NI Vision Acquisition Software Release Notes
June 2015

This file contains important information about National Instruments Vision Acquisition Software, including installation instructions, new features, fixed issues, and known issues.

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Overview

NI Vision Acquisition Software allows you to acquire, display, and save images; control digital I/O on National Instruments image acquisition devices; and configure your driver software and hardware.

NI Vision Acquisition Software includes the following drivers:

- NI-IMAQ is driver software for the following device types:
  - NI 17xx smart cameras
  - analog cameras
  - parallel digital cameras
  - Camera Link cameras

- NI-IMAQdx is driver software for the following device types:
  - NI 177x smart cameras
  - GigE Vision-compliant cameras
  - USB3 Vision-compliant cameras
  - IIDC/DCAM-compliant IEEE 1394 cameras
  - DirectShow-compatible cameras
  - Basler and Axis IP cameras

- NI-IMAQ I/O is driver software for controlling reconfigurable input/output (RIO) on image acquisition devices and real-time targets. The following hardware is supported by NI-IMAQ I/O:
  - NI CVS-1457RT
  - NI CVS-1458
  - NI CVS-1458RT
  - NI CVS-1459RT
  - NI EVS-1463RT
  - NI EVS-1464RT
  - NI PCI-8254R
  - NI PCIe-8255R
  - NI PCIe-8237R
  - NI PCIe-1473R
  - NI PCIe-1473R-LX110
  - NI 1483 FlexRIO Adapter Module

Refer to the NI Vision website at ni.com/vision for the latest information about NI Vision Acquisition Software.

System Requirements

The development computer must meet the following requirements to run NI Vision Acquisition Software:

<table>
<thead>
<tr>
<th>Processor</th>
<th>Pentium 4 1 GHz or equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>512 MB RAM</td>
</tr>
<tr>
<td>Display</td>
<td>1,024 × 768 resolution video adapter with a 16-bit display</td>
</tr>
<tr>
<td>Minimum Recommended Free Hard Disk Space</td>
<td>NI Vision Acquisition Software 3.5 GB</td>
</tr>
<tr>
<td></td>
<td>NI-IMAQ 1.5 GB</td>
</tr>
<tr>
<td></td>
<td>NI-IMAQdx 1.5 GB</td>
</tr>
<tr>
<td></td>
<td>NI-IMAQ I/O 2.5 GB</td>
</tr>
<tr>
<td>Operating System</td>
<td>Windows 8.1 (32- and 64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows 8.0 (32- and 64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows 7 (32- and 64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows Vista SP1 (32- and 64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows XP SP3 (32-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2012 R2 (64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2008 R2 SP2 (64-bit)</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2003 R2 SP2 (32-bit)</td>
</tr>
</tbody>
</table>

NI Application Software Support

The following table lists the NI application software versions, including service packs, supported by the NI Vision Acquisition Software. The installer specifically allows side-by-side installations of NI Vision Acquisition Software for each of the supported versions of LabVIEW, enabling you to use the NI Vision Acquisition Software with multiple versions of LabVIEW. National Instruments recommends that you install LabVIEW, LabVIEW Real-Time, and any other supported development environment before installing NI Vision Acquisition Software.

<table>
<thead>
<tr>
<th>NI Application Software</th>
<th>Versions Supported by NI Vision Acquisition Software</th>
</tr>
</thead>
</table>

Refer to the NI Vision website at ni.com/vision for the latest information about NI Vision Acquisition Software.
### Configuring NI-IMAQ

#### Installation Instructions

Complete the following steps to install an image acquisition device and configure NI-IMAQ:

1. You must install NI-IMAQ before installing your image acquisition device.

#### Note:

- You must have administrator access to install NI Vision Acquisition Software.
- You must have administrator access to install NI Vision Acquisition Software.

#### Remote Target Support

NI Vision Acquisition Software February 2013 was the last version of NI Vision Acquisition Software to provide support for the NI 1454, 1455, and 1456 Compact Vision Systems. NI Vision Acquisition Software February 2012 was the last version of NI Vision Acquisition Software to provide support for the NI 1762 and 1764 Smart Cameras. New software features of NI Vision Acquisition Software will not work on these devices.

#### New Features

This release of NI Vision Acquisition Software includes the following new features.

- **NI-IMAQ 15.0**
  - Support for LabVIEW 2015 (32- and 64-bit)

- **NI-IMAQdx 15.0**
  - Support for NI CVS-1458 running Windows Embedded Standard 7
  - Support for NI-IMAQdx 15.0

#### Updates and Improvements

The following list describes issues in previous versions of NI Vision Acquisition Software that are fixed in this release. If you have a CAR ID, you can search this list to validate that the issue has been fixed. This is not an exhaustive list of issues fixed in the current version of NI Vision Acquisition Software.

- **NI-IMAQdx.h** header file does not properly specify the calling convention for the GCC compiler when compiling for Windows.
- Various crash and stability issues with NI Vision Acquisition Software in MAX.
- The PXIe-1435 is not listed in the supported device list for NI-IMAQ examples in NI Example Finder.
- Unplugging a USB3 Vision device from an an NI Linux Real-Time target occasionally crashes the system.
- The "DeviceCode" Conditional Disable Symbol is not being added to NI Compact Vision Systems, Embedded Vision Systems, or Smart Cameras.
- Calling the IMAQdxs Close Camera VI on an invalid camera session takes 5 seconds to complete.
- NI-IMAQdx delays up to 2 seconds when exiting MAX during device discovery.
- Reading a USB3 Vision camera family name on an NI Linux Real-Time target sometimes returns bad data.
- Some N1-IMAQdx devices were reporting an "Attribute not supported by camera" error when opening the camera session due to missing support for some of the Representation types in the the device XML file.
- Acquiring an 8-bit Bayer image from certain FireWire cameras crashes the application.
- No cameras are visible under Devices and Interfaces in MAX on Embedded Vision Systems and NI 177x Smart Cameras when software is installed via Recommended Software Sets with the default selections.
- NI 1483 examples cannot deploy to real-time targets due to subpanels on the VI front panel.
- Acquiring from a GigE Vision camera in Listener Mode causes a crash on embedded targets running the NI Linux Real-Time operating system when GenICam Events are enabled on the camera.
- The 16-bit controls on the Acquisition Attributes tab for NI-IMAQdx cameras in MAX are not active when using a multibyte Bayer pixel format.

#### Installation Instructions

Complete the following steps to install NI Vision Acquisition Software:

**Note:** You must have administrator access to install NI Vision Acquisition Software.

1. Insert the NI Vision Acquisition Software installation media.
2. If you do not have autorun enabled, double-click autorun.exe. If you have autorun enabled, autorun.exe runs automatically.
3. Follow the onscreen instructions.

NI-IMAQ and NI-IMAQdxs integrate with NI Measurement & Automation Explorer (MAX), the National Instruments utility for configuring and testing your measurement and automation system. The NI MAX icon appears on your desktop after you install NI-IMAQ and NI-IMAQdx integrate with NI Measurement & Automation Explorer (MAX), the National Instruments utility for configuring and testing your measurement and automation system. The NI MAX icon appears on your desktop after you install NI Vision Acquisition Software.

**Installing from an NI Software Suite or NI Product Bundle**

If you purchased this product with an NI Software Suite or NI Product Bundle, use the installation media that shipped with your purchase to install this product.

**Configuring NI-IMAQ**

Complete the following steps to install an image acquisition device and configure NI-IMAQ:

**Note:** You must install NI-IMAQ before installing your image acquisition device.

1. Install your image acquisition device, and connect the camera. Refer to the device documentation for specific hardware installation instructions.
2. Run NI MAX.
   - Double-click the NI MAX icon on the desktop. You can use NI MAX to modify camera properties. Once you have saved these properties, they become the default settings for all NI-IMAQ applications.
3. Select a camera file, and acquire an image.
   - Click the plus sign next to the image acquisition device to expand the menu tree and list the available...
Configuring NI-IMAQdx

Complete the following steps to configure NI-IMAQdx for Windows:

1. Run NI MAX.
2. Connect the camera.
3. Install the NIC and any related drivers. Refer to the NIC device documentation for installation instructions.
4. Enable jumbo frames (frame packet size is greater than 1,500 bytes) on your NIC.
5. Select the largest frame size available and click OK.

Tip: For a complete list of supported cameras, right-click the channel or port, select Camera, and click Search ni.com.

Note: Refer to the right side of the MAX user interface, which displays context-sensitive help, for information about configuring image acquisition devices with NI MAX.

Configuration of Remote Image Acquisition Devices

Use NI MAX to install NI-IMAQ for LabVIEW Real-Time from the host machine onto the target system. The NI-IMAQ for LabVIEW Real-Time components enable the remote device to acquire and analyze images as directed by the host machine.

Note: Install NI-IMAQ and the LabVIEW Real-Time Module on the remote system before you install and configure the image acquisition device.

Tip: Configuring remote image acquisition devices is similar to configuring local image acquisition devices, except that the procedure for working with camera files is different. Refer to the Measurement & Automation Explorer Help for NI-IMAQ for information about working with camera files on remote image acquisition devices.

1. Launch NI MAX.
2. In the Configuration tree, expand Remote Systems.
3. Expand the appropriate system.
4. Expand Devices and Interfaces.
5. Expand NI-IMAQ Devices.
6. Expand the device you want to configure.

Refer to the Measurement & Automation Explorer Help for NI-IMAQ for information about configuring specific NI image acquisition devices. You can access this help file from the NI MAX Help menu by selecting Help > Help Topics > NI Vision > NI-IMAQ.

Configuring NI-IMAQdx

Complete the following steps to configure NI-IMAQdx:

1. If you are using a USB camera, ensure that the camera is compatible with DirectShow, and that the camera driver is installed.
2. Right-click one of the selected ports, and choose Update Driver.
3. Choose Browse my computer for driver software.
4. Browse to the driver location. The newest driver version is installed to <National Instruments>NIC NIMAQdxDriver<Staging>NI GigEVision<Current>.
5. Click Next.
6. Click Close.


1. Install the NIC.
2. Right-click the NIC in the Device Manager, and select Update Driver.
3. Choose Browse my computer for driver software.
4. Browse to the driver location. The newest driver version is installed to <National Instruments>NIC NIMAQdxDriver<Staging>NI GigEVision<Current>.
5. Click Next.
6. Click Close.

Windows XP and Windows Server 2003

1. Install the NIC.
   a. If Windows does not prompt you to choose a driver, proceed to step 2.
   b. If Windows prompts you to choose a driver, proceed to step 3.
2. Right-click the NIC in the Device Manager, and select Update Driver.
3. Choose not to connect to the Windows Update Web site, and click Next.
4. Choose to Install from a list or a specific location, and click Next.
5. Choose Don't Search. I will choose the driver to install.
6. Click Next.
7. Select National Instruments GigE Vision driver from the list, and click Next. The driver version that is compatible with Windows XP and Windows Server 2003 is installed to <National Instruments>NIC NIMAQdxDriver<Staging>NI GigEVision<NI-IMAQdxDriverMQL>.
8. Click Finish.

Configuring the High Performance GigE Vision Driver

If you have an Intel Pro/1000 Series gigabit Ethernet Network Interface Card (NIC), it is recommended that you install the High Performance GigE Vision Driver. This will ensure optimized performance and minimal configuration. To associate your hardware with the high performance driver, complete the following steps.

1. Install the NIC.
2. Right-click the NIC in the Device Manager, and select Properties.
3. Click the Advanced tab, and enable jumbo frames.
4. Click the Advanced tab, and Jumbo Frames will appear in the Property list if supported by your NIC.
5. Select the largest frame size available and click OK.

Note: The procedure for enabling jumbo frames on your NIC may vary by manufacturer. Refer to the NIC device documentation for more information about enabling jumbo frames.

3. Disable the Windows Firewall or any additional third party firewalls on the port. Windows Firewall can be disabled on individual ports from the Advanced tab of the Windows Firewall applet.

Configuring Multiple Ports (Windows XP only)

If you plan to use multiple ports with NI-IMAQdx, complete the following steps:

1. Open the Network Connections window in Windows, and select all of the ports that cameras will be connected to by holding <Ctrl> while clicking each port.
2. Right-click one of the selected ports, and choose Bridge Connections.

Note: If you are not using the High Performance Driver, you will be unable to use jumbo frames on bridged devices.

Configuring NI-IMAQdx for Windows

Complete the following steps to configure NI-IMAQdx for Windows:

1. Connect the camera.
2. Run NI MAX.
3. Double-click the NI MAX icon on your desktop. You can use NI MAX to modify camera attributes. After you have saved these attributes, they become the default settings for all NI-IMAQdx or NI Vision applications.
b. Expand Devices and Interfaces in the configuration tree to display a list of the cameras installed on your computer.

c. For IEEE 1394 and USB3 Vision cameras, NI-IMAQdx may not be associated with the camera if a third-party driver is installed. If this is the case, change the associated driver by right-clicking the camera and selecting Driver妮NI-IMAQdx.

d. Select the camera from the list. You then can view or modify the camera attributes on the Camera Attributes tab located below the image viewer.

Tip: Click the Show Help button to display the help window on the right side of the image viewer. Move your mouse over the properties to view context-sensitive help in the bottom half of the help window.

Automating the Installation of a Suited Installer

If you are given a choice of Recommended Software Sets, choose custom software installation and click Next to proceed with a custom installation.

- Select NI-IMAQdx, as well as any additional software you would like to install on the target machine.
- Click Next. Review the list of software you selected to install.
- Click Next to begin downloading the software to the target machine. When NI MAX has finished downloading the software, it restarts the remote device.
- Click Finish.

Custom installation

- Click the Software item below the RT target in the configuration tree.
- Click Add/Remove Software on the NI MAX toolbar to launch the LabVIEW Real-Time Software Wizard.
- Select Vision Software or NI CompactRIO under the version of the LabVIEW Real-Time Module you are using.
- Click Next.
- Select any additional add-ons you would like to install to the target machine. For some real-time targets, such as CompactRIO controllers, NI-IMAQdx or supported camera types will appear as an add-on.
- Click Next. Review the list of software you selected to install.
- Click Next to begin downloading the software to the target machine. When NI MAX has finished downloading the software, it restarts the remote device.
- Click Finish.

5. Connect your camera to your remote system.

6. Press <F5> to refresh the NI MAX configuration tree. Your camera should be listed in the Remote Systems list.

Tip: Press <F5> to refresh the configuration tree whenever you connect a new device to an RT target.

7. Expand Devices and Interfaces in the configuration tree to display a list of the cameras installed on your computer.

8. Select the camera from the list. You then can view or modify the camera attributes from the Camera Attributes panel located below the image viewer.

Automating the Installation of NI Products

You can automate the installation of most NI products using command-line arguments to suppress some or all of the installer user interface and dialog boxes. However, starting with the August 2012 releases (products using NI Installers version 3.1 or later), you may need to perform additional steps before or during a silent installation of NI software. If the NI product you are installing uses Microsoft .NET 4.0, the .NET installer may run before any NI software installs and later), you may need to perform additional steps before or during a silent installation of NI software.

For more information, refer to the following KnowledgeBase articles:

- For more information on silent installations of individual NI products, refer to KB 4CJDP38M, Automating the Installation of a Single Installer.
- For more information on silent installations of suited NI products, such as NI Developer Suite, refer to KB 4GGGDQH0, Automating the Installation of a Suited Installer.
- To determine what version of NI Installers your product contains, refer to KB 4CDR1BM, How Can I Determine the Type and Version of My National Instruments Installer?.

Known Issues

- Runtime installers are localized for deployment, but the development support installers are not. This could lead to a partially localized installation from a custom-built installer.
- Some NI Vision Acquisition Software examples listed in NI Example Finder in LabWindows/CVI do not launch properly from the Task view. You can launch them from the Directory Structure view, or you can access the examples from the installed location instead:
  - Windows 8.1/8/7/Vista/Server 2012/Server2008—C:\Users\Public\Documents\National Instruments\CVI\version\examples
  - Windows XP/Server 2003—C:\Documents and Settings\All Users\Documents\National Instruments\CVI\version\examples

NI-I MAQ

- In LabVIEW 2012, error codes returned during a property node read or write are not being reported correctly. The status flag is set correctly, to notify you that an error occurred, but the code is set to an invalid value.
- LabVIEW Project Explorer displays the NI 176x smart cameras as valid real-time targets. However, this version of NI-IMAQ does not support them.

NI-I MAQdx

- Volume License Manager attempts to check out available NI Vision Development Module licenses before trying NI Vision Acquisition Software licenses.
- Attempts to extend the evaluation period for NI Vision Acquisition Software licenses from within LabVIEW or the LabVIEW Runtime are unsuccessful in connecting to the Internet.
- Renaming a camera on some real-time targets may take a long time to complete.

NI-I MAQ J/O

- On NI CV5-1457RT, CV5-1459RT, and CV5-1459RT targets, serial configuration is not available in MAX. Programmatic configuration is still available in Vision Builder AI and LabVIEW.
- Only one NI PCIe-1473R framegrabber can use the virtual serial port at a time.
Documentation and Examples

Documentation and examples are installed onto your hard drive with NI Vision Acquisition Software. To view the documentation, select Start>All Programs>National Instruments>Vision+Documentation and then select the driver documentation. You can also navigate to <C Users/Public/Public Documents>National Instruments. Some application-specific documents are installed to the application help folder, as listed in the following sections.

Refer to the National Instruments Product Manuals Library at ni.com/manuals for the most recent versions of product documentation.

NI Vision Acquisition Software Documentation for NI MAX

You can access the Measurement & Automation Explorer Help for NI-IMAQ and the Measurement & Automation Explorer Help for NI-IMAQdx from the NI MAX Help menu by selecting Help=Help Topics=NX Vision. These documents are installed to <National Instruments>\MAX\Help.

NI Vision Acquisition Software Documentation for LabVIEW

You can access the NI-IMAQ VI Reference Help, NI-IMAQdx VI Reference Help, and NI Vision-RIO VI Reference Help from the LabVIEW Help menu.

NI Example Finder—Illustrates common applications you can create with NI Vision Acquisition Software. In LabVIEW, select Help=Find Examples. Click the Help button in the NI Example Finder to display the NI Example Finder Help. Vision Acquisition Software examples for LabVIEW are installed to <LabVIEW>\examples\Vision Acquisition, where <LabVIEW> is the location LabVIEW is installed.

NI Vision Acquisition Software Documentation for LabWindows/CVI

NI-IMAQ Function Reference Help—Contains reference information about NI-IMAQ functions for LabWindows/CVI.

NI-IMAQdx Function Reference Help—Contains reference information about NI-IMAQdx functions for LabWindows/CVI.

Function panel help within LabWindows/CVI—Allows you to right-click within each function to access help for that function, control, function class, and function library. The niimeq.fy, NIIMAQdx.fy, and imaqio.fy function panels are installed to <National Instruments>CVI\bin.

Example programs are installed to:
- Windows 8.1/8/7/Vista/Server 2012/Server 2008—C:\Users\username\Documents\National Instruments\CVI\version\samples
- Windows XP/Server 2003—C:\Documents and Settings\All Users\Documents\National Instruments\CVI\version\samples

NI Vision Acquisition Software Documentation for Eclipse and other Text-based Development Environments

Getting Started with C/C++ Development Tools for NI Linux Real-Time, Eclipse Edition with the NI Vision Development Module and NI-IMAQdx—Describes how to use the C/C++ Development Tools for NI Linux Real-Time, Eclipse Edition to develop an example C application using the NI Vision Development Module API and/or NI-IMAQdx, and deploy it on a Linux remote target. This tutorial outlines the basic steps required to build and deploy an example application. This document is installed to <National Instruments>Vision+Help.

To view text-based example programs, select Start>All Programs>National Instruments>Vision+Examples, and then select the driver you want to see examples for. You can also navigate to <C Users/Public/Public Documents>National Instruments.

How to Use NI Software with Microsoft Windows 8.x

When you install National Instruments software on Microsoft Windows 8.x, you will notice a few additional tiles on the Start screen, including shortcuts to NI application products such as NI Vision Acquisition Software (MAX), and the new NI Launcher.

Using NI Launcher

NI Launcher helps you find and launch installed NI products. It provides you with a method of finding NI products similar to the Start menu in previous versions of Microsoft Windows. To use NI Launcher, click the NI Launcher tile on the Start screen.


NI Vision Acquisition Software will drop support for Microsoft Windows Vista, Windows XP, and Windows Server 2003 as of July 1, 2016. Versions of NI Vision Acquisition Software that ship after July 1, 2016 will not install or run on Windows Vista, Windows XP, or Windows Server 2003. For detailed information about NI application software product life cycles, visit ni.com/info and enter one of the following Info Codes:

<table>
<thead>
<tr>
<th>Product</th>
<th>Info Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI LabVIEW</td>
<td>lifecycle</td>
</tr>
<tr>
<td>NI LabWindows™/CVI™</td>
<td>cvi_lifecycle</td>
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<tr>
<td>NI Measurement Studio</td>
<td>mstudiolifecycle</td>
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<td>NI TestStand</td>
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<td>NI DIAdem</td>
<td>dotkpe</td>
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<tr>
<td>NI SignalExpress</td>
<td>seltp</td>
</tr>
<tr>
<td>NI VeriStand</td>
<td>rvlifeycle</td>
</tr>
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</table>

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- Notices are located in the `<National Instruments>_Legal Information` and `<National Instruments>` directories.
- EULAs are located in the `<National Instruments>\Shared\MDF\Legal\license` directory.
- Review `<National Instruments>_Legal Information.txt` for information on including legal information in installers built with NI products.

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