

Getting Started with NI-IMAQ™

This document describes how to install the NI-IMAQ software. Refer to the `readme.rtf` file included with the software for the most up-to-date information about this release of NI-IMAQ.

What's New in NI-IMAQ 3.5

This release of NI-IMAQ includes the following revisions:

- Support for the NI PCIe-1430 device.
- Support for quadrature encoder on the NI PCI-1426, NI PCIe-1429, and NI PCIe-1430 devices.
- Support for extended image buffer allocations on Windows operating systems.
- Support for simultaneous Camera Link serial port access from multiple processes.

Upgrading from NI-IMAQ 2.x

NI-IMAQ 3.5 is the latest generation driver in the NI Vision product line. NI-IMAQ 3.x is designed to provide the same functionality as NI-IMAQ 2.x. However, in some cases, NI knowingly changed functionality to improve overall performance, stability, and user experience. These cases are documented in the [Upgrade Considerations](#) section of this document.



Note Upgrading from NI-IMAQ 3.1 will not change functionality.

Software Components

The NI-IMAQ software kit contains the following components:

- NI-IMAQ device driver software
- NI-IMAQ libraries for Microsoft Visual C/C++ 6.0 and later
- IMAQ Vision ActiveX hardware control for Microsoft Visual Basic
- NI-IMAQ VIs for LabVIEW 7.0 and later
- NI-IMAQ for LabWindows™/CVI™ 6.0 and later, including libraries and function panels
- Measurement & Automation Explorer (MAX)
- NI-IMAQ sample code
- Online documentation

System Requirements

The development computer must meet the following minimum system requirements to run NI-IMAQ:

- Windows 2000/XP
- Pentium III 750 MHz processor
- 256 MB RAM
- 150 MB free space
- Monitor that supports 1024 × 768 resolution
- Internet Explorer 5.0 or later to view online documentation

Installation

Complete the following steps to install NI-IMAQ and the image acquisition device.



Note You must have administrator access to install NI-IMAQ 3.5.



Note You must install NI-IMAQ before installing the image acquisition device.

1. Insert the NI-IMAQ CD into the drive. An autorun screen appears.
2. Click **Install National Instruments Software** to launch the installer, and follow the instructions on the installation screens.



Caution Power off and unplug the computer before installing the hardware. Wait for any motherboard LEDs to power off before proceeding, since some computers remain powered for some time after being unplugged.

3. Install the image acquisition device, and connect the camera. For specific hardware installation instructions, refer to the device documentation.



Note If you have to manually associate the image acquisition device with the NI-IMAQ driver software, Windows may return a warning stating that the driver is unsigned. It is safe to ignore the warning.

4. Run MAX.

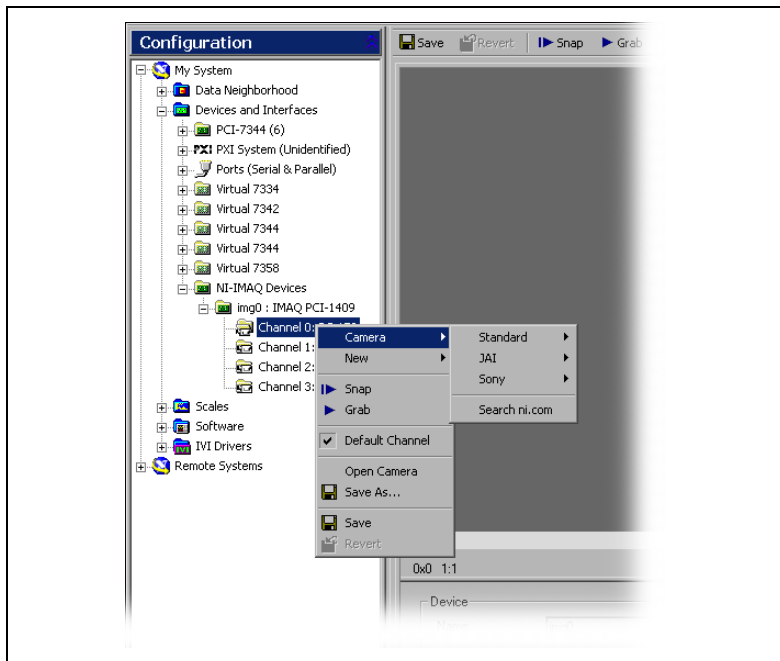


- a. Double-click the MAX icon on the desktop. You can use MAX to modify camera properties. Once you have saved these properties, they become the default settings for all NI-IMAQ applications.
- b. Expand **Devices and Interfaces** and **NI-IMAQ Devices** to display a list of the installed image acquisition devices.



Note Only one application can access the image acquisition device at any given time. Selecting an image acquisition device in MAX opens a session to the device, and the open session prevents other applications from accessing the device. To allow applications to access an image acquisition device, deselect the device in MAX to close the session.

5. Select a camera file, and acquire an image.
 - a. Click the plus sign next to the image acquisition device to expand the menu tree and list the available channels or ports.



- b. Right-click the channel or port to display a list of available cameras.
- c. Select the appropriate camera type from the list. Camera type selection varies according to the image acquisition device installed.
- d. To change the camera settings, modify the parameters at the bottom of the image viewer panel.



- e. Click the **Snap** button on the toolbar to acquire an image.



- f. Click the **Grab** button on the toolbar to acquire images continuously. A grab allows you to focus the camera.



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 MAX.

Using NI-IMAQ to Remotely Configure an NI Vision Device in a Remote LabVIEW Real-Time Target

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



Note Install NI-IMAQ and LabVIEW RT on the remote system before you install and configure the image acquisition device. Follow the steps in the MAX help window to install software.



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 *NI-IMAQ Help* for information about working with camera files on remote image acquisition devices.

1. Launch MAX.
2. 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.
7. Refer to the *NI-IMAQ Help* for the steps to configure an image acquisition device.

About the Online Manual Set

The complete NI-IMAQ software documentation set is available online. The NI Vision hardware and software documentation set ships with the software as Adobe Acrobat portable document format (PDF) files and HTML Help files. To view the PDF documents, select **Start»All Programs»National Instruments»Vision»Documentation**, and choose the appropriate document. This automatically launches the Acrobat Reader and opens the selected PDF file. You can customize the manuals by printing either the entire documentation set or only the sections relevant to your application.



Note You must have Adobe Acrobat Reader with Search and Accessibility 5.0.5 or later installed to view the PDFs. Refer to the Adobe Systems Incorporated Web site at www.adobe.com to download Acrobat Reader.

The NI-IMAQ software online help and PDF documentation is installed, with the NI-IMAQ software, onto the hard drive at <NI-IMAQ>\Docs. To view the online help, select **Start»All Programs»National Instruments»Vision»Documentation**, and choose **NI-IMAQ Function Reference Help**. You can access **NI-IMAQ VI Reference Help** from the LabVIEW **Help** menu.

Upgrade Considerations

In an effort to improve the performance, usability, and robustness of NI-IMAQ, some functionality has changed or been removed from NI-IMAQ. Review the following list before upgrading to version 3.5 from version 2.x.

The following list includes information about behavior enhancements included in NI-IMAQ 3.x:

- Error codes and descriptions have been modified to include more descriptive information about what caused the error. Errors are now more specific, describing when parameters are out of range. Additionally, the attribute-related error is returned when setting the attribute rather than when you start the acquisition. If your application traps on specific errors, you may need to modify the application to use the new error codes. This change is most evident when using the property node in LabVIEW or `imgSetAttribute` in C or Visual Basic.
- Only one process can have access to an image acquisition device at any given time. This behavior guarantees that an application that is using the device cannot be disrupted by a secondary application that tries to access it.
- The IMAQ Copy VI has been deprecated. The VI is still included in the LabVIEW API, and current applications will continue to work. The deprecated VI is distinguished by a large red X on the icon, which appears in source code. For future development, use the IMAQ Copy Acquired Buffer VI in the place of IMAQ Copy. IMAQ Copy Acquired Buffer provides more flexibility in cases where you request a buffer that is no longer in memory.

- The C API now requires that all Acquisition Windows and regions of interest (ROIs) be properly aligned with the NI Vision hardware capabilities. Valid settings are device- and camera-dependent. You can get a valid size by calling `imgSessionFitROI`. This function takes any ROI and returns the closest valid ROI for the specific application.

The following list includes information about functionality that has been removed from NI-IMAQ 3.5:

- NI-IMAQ 3.5 only supports the LabVIEW Real-Time Module 7.1 with the LabVIEW Real-Time Module 7.1.1 patch. If you use LabVIEW Real-Time Module 7.0 or earlier, continue to use NI-IMAQ 3.0. If you use LabVIEW Real-Time Module 7.1, upgrade to the LabVIEW Real-Time Module 7.1.1 patch before installing NI-IMAQ 3.5.



Note The LabVIEW Real-Time Module 7.1.1 patch is a free upgrade that can be downloaded from the **Drivers and Updates** section of `ni.com`.

Known Issues

Refer to the NI-IMAQ Readme file, `readme.rtf`, for a list of late-breaking known issues.



Note The NI-IMAQ Readme is available from the installer welcome screen and from **Start»All Programs»National Instruments»Vision»Documentation**.

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