

General Information

System 40/45/50 Switch Cards

Windows drivers are supplied for all common PXI development environments, and utility programs to assist in setting up and debugging your system. These drivers support all System 40/45/50 Switch Cards, and certain models in the System 41 PXI instrument range. For a list of System 41 models supported, see the System 41 Support List.

Software drivers are supplied for Microsoft Windows 95/98/ME/NT/2000/XP operating systems. Each of the Windows drivers is provided with support for the following development environments:

- Microsoft Visual Basic
- Microsoft Visual C++
- Borland C++
- National Instruments LabWindows/CVI
- National Instruments LabVIEW

Windows drivers are supplied in the form of Dynamic Link Libraries, which should also be usable in any other development environment that supports them.

Drivers for Windows 95/98/ME and for Windows NT/2000/XP are available to meet particular system requirements, and should none of these be suitable there is also the option of register-level programming. Drivers are generally universal, handling all models in the System 40, 45 and 50 ranges.

VISA Driver for Windows - pipx40

The pipx40 driver conforms to the VISA (Virtual Instrument Software Architecture) standard for programmable instrumentation. Instrument control environments such as LabVIEW and LabWindows/CVI are based on VISA, making this driver the natural choice when using them if IVI compliance is not required. Where VISA is available, pipx40 can also be used in the general-purpose Windows environments.

IVI Driver for Windows - pi40iv

The pi40iv IVI (Interchangeable Virtual Instrument) driver supports all Pickering Interfaces PXI switch cards that are consistent with the IVI switch class model - as are the great majority of cards in the System 40/45/50 ranges. Based on VISA (Virtual Instrument Software Architecture) it integrates well with LabWindows/CVI and LabVIEW, and is fully compatible with NI Switch Executive. Provided VISA is available, it is also usable in the general-purpose Windows environments.

Direct I/O Driver for Windows - Pilpxi

The Pilpxi driver accesses cards directly, without using the VISA interface model, while offering similar overall functionality to pipx40. Although it can be used in VISA-based environments, doing so sacrifices integration with the many useful VISA configuration and debug tools; hence this driver has only minimal support for LabVIEW and LabWindows/CVI. It is more commonly used in general-purpose Windows environments such as Visual C++ and Visual Basic. There is generally little difference in operating speed between the VISA and Direct I/O drivers.

LXI System 60

Please refer to the *LXI Getting Started* documentation on the DVD in folder \LXI Products.

Utility Software - Diagnostic Utility PipxDiag

The Plug & Play functionality of PXI cards generally ensures trouble-free installation. However in the event of any problems, it may be helpful to know how cards have been configured in the system. The PipxDiag Windows diagnostic utility generates an extensive report showing the allocations of PCI/PXI system resources and specific details of installed Pickering switch cards, highlighting any potential configuration issues.



Utility Software - Terminal Monitor PILMon

PILMon is a simple Windows terminal monitor for Pickering Interfaces switch cards. It gives full access to all card features, using the functions of the Pilpxi Direct I/O driver.

Programming Manual

The complete System 40 programming manual can be found on the DVD folder \Programming.

Register-level Programming

Where the supplied drivers are not suitable, register-level programming can be employed - for example:

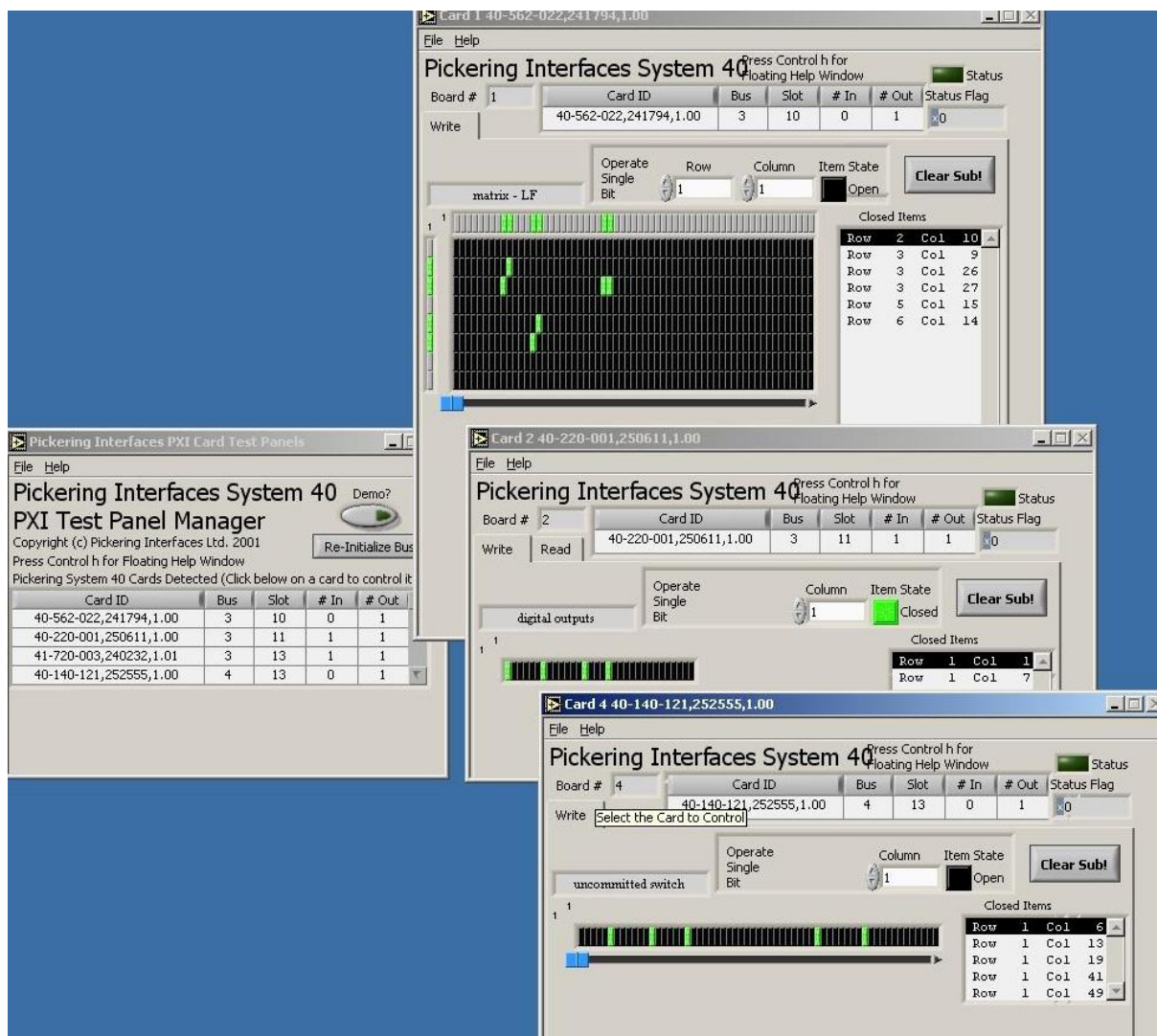
- if the functionality of the supplied drivers does not meet the application requirements
- if security considerations demand full source-code for the application
- in development environments that have alternate mechanisms for accessing PCIbus
- for operating systems other than Windows

Utility Software - Test Panels

Test Panels allow any combination of cards to be controlled interactively for test or setup purposes using a straightforward graphical interface. They are supplied in two formats:

- As an executable program the Test Panels (EXE) is using the LabVIEW runtime engine - usable by customers not working with LabVIEW
- As a LabVIEW VI, for use by customers having the LabVIEW application

The Test Panels use the Pilpxi Direct I/O driver, and so do not require VISA for their operation.



Utility Software – PI-MXT

The Pickering Interfaces Matrix and Multiplexer Test Tool (PI-MXT) provides a simple means of testing Pickering Interfaces PXI switching modules. The tool can be used to find faults in a defective switching module, or to provide confirmation that a module is operating correctly, either as part of the regular system calibration or because a system fault is suspected and the switch system needs to be eliminated from the fault finding procedure.

Manual: 90-100 User Manual, Section 2 – Installation
Software: DVD \Diagnostic Tools\setup.exe

Software Evaluation

Pickering Interfaces software can be installed for evaluation purposes. In the absence of Pickering hardware, you can still:

- view help and other documentation files
- If you have the necessary applications, load and examine the LabWindows/CVI and LabVIEW drivers
- Use the IVI driver in simulation mode
- Trial the Test Panels in a user-configurable demonstration mode
- Obtain a dump of system information with the PipxDiag utility

System 40/41/45 - PXI Software Drivers

The following list describes where to find the latest instrument driver installation instructions and which software to be loaded.

A number like ② is showing in which recommended sequence the drivers should be installed, however it depends on prior installed software. It's recommended to reboot the PC whenever advised and/or after every driver and card installation.

Before starting installation be sure to use latest drivers which can be download from the Pickering Interfaces web site <http://www.pickeringtest.com/dynamic/main.cgi?myaction=drivers>

Instruments

Following instrument installations can be found on the DVD in folder \Instruments.

41-180	DC to 3 GHz Programmable Attenuator
Manual:	User Manual, Section 3 – Installation
Install Info:	41-180 README.txt
Software:	This instrument is used as a switch module. For installing the right software, please refer to section Switching/Series 40 of this document.
Comments:	A softfront panel is provided (Att_panel.exe), copy this to your hard disk and execute.
41-200	6.5 Digit DMM
Manual:	PI User Manual, Section 3 – Getting Started
Software:	Signametrics floppy disks (includes drivers, Signametrics manual, VB Runtime software)
Comments:	There is no DMM software provided with this CD, for the latest driver please refer Signametrics' web site: http://www.signametrics.com/software/smx2040.htm
41-210	7.5 Digit DMM
Manual:	PI User Manual, Section 3 – Getting Started
Software:	Signametrics floppy disks (includes drivers, Signametrics manual, VB Runtime software)
Comments:	There is no DMM software provided with this CD, for the latest driver please refer Signametrics' web site: http://www.signametrics.com/software/smx2060.htm
41-320	Dual Channel 70MS/s Waveform Digitizer
Manual:	PI Manual, Section 3 – Software Installation & Drivers
Software:	setup_pd1472_v120.exe
Comments:	Run setup_pd1472_v120.exe prior hardware installation. Use default installation location C:\VXIPIWinNT\pd1472 A softfront panel is provided (pd1472.exe)
41-500	Automotive Protocol Communications Module
Manual:	PI Manual, Section 1 – Introduction
Software:	setupNetway.exe
Comments:	Netway.exe is the application environment for protocol emulation

41-610	Dual 100MS/s Arbitrary Waveform Generator
Manual:	PI Manual, Section 1 – Introduction & Installation
Install Info:	readme.txt
Software:	setup_pg14102_v120.exe
Comments:	Run setup_pg14102_v120.exe prior hardware installation. Default installation location C:\VXIPI\WinNT\pd14102 A softfront panel is provided (pd14102.exe)
41-620	Function Generator
Manual:	PI Manual, Section 3 – Installation & Operation
Install Info:	readme.txt
Software:	setup_pi620_v111.exe
Comments:	Run setup_pi620_v111.exe prior hardware installation. Default installation location C:\VXIPI\WinNT\pi620 A softfront panel is provided (PI620.exe)
51-620	PCI Function Generator
Manual:	see PI Manual 41-620 , Section 3 – Installation & Operation
Install Info:	readme.txt
Software:	51-620-Setup.exe
Comments:	Run 51-620-Setup.exe prior hardware installation. Default installation location C:\VXIPI\WinNT\pi51620 A softfront panel is provided (51-620-SFP.exe), copy this to your hard disk and execute.
41-650	5 Channel High Voltage Amplifier
Manual:	PI Manual, Section 3 – Installation & Operation
Install Info:	readme.txt
Software:	Setup-41-650.exe
Comments:	Run Setup-41-650.exe prior hardware installation. Default installation location C:\VXIPI\WinNT\pi650 A softfront panel is provided (41-650.exe)
41-660	10 Channel High Voltage Attenuator
41-661	5 Channel High Voltage Attenuator
Manual:	PI Manual, Section 3 – Installation
Software:	This instrument is used as a switch module. For installing the right software, please refer to section Switching/Series 40 of this document. A softfront panel is provided (41-660-SFP.exe)
41-720	Isolated Fixed Power Supply Module
Manual:	PI Manual, Section 3 – Installation & Operation
Software:	This instrument is used as a switch module. For installing the right software, please refer to section Switching/Series 40 of this document.
41-735	Dual Positive Power Supply Module
41-736	Dual Negative Power Supply Module
Manual:	PI Manual, Section 3 – Installation & Operation
Install Info:	ReadMe.txt
Software:	41-735_Setup.exe
Comments:	A softfront panel is provided (41-735_Panel.exe)

41-740 Dual Isolated 60W Power Supply Module (DC Input)

41-742 Dual Isolated 60W Power Supply Module (AC Input)

Manual: PXI028Manual.pdf, Section 2 – Drivers Installation
 Install Info: README.TXT
 Software: pxi028_Setup.exe
 Comments: Run pxi028_Setup.exe prior hardware installation.
 Default installation location **C:\Programs\PXI028**
 A softfront panel is provided (**SFP028.exe**)

41-750 Battery Simulator

Manual: PI Manual, Section 3 – Installation & Operation
 Software: This instrument is used as a switch module. For installing the right software, please refer to section **Switching/Series 40** of this document.
 Comments: A softfront panel is provided. Run 41-750-Setup.exe to install the SFP.

① 51-921 / 41-921 PCI-PXI Control Interface

Manual: PI User Manual, Section 2 – Installation
 Install Info: ReadMe.txt
 Software: 51-921 Driver Setup.exe
 Comments: installation is not shown in the control panel add/remove programs window but WinXP: displayed in the Device Manager as

 PCI standard PCI-to-PCI bridge
 Stargen Fabric PCI Adapter

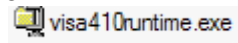
Auxiliary Software

VISA Runtime Library

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The Pickering pipx40 and pi40iv drivers require VISA implementation 4.1 or later.

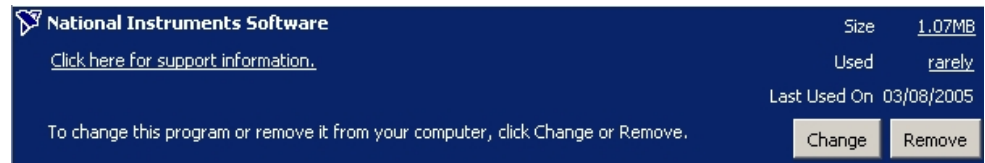
Software:



Comments:

Install NI VISA with defaults as recommended

WinXP: Displayed in the control panel add/remove programs as



IVI Engine

The Pickering pi40iv driver requires IVI Engine version 3.0 or later.

Software:

setup_pi40iv_zip-1.exe	the latest 16-bit version
pi40iv_208.msi	Version 2.08 the last PXI-only version, it also supports LabViewRT
pi40iv_260.msi	Version 2.60 (version on DVD and web site might be higher) the latest version, it supports both PXI and LXI based cards, it does not support LabViewRT

IVIs witch Class Driver

When using the pi40iv driver a set of basic IVI class drivers, including a driver for the IVIs witch class are available. An enhanced version is included in the NI IVI Driver Toolset.

Switching

③

Series 40

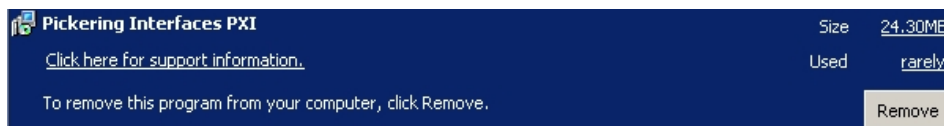
Manual: Sys40Prg.pdf
GettingStarted.pdf
Product related manuals
Install Info: ReadMe.txt
Software: setup.exe

Available file from the Pickering Interfaces web site

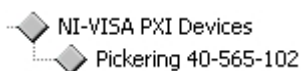
File Name	Size	Platform	Version
Pipx40vpp-31.zip	9.42 MB	2000/XP	2.58 or higher

Comments: Install NI VISA first, see section *Auxiliary Software* in this document.

WinXP: Displayed in the control panel add/remove programs as



WinXP: Device Manager shows



(product number will vary depending on used module)

Using Pickering Switches on LabVIEW RT Systems

Pickering's VISA driver is fully compatible with National Instruments LabVIEW environment, including the Real Time operating system LabVIEW RT.

Prerequisites

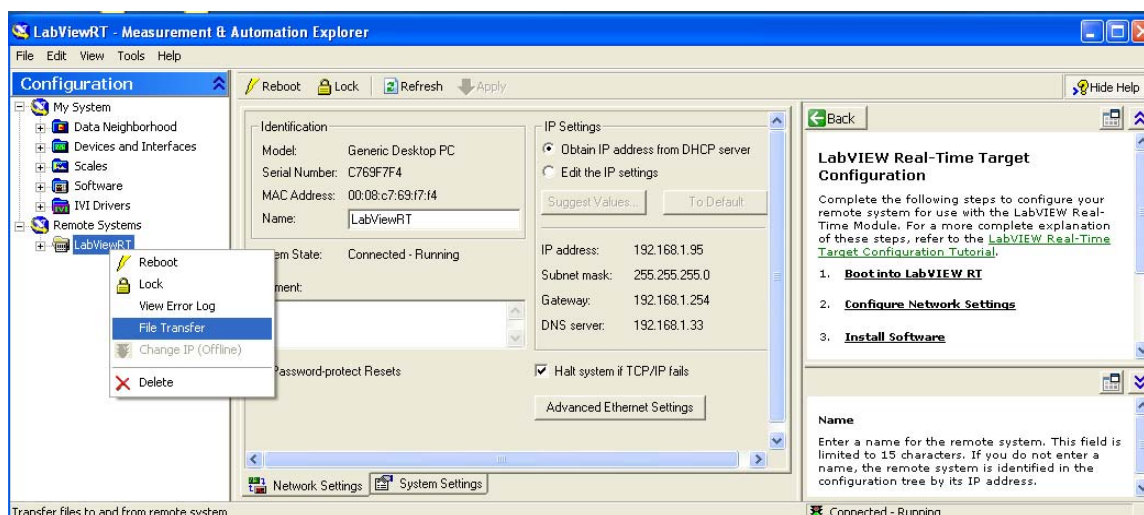
To develop code in LabVIEW RT for Pickering cards it is necessary to first install the Pickering VISA driver, pipx40, which in turn requires NI VISA.

Next, obtain the Pickering INF files suitable for LabVIEW RT. If they are not included in your current installation then they may be obtained from the Pickering web site. Unpack the files to a suitable temporary location on your PC. Alternatively, the normal INF files used on Windows PC's may be used for LabVIEW RT, but they have to be renamed to conform to an 8.3 filename convention, for example pipx40a_2k.inf should be renamed to pipx40a.inf for example. The new INF update has already taken care of that.

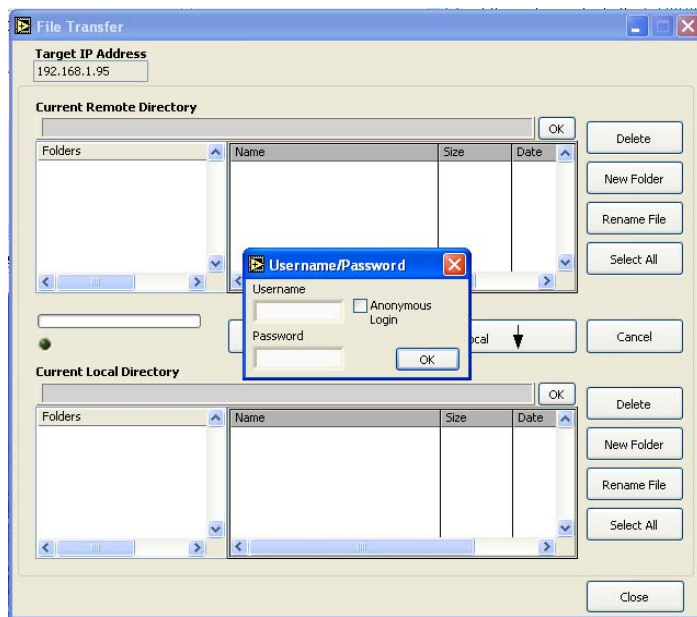
Then follow the instructions below to install the INF files on the target.

Configuring the RT target system

Execute National Instruments Measurement and Automation Explorer (MAX) and locate the system on which you wish to install Pickering hardware under Remote Systems in the Configuration panel.



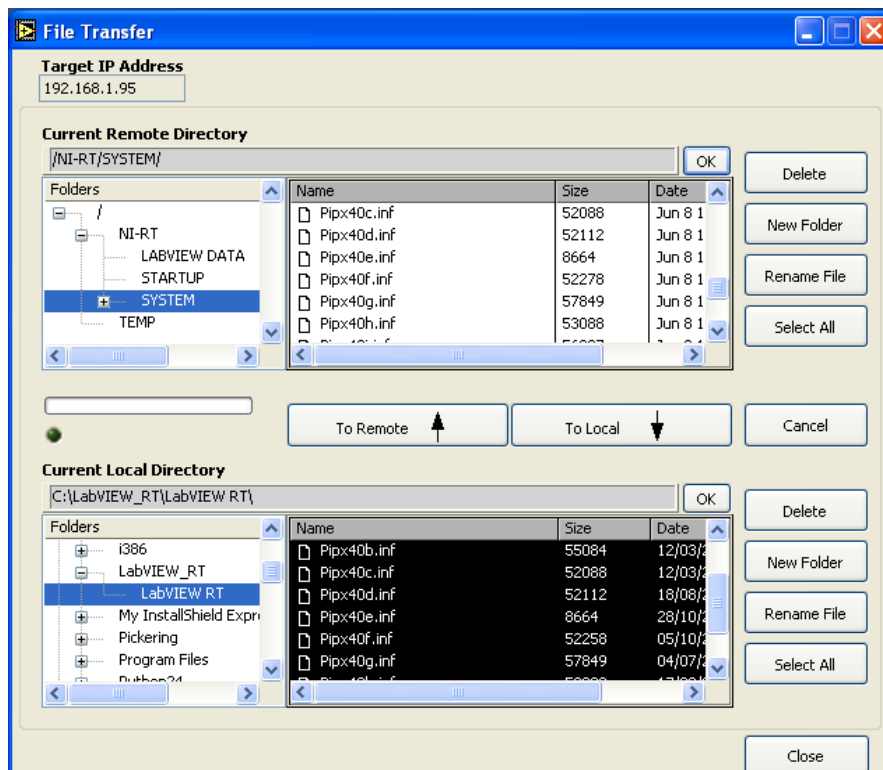
Right click on the system entry and select File Transfer.



Login in to the remote system.

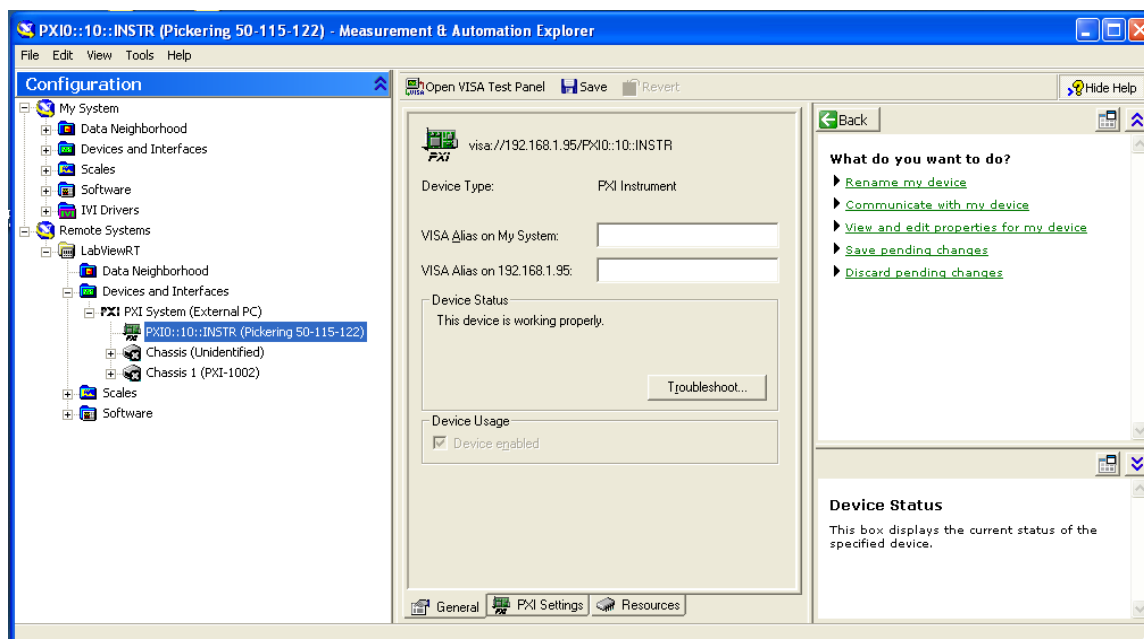
In the upper, Current Remote Directory, panel navigate to the /NI-RT/SYSTEM folder.

In the lower, Current Local Directory panel, navigate to the 'INF' files for the Pickering devices previously unpacked, select one or more of these files, then click on the 'To Remote' button to transfer these files to your RT target system.



If your Pickering cards are already fitted click on the Reboot button to re-start the remote system. If the Pickering cards are not yet fitted, then shut down the remote system, fit the cards and then re-start the system.

Once it has re-started, your Pickering cards should be visible from MAX.



Now your Pickering cards are available, you may continue with any other configuration tasks you may desire, for example setting VISA aliases.