

Getting Started with IMAQ™ for Windows 2000/NT/XP

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 3.0

This release of NI-IMAQ includes the following revisions:

- Improved device configuration interface in Measurement & Automation Explorer (MAX)
- Remote configuration support for LabVIEW Real-Time (RT) targets
- Support for the following new IMAQ devices: PCI-1405 and PXI-1428
- Improved system performance for continuous and triggered acquisition
- Trigger routing support for existing IMAQ devices

Upgrading from NI-IMAQ 2.x

NI-IMAQ 3.0 is the latest generation driver in the IMAQ product line. It contains significant enhancements to the structure of the driver, providing a more robust, higher-performance product than the first generation. NI-IMAQ 3.0 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.

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 6.0 ActiveX hardware control for Microsoft Visual Basic
- NI-IMAQ VIs for LabVIEW 6.1 and later
- NI-IMAQ for LabWindows™/CVI™ 6.0 and later, including libraries and function panels
- 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/NT/XP
- Pentium III 750 MHz processor
- 256 MB RAM
- 150 MB free space
- Monitor that supports 1024 × 768 resolution

Installation



Note You must have administrator access to install NI-IMAQ 3.0.

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



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

1. Insert the NI-IMAQ CD into the drive. An autorun screen appears.
2. Click **Install NI-IMAQ 3.0** to launch the NI-IMAQ 3.0 installer, and follow the instructions on the installation screens.
3. Install the IMAQ device and connect the camera. For specific hardware installation instructions, refer to the IMAQ device documentation.



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



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.

4. Run MAX and the NI-IMAQ self tests.



- 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** to display a list of the installed IMAQ devices.

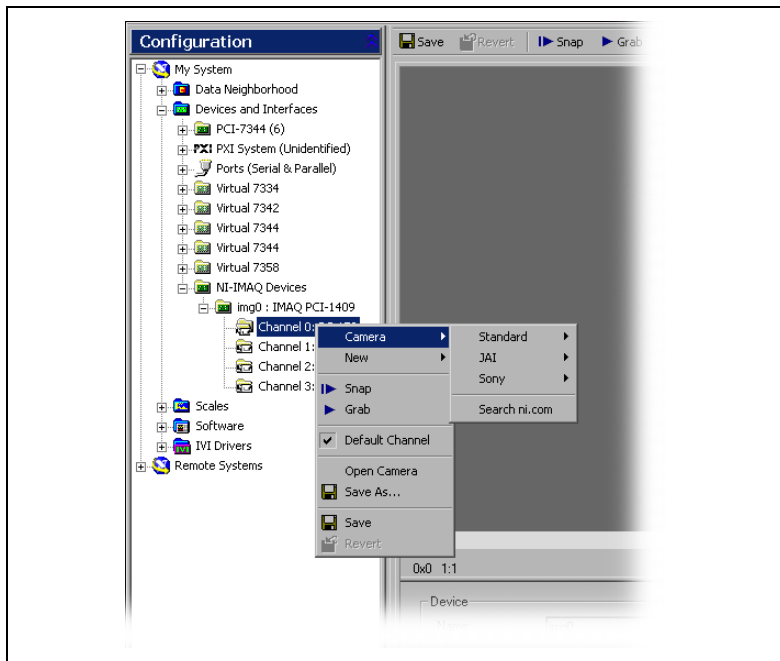


- c. Click once on the IMAQ device you want to test. Click **Self Test** on the toolbar to open the diagnostics window. Click **Run Tests** to run the diagnostics.



Note Only one application can access the IMAQ device at any given time. Selecting an IMAQ 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 IMAQ 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 IMAQ device to expand the menu tree and list the available channels.



- b. Right-click the channel to display a list of cameras.
- c. Select the appropriate camera type from the list. Camera type selection varies according to the IMAQ device is 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, select **Camera**, and click **Search ni.com**.



Note For help regarding how to use MAX to configure IMAQ devices, refer to the right side of the MAX user interface, which displays context-sensitive help.

Remotely Configure an IMAQ Device and Install the NI-IMAQ for LabVIEW RT Software

Use MAX to install NI-IMAQ for LabVIEW 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 the IMAQ device and configure it. Follow the steps in the MAX help window to install software.



Tip Configuring remote IMAQ devices is similar to configuring local IMAQ devices, except that the procedure for working with camera files is different. Refer to the *Measurement & Automation Explorer Help for IMAQ* for information about working with camera files on remote IMAQ 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 *Measurement & Automation Explorer Help for IMAQ* for the steps to configure an IMAQ device.

About the Online Manual Set

The complete NI-IMAQ software documentation set is available online. The IMAQ hardware and software documentation set ships with the software as Adobe Acrobat portable document format (PDF) files and HTML Help files. To view one of the PDF documents, double-click the `DocList.pdf` file located in the `Documents` folder on the NI-IMAQ CD. Click any document name to launch the document you want to view.



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 also is installed onto the hard drive with the NI-IMAQ software. To view the online help, select **Start»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.

To view the PDF documents, select **Start»Programs»National Instruments»Vision»Documentation**, and choose the appropriate document. This automatically launches the Acrobat Reader and opens the selected PDF file. You then can customize the manuals by printing either the entire documentation set or only the sections relevant to the application.

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 3.0 from a previous version of the driver software.

The following list includes information about behavior enhancements included in NI-IMAQ 3.0:

- Error codes and descriptions have changed to include more descriptive information about what caused the error. Errors are now very 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 IMAQ 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 IMAQ 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 3.0:

- NI-IMAQ no longer supports Borland C++. If you use Borland C++, continue to use NI-IMAQ 2.6.1.
- NI-IMAQ no longer supports LabVIEW RT 6.1.
- The StillColor feature has been removed. If your application requires StillColor, continue to use NI-IMAQ 2.6.1.

- NI-IMAQ 3.0 does not support Windows Me/98/95. If you use one of these platforms, continue to use NI-IMAQ 2.6.1.
- The hardware scaling feature is no longer supported.
- The auto snap feature has been removed from MAX.

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 is accessible from **Start»Programs»National Instruments»Vision**.

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