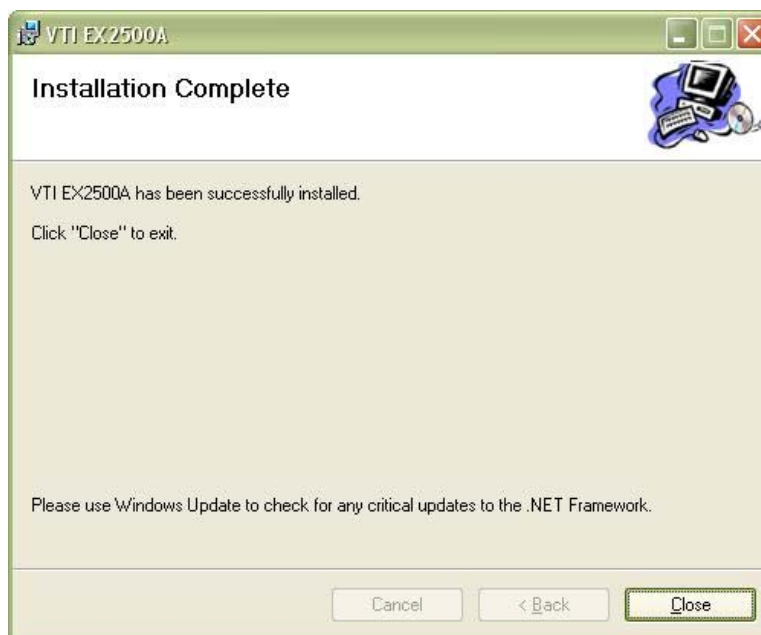
- 2) From the **Select Installation Folder** dialog box, select an appropriate radio button according to host PC demands. No changes are required in the **Folder** field. Click the **Next** button to proceed.



- 3) At the **Confirm Installation** dialog box, click the **Next** button.



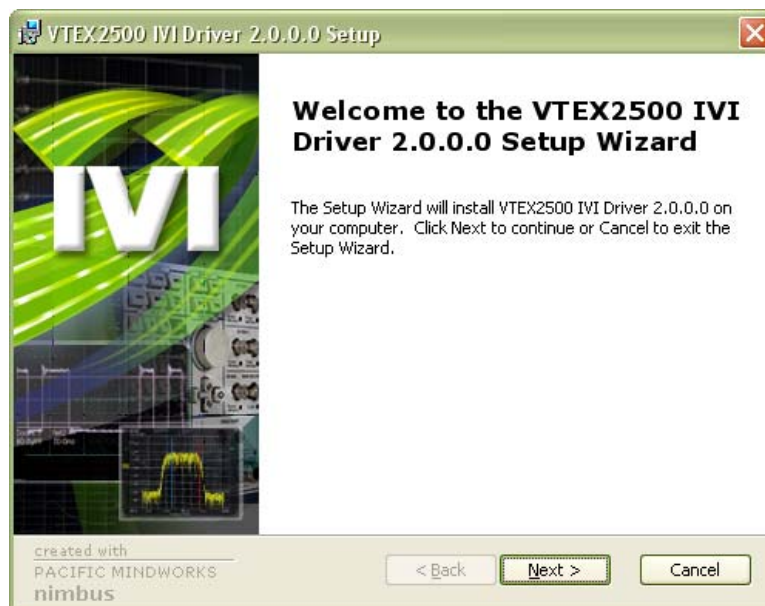
- 4) Click the close button and continue to *Add the EX2500A Interface to Agilent VISA*.



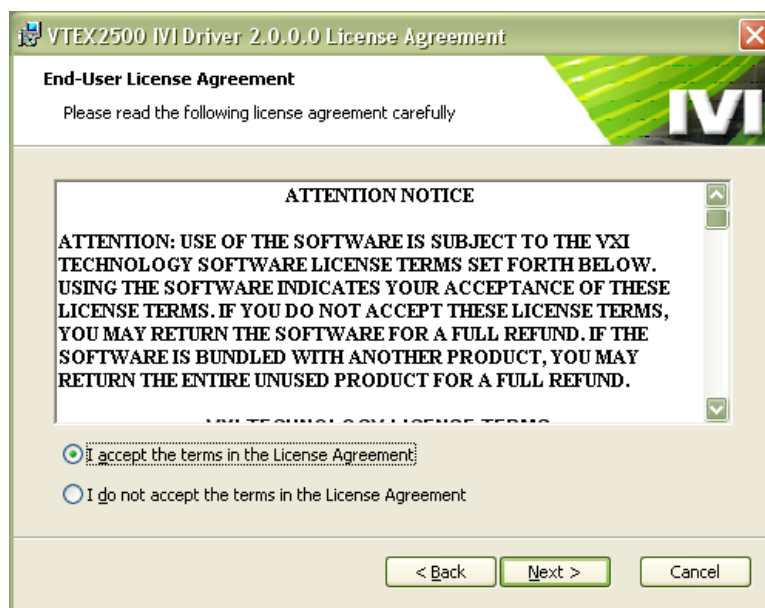
### IVI Driver

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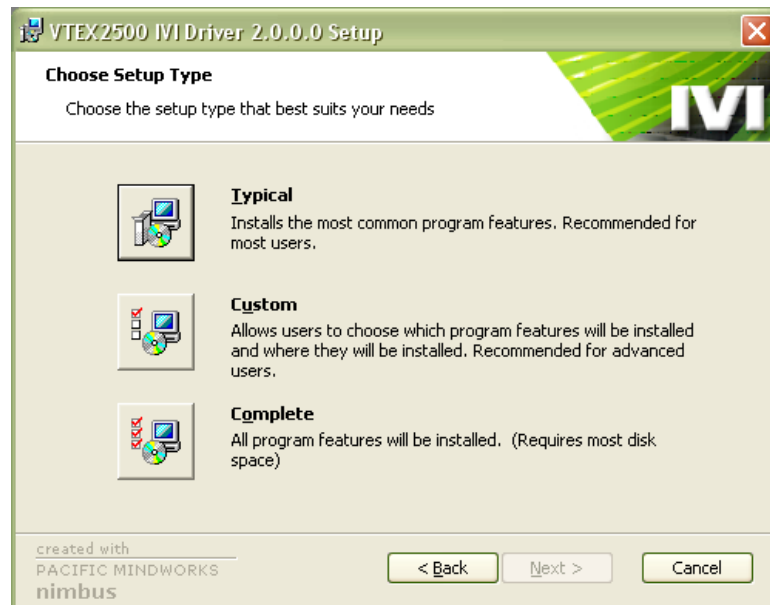
- 1) From the *VTI Instruments Corp. Drivers and Product Manuals* CD, run the program VTEX2500A\_R2p0p0p0.msi (or later). At the **Welcome** dialog box, click the **Next** button.



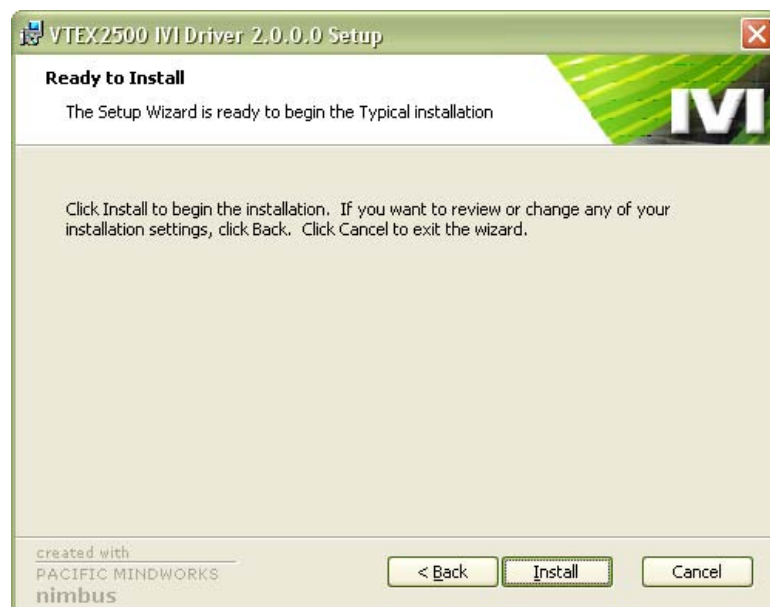
- 2) At the **End-User License Agreement** dialog box, select the "I accept" radio button, then click **Next** to continue.



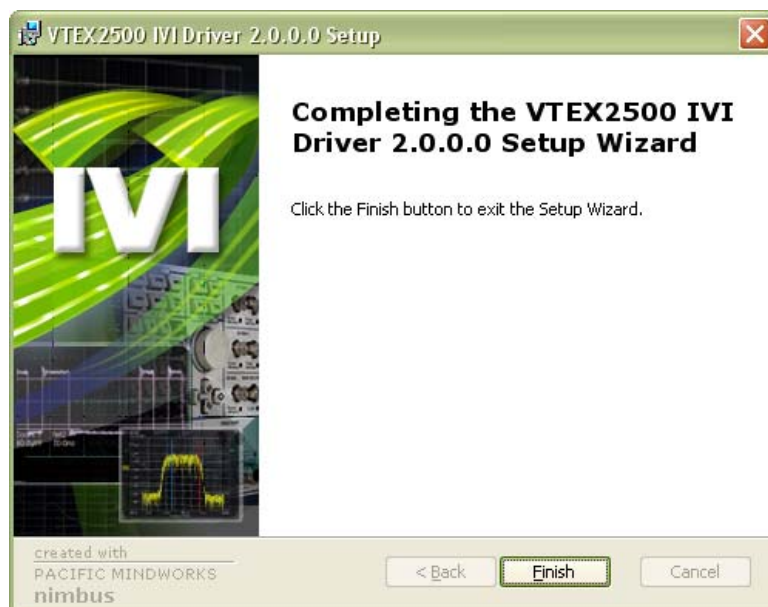
- 3) At the **Choose Setup Type** dialog box, select **Typical**, then click **Next**.



- 4) After selecting the **Typical** setup, click on the **Install** button to begin driver installation.



- 5) Once installation of the driver is complete, click the **Finish** button on the **Completing Setup** dialog box.

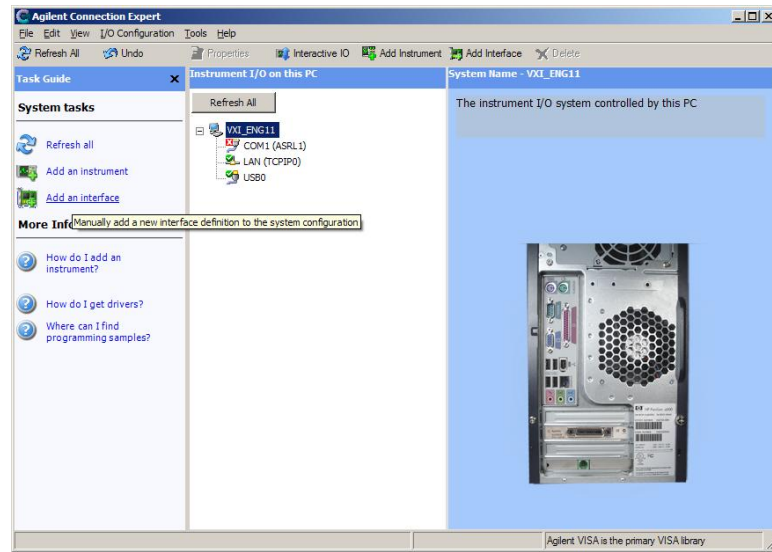


## ADD THE EX2500A INTERFACE TO AGILENT VISA

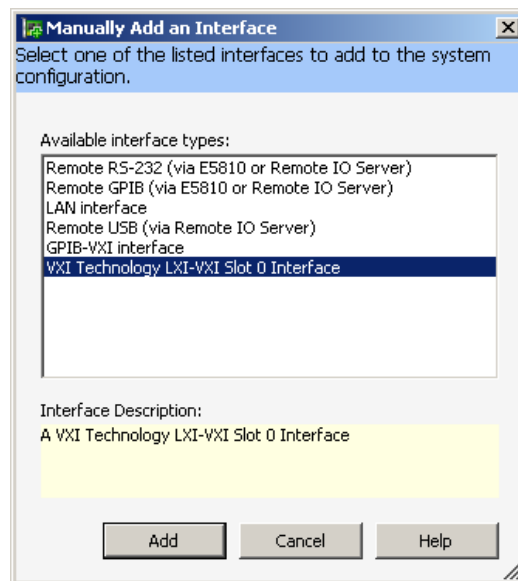
- 1) Open Agilent's Connection Expert<sup>®</sup> from the Start Menu via the path Start > All Programs > Agilent IO Libraries Suite > Agilent Connection Expert.



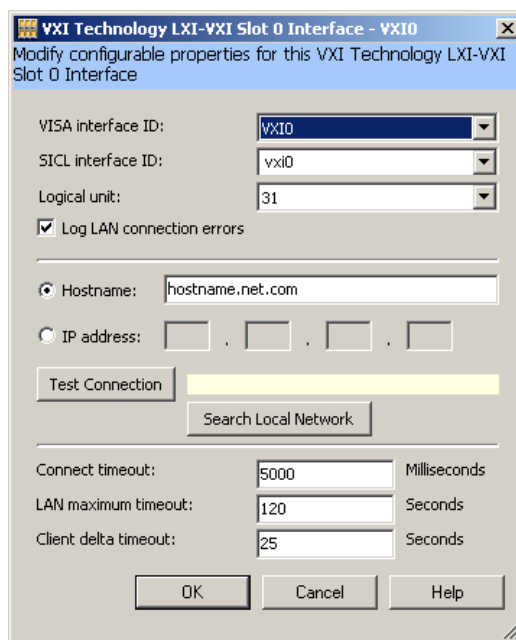
- 2) From the Connection Expert main window, click the **Add an interface** link in the **Task Guide** field.



- 3) From the **Manually Add an Interface** dialog box, select **VTI Instruments LXI-VXI Slot 0 Interface** from the list and then click **Add**.



- 4) A configuration window will appear where a module is assigned a VISA interface ID which is then mapped to the device's IP address. There must be a unique VISA interface ID for each interface defined in a system. NOTE: if NI-VISA is installed, a VISA Interface ID other than VXI0 must be assigned, as NI-VISA reserves VXI0 for MXI-2 devices (whether a MXI-2 device is installed or not). To automatically search for the module, click on **Search Local Network** on the configuration window. This software utility will search for EX2500As. If the EX2500A is connected directly to the Network Interface Card (NIC) in the host system, the EX2500A software will automatically assign a link-local IP address based on the MAC address of the module. If the module is connected to a LAN that is DHCP enabled, the DHCP server will assign an IP address to the module. To determine if a LAN is DHCP enabled, please contact your Network Administrator.



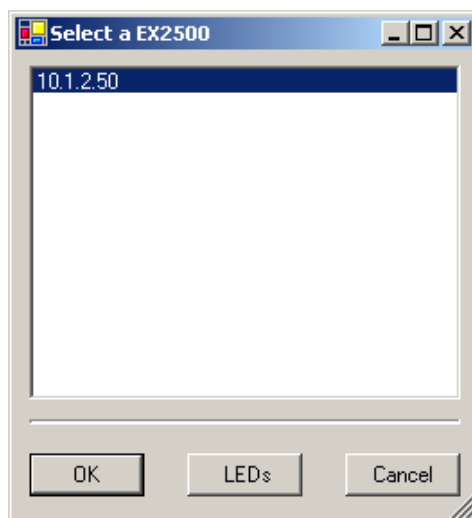
From here, the user can also choose to have connection errors added to the Windows Event Log by clicking on the **Log LAN connection errors** checkbox. The user can also set the time that the Connection Expert will wait before timing out. This is done by entering a value in the **Connect timeout** text field. It should be noted that the **LAN maximum timeout** and **Client delta timeout** fields are not currently supported by the EX2500A.

#### NOTE

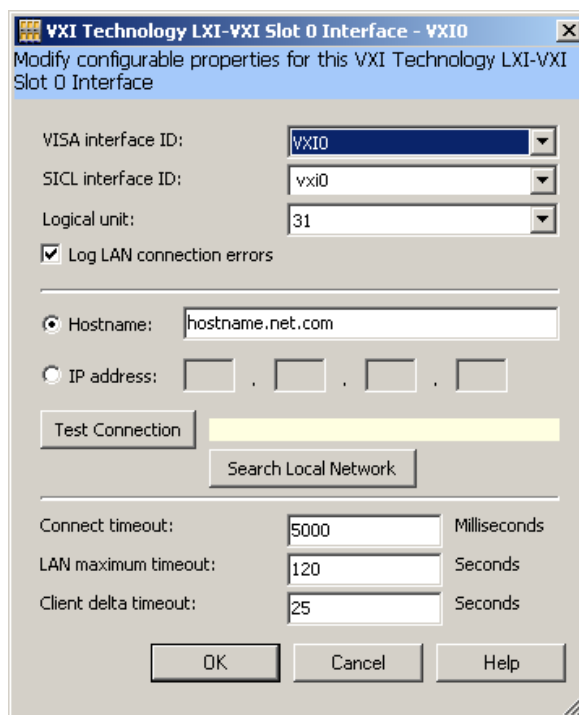
On PCs running Windows XP, the Windows Firewall utility may try to block Connection Expert from connecting to the EX2500A. To avoid blocking multiple connections, it may be desirable to turn off Windows Firewall. Refer to Windows Help for more information.



- 5) Connection Expert will display the IP address of all EX2500As discovered on the network. Clicking **LEDs** runs a test on the LEDs of the highlighted EX2500A causing the Link Status LEDs to blink in a “leap-frog” pattern. An additional dialog box will appear asking if this is the correct module. If this is the module of interest, click **OK** to establish the highlighted EX2500A as the target module.



The **IP address** field will now contain the IP of the target EX2500A. Clicking **OK** assigns the VISA interface ID shown to the target EX2500A.

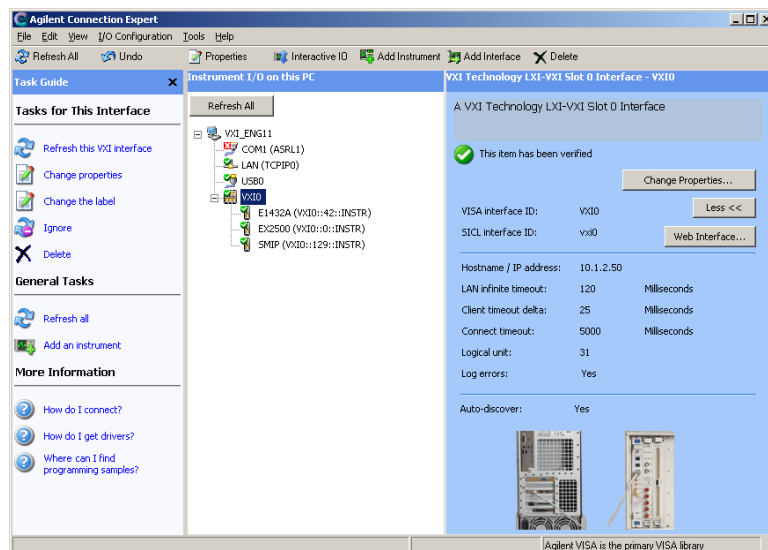


#### NOTE

This process should be repeated for each EX2500A included in a test system. It is imperative that each EX2500A module have a unique VISA interface ID.

If a MXI-2 interface will be installed into a mainframe after an EX2500A has been installed, the EX2500A should have its VISA interface ID reassigned if its ID is VXI0. If this is not done, it will cause the I/O software to perform improperly and make accessing the EX2500A impossible.

- 6) The Slot 0 interface to the EX2500A should now appear in the **Instrument I/O on this PC** field. The adjacent field contains buttons that allow for EX2500A properties to be changed and provide access to the built-in web interface.



The EX2500A soft front panel and other programs should now be accessible.

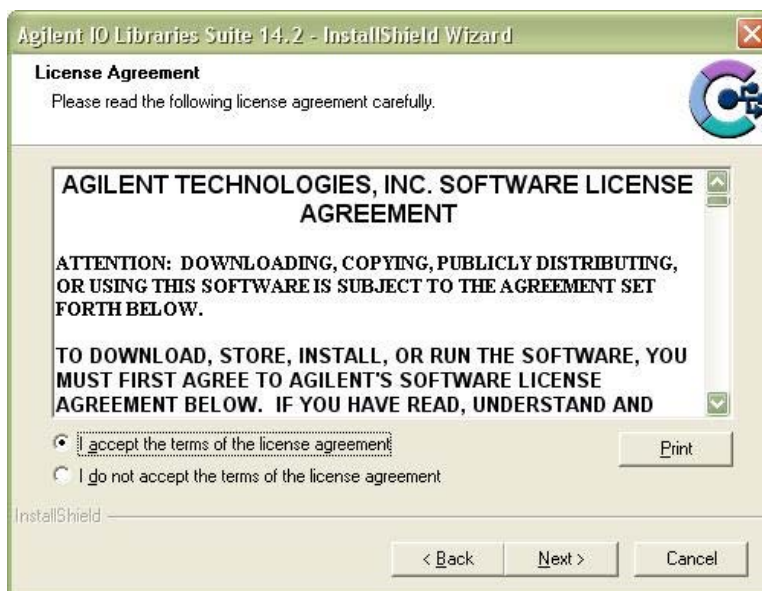
# AGILENT VISA AS SECONDARY VISA

## VISA INSTALLATION

- 1) Start installation of Agilent VISA. From the Agilent IO Library Distribution CD, run the program *iolibs\_suite\_14\_2\_8931\_1\_multimedia.exe* (or later). At the **Welcome** screen, click the **Next** button.



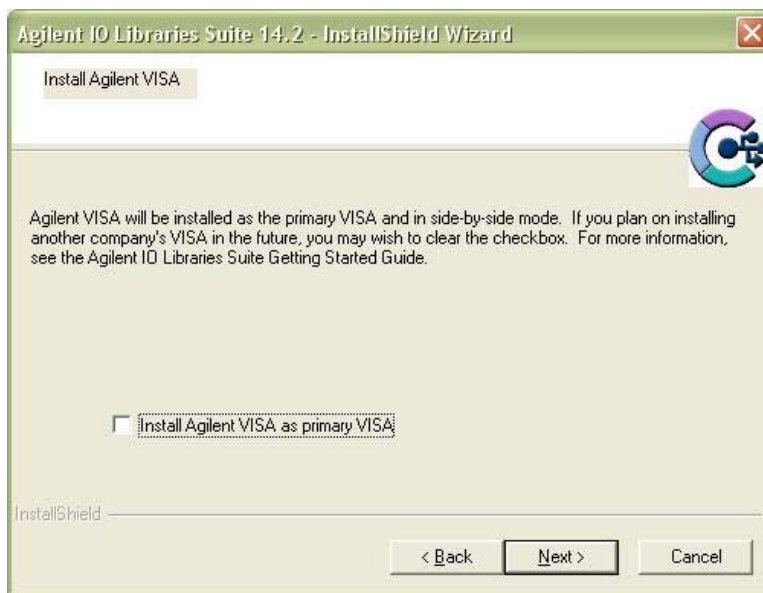
- 2) At the **License Agreement** dialog box, click on the “I accept” radio button to accept the license agreement, and then click **Next** to continue. If this is not done, installation will cease.



- 3) At the **Setup Type** dialog box, select the **Custom** radio button, then click the **Next** button.



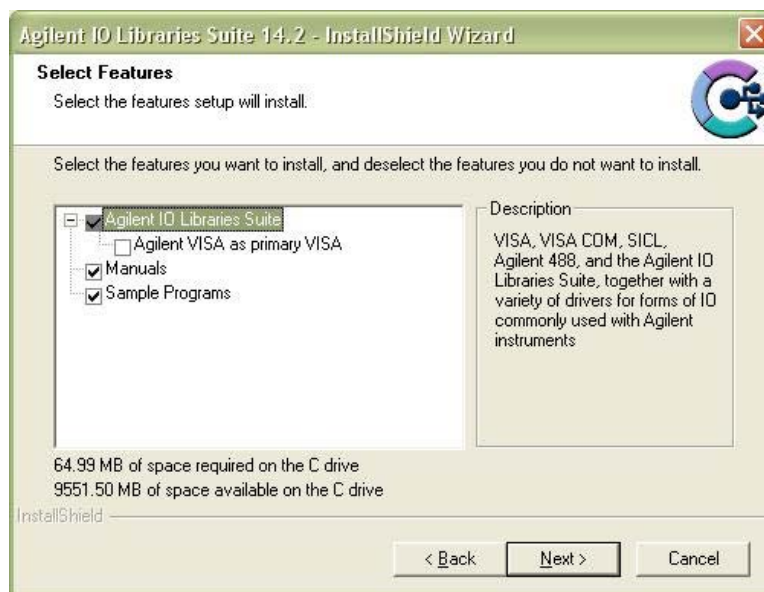
- 4) At the **Install Agilent VISA** dialog box, a prompt appears asking if Agilent VISA will be installed as the primary VISA. Ensure that **Install Agilent VISA as primary VISA** is not selected, and then click the **Next** button. The screenshot below is from a system with NI-VISA already installed.



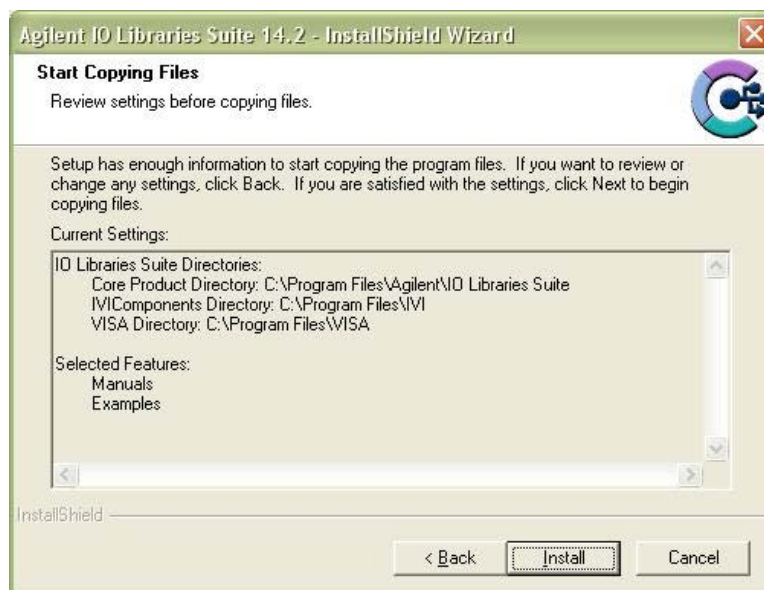
- 5) No changes are required at the **Choose Destination Location** dialog box. Click the **Next** button to continue.



- 6) At the **Select Features** dialog box, a summary of features that will be installed is provided. Ensure that the **Agilent VISA as primary VISA** checkbox is not selected.



- 7) Next, the **Start Copying Files** dialog box will appear. To begin software installation, click the **Install** button.



- 8) Once Agilent VISA installation is complete, the **InstallShield Wizard Complete** dialog box will appear. As the EX2500A driver must be installed before the Agilent Connection Expert can be used, ensure that both check boxes on this dialog box are not selected. Click the **Finish** button to complete VISA installation.



## EX2500A DRIVER INSTALLATION

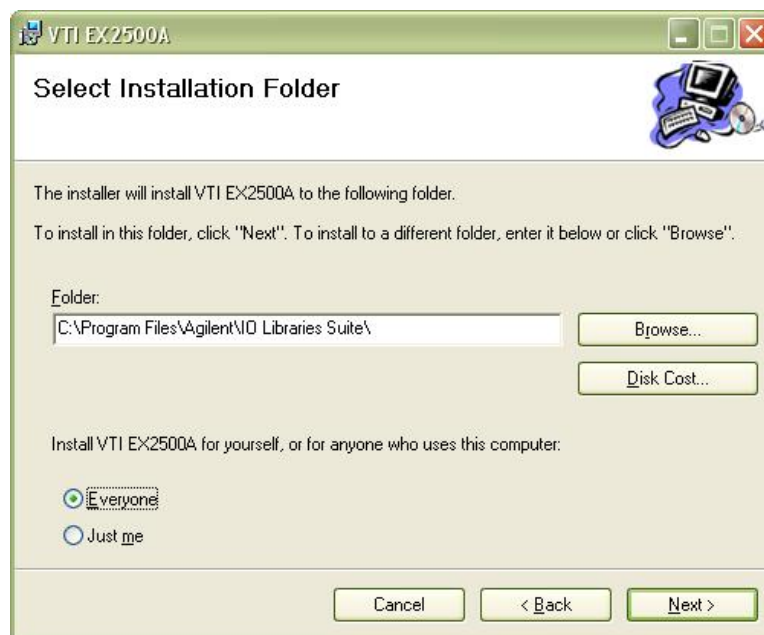
### *VXI Plug&Play Driver*

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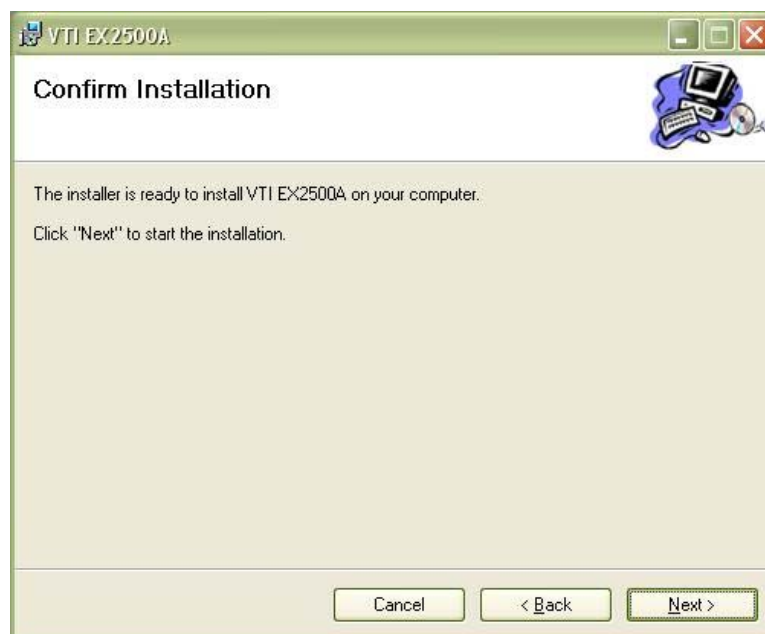
- 1) From the *VTI Instruments Corp. Drivers and Product Manuals CD*, run the program *Drv EX2500A\_R2p1p0.msi* (or later). At the **Welcome** dialog box, click the **Next** button.



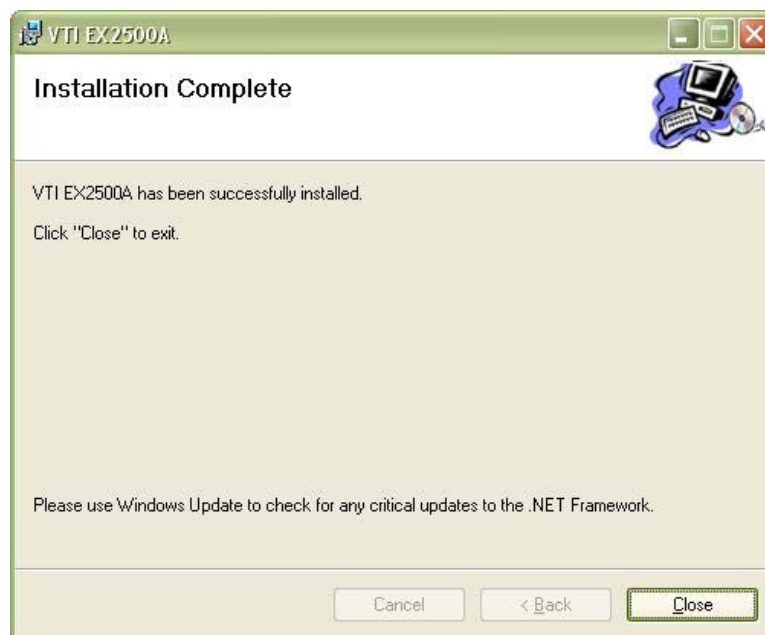
- 2) From the **Select Installation Folder** dialog box, select an appropriate radio button according to host PC demands. No changes are required in the **Folder** field. Click the **Next** button to proceed.



- 3) At the **Confirm Installation** dialog box, click the **Next** button.

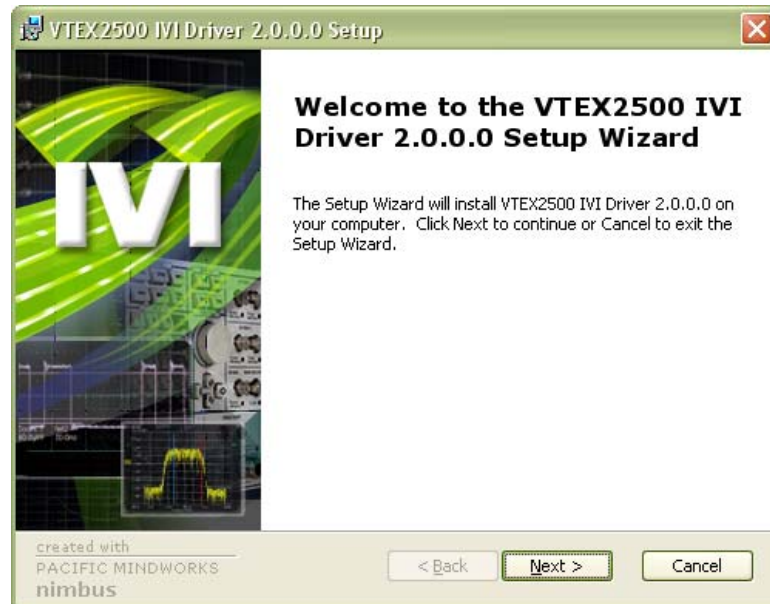


- 4) Click the close button and go to *Configure NI-VISA for Use with Agilent VISA*.

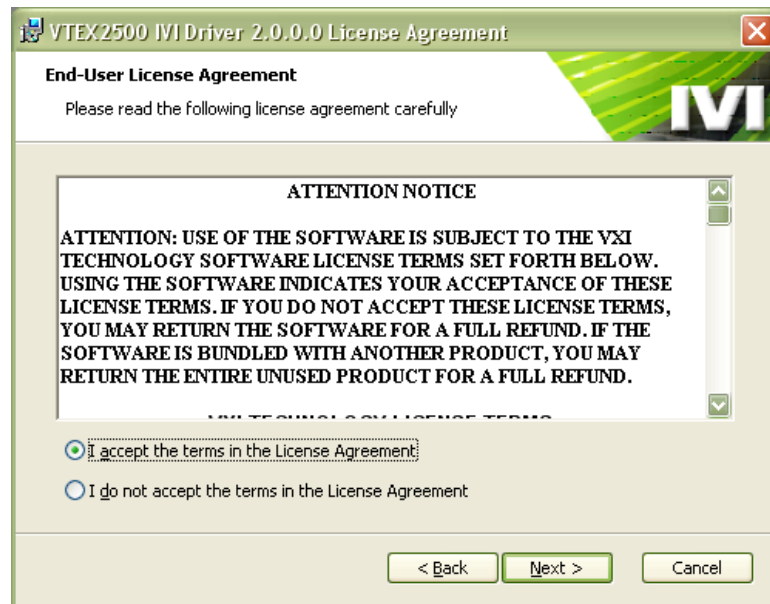


## IVI Driver

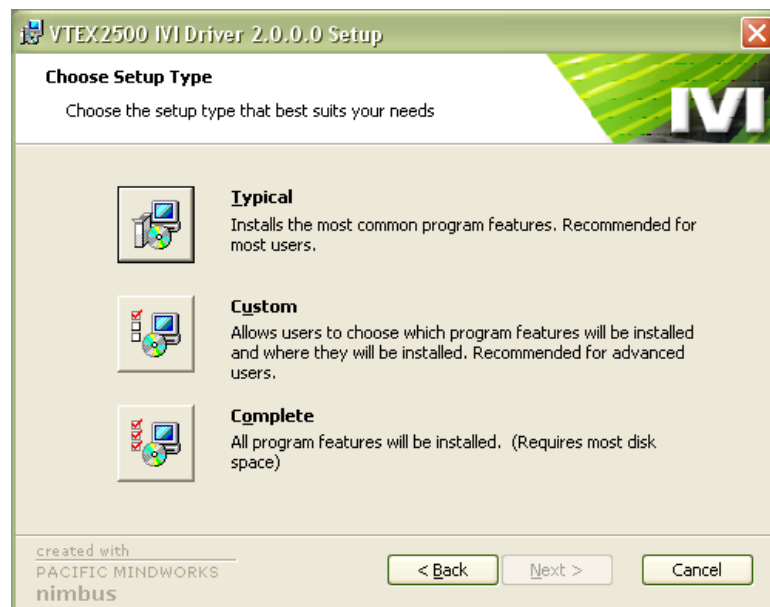
- 1) From the *VTI Instruments Corp. Drivers and Product Manuals CD*, run the program VTEX2500A\_R2p0p0p0.msi (or later). At the **Welcome** dialog box, click the **Next** button.



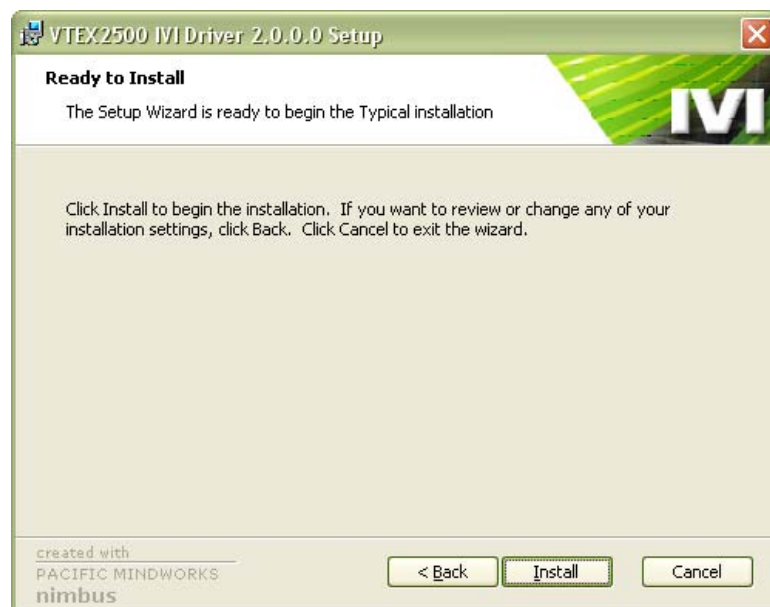
- 2) At the **End-User License Agreement** dialog box, select the **"I accept"** radio button, then click **Next** to continue.



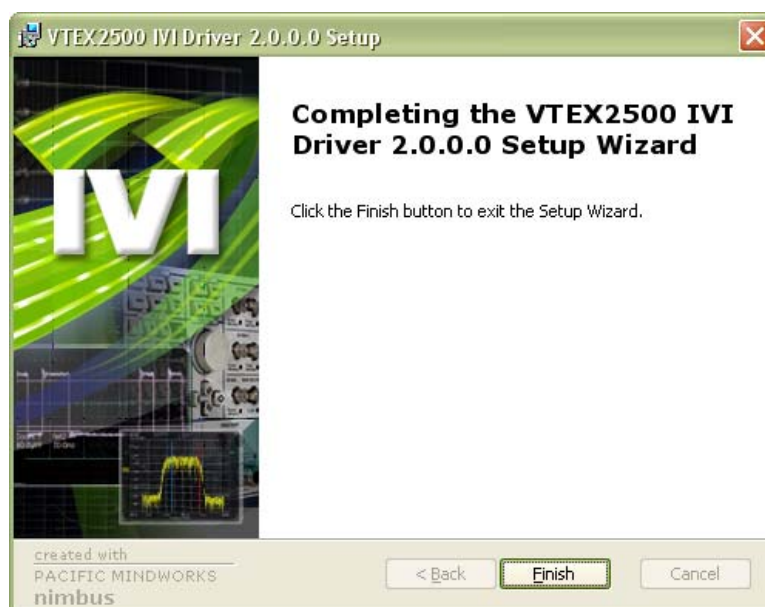
- 3) At the **Choose Setup Type** dialog box, select **Typical**, then click **Next**.



- 4) After selecting the **Typical** setup, click on the **Install** button to begin driver installation.

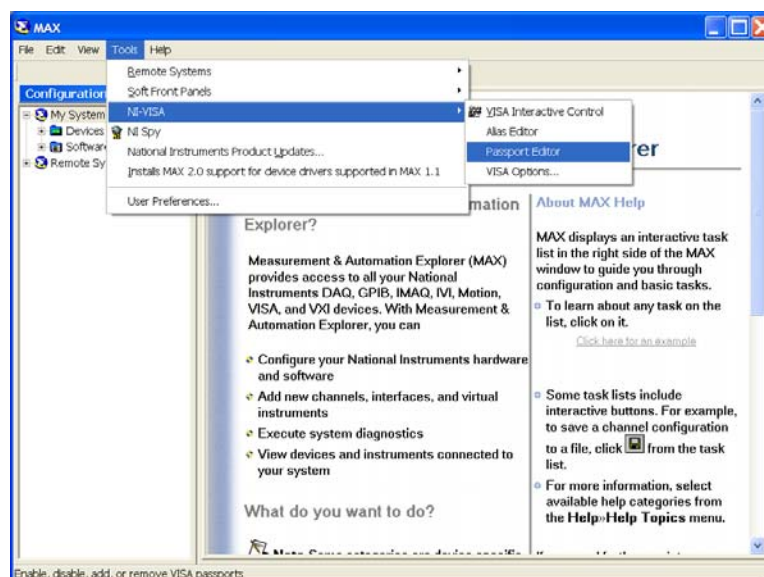


- 5) Once installation of the driver is complete, click the **Finish** button on the **Completing Setup** dialog box.

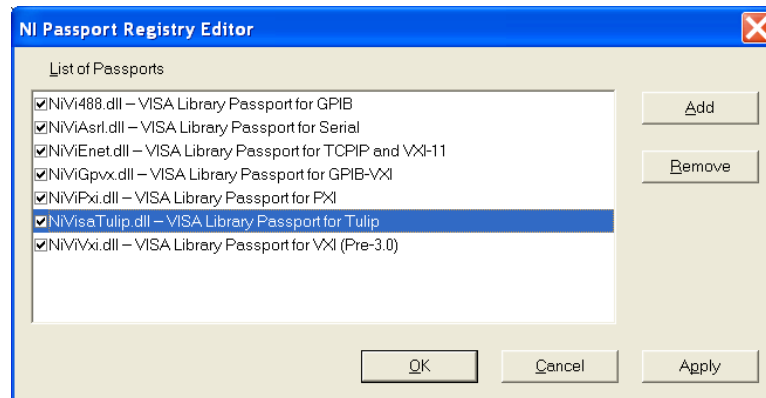


## CONFIGURE NI-VISA FOR USE WITH AGILENT VISA

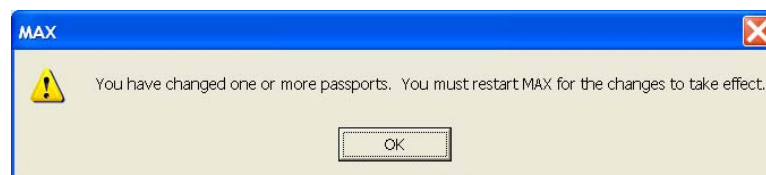
- 1) Open NI's **MAX**® (Measurement and Automation Explorer) software and go to **Tools>NI-VISA>Passport Editor**. Note that in other versions of NI\_VISA, Passport Editor may be found in another location. Please refer to the software's Help file for additional assistance.



- 2) When the **NI Passport Registry Editor** dialog box appears, ensure that the **NiVisaTulip.dll** check box is selected. Click **Apply**, and then click **OK**.



- 3) A warning will appear, indicating that MAX must be restarted for changes to take effect. Click **OK**, then close MAX.

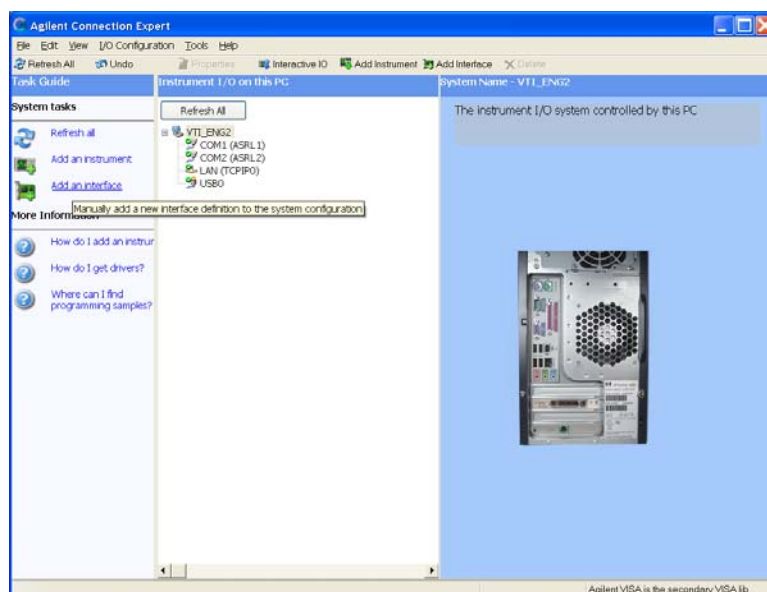


## ADD THE EX2500A INTERFACE TO AGILENT VISA

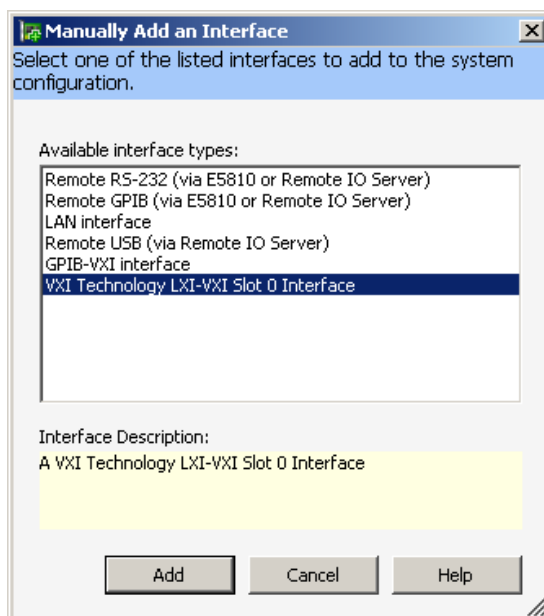
- 1) Open Agilent's Connection Expert<sup>®</sup> from the Start Menu via the path Start > All Programs > Agilent IO Libraries Suite > Agilent Connection Expert.



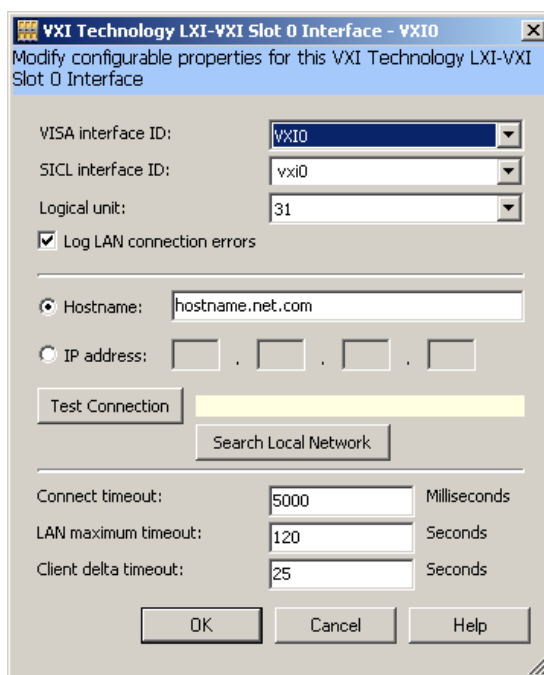
- 2) From the Connection Expert main window, click the **Add an interface** link in the **Task Guide** field.



- 3) From the **Manually Add an Interface** dialog box, select **VTI Instruments LXI-VXI Slot 0 Interface** from the list and then click **Add**.



- 4) A configuration window will appear. In VXI systems, the VISA interface ID cannot conflict with any other existing VXI interface IDs (in multi-mainframe systems). To ensure that this does not occur, click on **Search Local Network** on the configuration window. This software utility will search for EX2500As. If the EX2500A is connected directly to the NIC in the host controller, the EX2500A software will automatically assign an IP address based on the MAC address of the module. If the module is connected to a LAN that is DHCP enabled, the DHCP server will assign an IP address to the module. To determine if a LAN is DHCP enabled, please contact your Network Administrator.



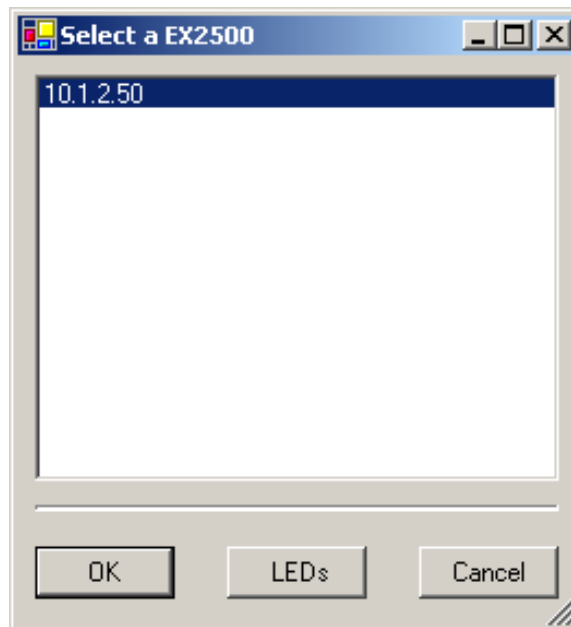
From here, the user can also choose to have connection errors added to the Windows Event Log by clicking on the **Log LAN connection errors** checkbox. The user can also set the time that the Connection Expert will wait before timing out. This is done by entering a value in the **Connect timeout** text field. It should be noted that the **LAN maximum timeout** and **Client delta timeout** fields are not currently supported by the EX2500A.

**NOTE**

On PCs running Windows XP, the Windows Firewall utility may try to block Connection Expert from connecting to the EX2500A. To avoid blocking multiple connections, it may be desirable to turn off Windows Firewall. Refer to Windows Help for more information.



- 5) Connection Expert will display the IP address of all EX2500As discovered on the network. Clicking **LEDs** runs a test on the LEDs of the highlighted EX2500A causing the MODE LEDs to blink in a “leap-frog” pattern. An additional dialog box will appear asking if this is the correct module. If this is the module of interest, click **OK** to establish the highlighted EX2500A as the target module

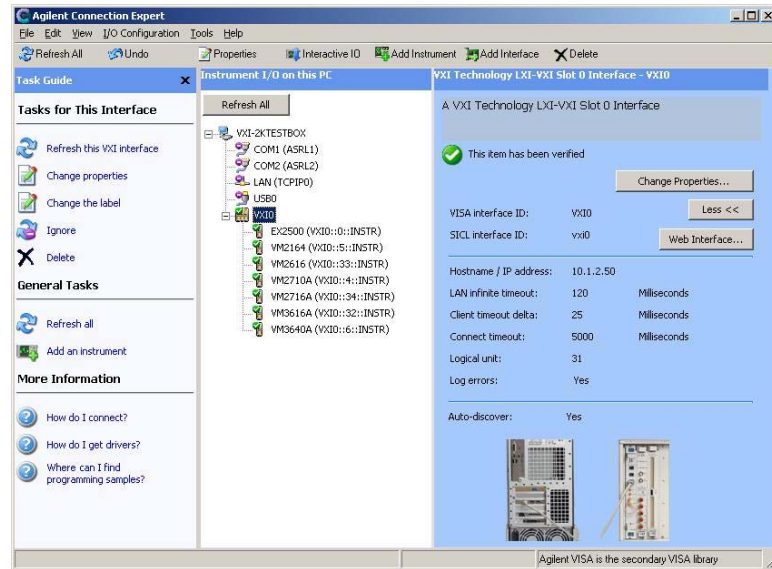


The **IP address** field will now contain the IP of the target EX2500A. Clicking **OK** assigns the VISA interface ID shown to the target EX2500A.

**NOTE** This process should be repeated for each EX2500A included in a test system. It is imperative that each EX2500A module have a unique VISA interface ID.

If a MXI-2 interface will be installed into a mainframe after an EX2500A has been installed, the EX2500A should have its VISA interface ID reassigned if its ID is VXI0. If this is not done, it will cause the I/O software to perform improperly and make accessing the EX2500A impossible.

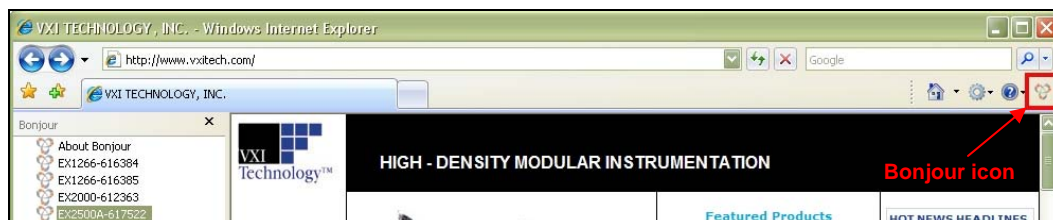
- 6) The Slot 0 interface to the EX2500A should now appear in the **Instrument I/O on this PC** field. The adjacent field contains buttons that allow for EX2500A properties to be changed and provide access to the EX2500A's web interface.



The EX2500A soft front panel and other programs should now be accessible.

## WEB INTERFACE

To open this the embedded web page, open Internet Explorer and double click on the instrument EX2500A in the Bonjour toolbar. If the toolbar on the left does appear when Internet Explorer is opened, click on the Bonjour icon located in the IE command bar (see Figure 1).

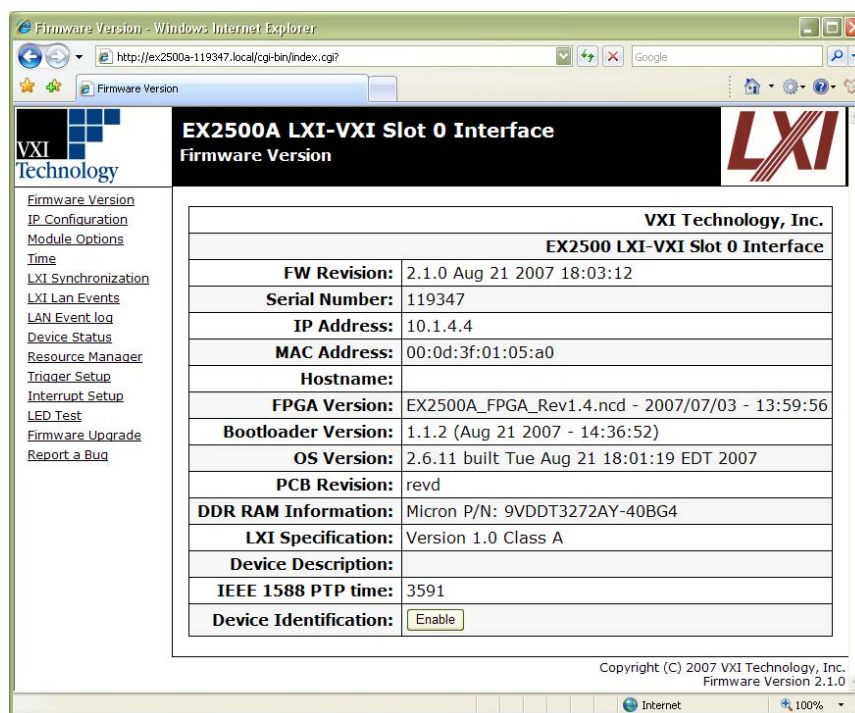


**FIGURE 1: BONJOUR TOOLBAR (LEFT) WITH EX2500A SELECTED**

Alternatively, the IP address of the EX2500A can be entered into the address bar of any Internet browser to view the embedded web page.

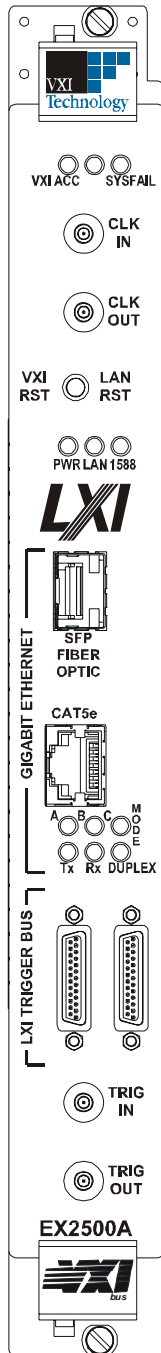
### NOTE

The web interface currently supports network configuration of the EX2500A along with trigger setup, interrupt setup, and other functions. Because the EX2500A includes RESMAN in the module, the modules in the rack can be identified, peeked and poked, or sent word serial commands.



**FIGURE 2: EX2500A WEB INTERFACE**

## FRONT PANEL DETAILS



**FIGURE 3:**  
**EX2500A FRONT**  
**PANEL**

This section details each element found on the EX2500A front panel and describes the intended use of these elements. See [Figure 3](#) as a reference while the EX2500A front panel is discussed.

### LEDs

- **VXI ACC:** the VXI access indicator, this LED will blink green for backplane accesses that terminate properly. It will blink orange for accesses that terminate in retry or bus error.
- **SYSFAIL:** indicates EX2500A SYSFAIL status (does not indicate backplane SYSFAIL status). Note that the center LED is not used by the EX2500A.
- **PWR:** indicates that the power supply voltages lines are at the correct voltage. This LED will temporarily glow red when the EX2500A is initially powered up and when the VXI/LAN RST button is pushed.
- **LAN:** indicates the LAN status of the EX2500A.
  - A solid green LAN LED indicates normal operation.
  - A flashing green, LAN LED indicates that the EX2500A has received a device identification command. The LAN LED will continue to flash until it is turned off via the web page.
  - A solid red LAN LED indicates that a LAN fault has been detected. This may be a failure to acquire a valid IP address, to renew a DHCP IP lease, detection of a duplicate IP address, or that the LAN cable has been disconnected.
- **1588:** indicates the EX2500A's IEEE 1588 synchronization status.
  - A solid green 1588 LED indicates that the EX2500A's device clock is an IEEE 1588 slave.
  - A 1588 LED flashing green once per second indicates that its clock is the IEEE 1588 master.
  - A 1588 LED flashing green once every two seconds indicates that the EX2500 is the IEEE 1588 Grand Master.
  - If the LED is solid red, an IEEE 1588 fault has occurred. If this LED is not illuminated, it the EX2500A is not synchronized with the IEEE 1588 clock.
- **Ethernet Link Status Indicators**
  - **A/B/C:** provides link status for the established "GIGABIT ETHERNET" connection and indicates the following:

LED A	LED B	LED C	Mode
OFF	ON	ON	1000 Mb/s Fiber, Link-up
ON	OFF	ON	1000 Mb/s Cat 5 Master, Link-up
OFF	OFF	ON	1000 Mb/s Cat 5 Slave, Link-up
OFF	ON	OFF	100 Mb/s Cat 5, Link-up
ON	OFF	OFF	10 Mb/s Cat 5, Link-up
OFF	OFF	OFF	Link Down

**NOTE** Ensure that LED control is returned to "Normal" when exiting the LED test or Device Identification section of the web interface.

- **Tx/Rx/DUPLEX:** provides transmit (Tx), receive (Rx), and duplex status for the established "GIGABIT ETHERNET" connection. When the "DUPLEX" LED is illuminated, this indicates that a full-duplex connection has been established. A half-duplex connection is indicated otherwise.

### *Connectors*

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- **CLK IN/OUT:** SMB connectors that provide external clocking options for the EX2500A.
- **SFP FIBER OPTIC:** a fiber optic gigabit Ethernet connector that accommodates an SX or LX Small Form Factor Pluggable (SFP) module.
- **CAT5e:** an RJ-45 connector that accommodates Category 5e (Cat 5e) twisted pair.
- **LXI TRIGGER BUS:** an 8-channel LXI-compliant trigger mechanism that can be used to route all VXI TTL triggers rack-to-rack or rack-to-LXI module.
- **TRIG IN/OUT:** SMB connectors used to route VXI TTL triggers and trigger bus signals.

### *VXI RST / LAN RST Button*

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#### *LXI LAN Configuration Initialize (LCI) Mechanism*

The VXI RST / LAN RST button, implemented according to the LXI LAN Configuration Initialize (LCI) Mechanism specification, on the EX2500A front panel provides a mechanism for recovery from an unknown or incorrect network configuration. If, for example, the EX2500A was statically configured for test or demonstration purposes and was not returned to “DHCP/AUTO IP” mode, the module may not be found by the original network setup. Following the procedure below will place the EX2500A’s IP configuration mode into “DHCP/AUTO IP” as well as ensuring that mDNS discovery is enabled:

- 1) Press and hold the reset button until the LXI PWR LED changes from red to green (approximately 5 s).
- 2) Release the reset button.

<b>NOTE</b>	Resetting the EX2500A will also reset the web page interface password to “ex2500”.
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VXI-11 Device Discovery (supported by the VISA IO-Libraries) is also supported by the EX2500A. This allows all EX2500A on a local network to be found without knowledge of their MAC address or IP address with the use of a broadcast message.

### **GIGABIT ETHERNET FUNCTIONALITY**

The EX2500A automatically detects whether the twisted pair (RJ-45) or fiber optic (SFP) connection is active and switches without user intervention. For Cat 5e connections, the EX2500A provides auto-MDIX functionality that automatically handles crossover in point-to-point connections. The unit will also detect and correct pairs that are wired backwards. Therefore, crossover cables can be used, but are not required.

<b>NOTE</b>	If Cat 5e (RJ-45) and fiber (SFP) media are both connected at power up, the port that first achieves link (typically the SFP) will be used. Also, if a link is established on one media type, and the other media is connected, the established link is maintained.
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