

RELEASE NOTES

NI Vision Builder for Automated Inspection

Version 3.0

These release notes include the system requirements for NI Vision Builder for Automated Inspection 3.0 (Vision Builder AI), installation instructions, device support, and known issues.

For the most up-to-date information about the Vision Builder AI software, refer to the `Readme.wri` file located on the Vision Builder AI CD.

What's New in Vision Builder AI

This section describes the new features available in Vision Builder AI.

- **Configurable Process Model**—An updated, flexible process model, which allows users to create a state diagram that controls the flow of execution for the inspection.
- **Dynamic Region of Interest**—Defines and manipulates dynamic ROIs within an inspection.
- **Global Variables**—Allows the user to define and reference data from within the inspection script, and allows the user to pass data among states within the inspection.
- **Defect Detection**—Compares areas of an image to a golden template and returns differences.
- **Custom Overlays**—Overlays graphics, data, and text onto the inspection image.
- **Data Matrix Grading**—Enhancements in speed and accuracy and functions that output the ISO 16022 (AIM) grade for a given Data Matrix barcode.

- Optical Character Verification—Verifies the accuracy of characters within an image.
- Updated I/O Steps—The updates include support for both Digital and Analog NI-DAQmx devices, and single shot pulse generation and change detection on NI-IMAQ I/O devices.
- GigE Vision camera support—Allows you to acquire images from GigE Vision cameras.

System Requirements

To configure inspections using Vision Builder AI 3.0, the host machine must meet the following requirements:

	Minimum	Recommended
Processor	233 MHz Pentium or equivalent	Pentium 4/M or equivalent
Memory	256 MB RAM	512 MB RAM
Display	1,024 × 768 resolution video adapter with a 16-bit display	1,024 × 768 resolution video adapter with a 24- or 32-bit display
Operating System	Microsoft Windows 2000/XP	
Browser	Microsoft Internet Explorer 5.0 or later	
Free Hard Disk Space	700 MB	



Note If you have Windows XP Service Pack 2 installed, refer to the [Known Issues](#) section for information about how Windows XP SP2 affects Vision Builder AI.

Installation Procedure

Complete the following steps to install Vision Builder AI.



Note You must be logged in with administrator privileges to install Vision Builder AI.

1. Insert the Vision Builder AI CD into your CD-ROM drive. If the CD startup screen does not appear, use Windows Explorer to run `setup.exe` from the Vision Builder AI CD.
2. Follow the setup instructions on your screen.

Directory Structure

The Vision Builder AI installer creates the following directory structure under the Vision Builder AI 3.0 directory.

- Program and support files.
 - bin folder
 - LV folder
 - Menus folder
 - Plugins folder
- DemoImg folder—Sample images.
- Examples folder—Tutorials and examples.
- Help folder—Vision Builder AI online help files.
- Manuals folder—Portable Document Format (PDF) versions of these release notes, the *NI Vision Builder for Automated Inspection Tutorial*, and the *NI Vision Concepts Manual*. You must have Acrobat Reader installed to view these documents.
- Plugins folder—Additional support files.
- UserPlugins folder—Custom step files are saved here when you use the Vision Builder AI Development Toolkit.
- ActiveX Support folder—Example programs that demonstrate the use of the Vision Builder AI ActiveX component in Microsoft Visual Basic and National Instruments LabVIEW.
- VAA folder—Vision Assistant step files.

Licensing Vision Builder for Automated Inspection

When you run a Vision Builder AI application for the first time, it will prompt you to activate a license for the product. If you do not activate a valid license, Vision Builder AI will run in Evaluation mode and continue to prompt you to activate a license on each subsequent launch.

If you did not activate Vision Builder AI during the installation process, complete the following steps to activate the Vision Builder AI license through an Internet connection.

1. Launch Vision Builder AI.
2. Click **Yes** when prompted to interactively activate Vision Builder AI.
3. Check that **Automatically activate through a secure Internet connection** is selected, and click **Next**.
4. Enter your serial number, and click **Next**.
5. Enter your registration information, and click **Next**.

6. You can enter your email address to receive a copy of your activation code for your records.

After completion of these steps, the product(s) you installed are activated.

The following licensing options are available:

- Vision Builder AI 3.0 (778649-01)—Licenses the Full-Featured version of Vision Builder AI.
- Vision Builder AI 3.0 Run-Time (779799-03)—Licenses the Run-Time version of Vision Builder AI.
- Vision Builder AI Development Toolkit (779343-03)—Licenses only the Vision Builder AI Development Toolkit.

Deployment Policy for Vision Builder AI

Pursuant to the National Instruments Software License Agreement, Vision Builder AI software is licensed to run on only one machine. Deployed applications that use Vision Builder AI require that Vision Builder AI be installed and licensed on each host machine. Therefore, you must purchase a Vision Builder AI license for each host machine. The following licensing options are available for Vision Builder AI:

- Vision Builder AI Full-Featured (part number 778649-01)—Allows full access to all of features of Vision Builder AI, which can be used to configure, benchmark, and deploy inspections.
- Vision Builder AI Run-Time (part number 779799-03)—Allows you to deploy existing inspections to a host machine and modify the control values for steps in an inspection. The Vision Builder AI run-time license does not allow you to add or remove steps to an inspection.

For more information, refer to the enclosed National Instruments Software License Agreement or go to ni.com/legal/license.

National Instruments Device Support

Vision Builder AI supports various image acquisition devices, the NI CVS-1450 Series compact vision system, NI digital I/O and data acquisition (DAQ) devices, IEEE 1394 industrial digital cameras, GigE Vision cameras, and serial devices.

Image Acquisition Devices

This version of Vision Builder AI supports the following National Instruments image acquisition devices:

- NI PCI-1405
- NI PCI/PXI-1407
- NI PCI/PXI-1409
- NI PCI-1410
- NI PCI/PXI-1411
- NI PCI/PXI-1422
- NI PCI-1424
- NI PCI-1426
- NI PCI/PXI-1428
- NI PCIe-1427
- NI PCIe-1429
- NI PCIe-1430



Note If you are using an image acquisition device, you must install NI Vision Acquisition Software before you install the image acquisition device. NI Vision Acquisition Software gives you access to Measurement & Automation Explorer (MAX), which is software you can use to configure National Instruments devices.

IEEE 1394 (FireWire®) Cameras

This version of Vision Builder AI supports the NI PCI/PXI-8252, NI PCI-8254R, and NI PCIe-8255R IEEE 1394 host adapters.

If you want to use IEEE 1394 industrial video cameras with Vision Builder AI, you need NI-IMAQ for IEEE 1394 Cameras 2.0 or later. You must also associate the driver software with the camera you want to use to acquire images. IEEE 1394 driver software can be installed from the NI Vision Acquisition CD included with Vision Builder AI. As of NI Vision Acquisition Software 8.2.1, all of the functionality of NI-IMAQ for IEEE 1394 Cameras driver software has been bundled into the NI-IMAQdx driver software.

If you have an existing inspection that uses the **Acquire Image (IEEE 1394)** step or you want to use the **Acquire Image (IEEE 1394)** step to acquire images from an IEEE 1394 camera connected to the host computer, you must configure the camera to use the legacy NI-IMAQ for IEEE 1394 Cameras driver. Complete the following steps to use MAX to

configure the camera to use the legacy NI-IMAQ for IEEE 1394 Cameras driver.

1. Launch MAX.
2. In the MAX configuration tree, expand **Devices and Interfaces** to obtain a list of installed devices.
3. Expand **NI-IMAQdx Devices** to obtain a list of available cameras.
4. Right-click the camera and select **Driver»NI-IMAQ IEEE 1394 IIDC Digital Camera**. The camera should appear in the MAX configuration tree under **Legacy NI-IMAQ IEEE 1394 Devices**.

You are now ready to acquire an image using the **Acquire Image (IEEE 1394)** step.

To use the **Acquire Image (IEEE 1394 or GigE)** step to acquire images from an IEEE 1394 camera, you must configure the camera to use the NI-IMAQdx driver. Complete the following steps to use MAX to configure the camera to use the NI-IMAQdx driver.

1. Launch MAX.
2. In the MAX configuration tree, expand **Devices and Interfaces** to obtain a list of installed devices.
3. Expand **NI-IMAQdx Devices** to obtain a list of available cameras.
4. Right-click the camera and select **Driver»NI-IMAQdx IIDC Digital Camera**.

You are now ready to acquire an image using the **Acquire Image (IEEE 1394 or GigE)** step.

For additional information about the migration from NI-IMAQ for IEEE 1394 Cameras to NI-IMAQdx, refer to the *NI Vision Acquisition Software Release Notes*.

NI CVS-1450 Series Compact Vision System

Vision Builder AI 3.0 supports the NI CVS-1450 Series compact vision system, allowing you to remotely configure and control the device. If you want to use a CVS-1450 device with Vision Builder AI, you need to install NI-IMAQ for IEEE 1394 Cameras 2.0 or later.



Note If you are using Vision Builder AI with a CVS-1450 device, you must install NI-IMAQ for IEEE 1394 Cameras 2.0 or later *after* you install Vision Builder AI 3.0. For more information, refer to the *NI CVS-1450 Series Compact Vision System Quick Start Guide*, which is included with every CVS-1450 device.

Digital I/O

This version of Vision Builder AI supports digital and analog I/O from any National Instruments DAQ device using DAQ Global Channels. To support NI DAQ devices, Vision Builder AI requires NI-DAQmx 8.0 or later.

DAQmx Global Channels

Use MAX to create DAQmx Global Channels. For information about creating DAQmx Global Channels, refer to the *DAQ Assistant Help* in MAX.

Serial

To support serial communication, Vision Builder AI requires NI-VISA 2.6.0 or later. You can use the serial ports built into your PC or one of the following NI serial interfaces: NI PCI-232/x, NI PXI-8420/x, or NI PXI-8422/x.

Known Issues

The following list contains information about known issues with Vision Builder AI 3.0.

- When you choose **Select Network Target** in Vision Builder AI while the Windows XP SP2 Internet Connection Firewall is enabled, a dialog box may open, giving you the option to allow Vision Builder AI to receive information over a network. National Instruments recommends that you select **Unblock this program** so that Vision Builder AI can configure your remote NI CVS-1450 Series device. You must be logged in with administrator privileges to configure this networking option. Visit ni.com/info and enter `winxpsp2` for more information.
- Vision Builder AI might not display an inspected image if the image is large and your computer is running out of memory.
- When using the Vision Builder AI ActiveX component while the Windows XP SP2 Internet Connection Firewall is enabled, a dialog box may open, giving you the option to allow VBAI_Server to receive information over a network. You must select **Unblock this program** to use the Vision Builder AI ActiveX component. You must be logged in with administrator privileges to configure this networking option. Visit ni.com/info and enter `winxpsp2` for more information.
- When using the Vision Builder AI ActiveX component, the `NIVBAITargetMode` setting is not available. Therefore, the connection to a target always allows full control.

Using the Vision Builder AI Documentation

The Vision Builder AI documentation set includes the following documents:

- These release notes
- Online help embedded into the Vision Builder AI software
 - *NI Vision Builder for Automated Inspection: Configuration Help*
 - *NI Vision Builder for Automated Inspection: Inspection Help*
- *NI Vision Builder for Automated Inspection Tutorial*
- *NI Vision Builder for Automated Inspection Development Toolkit User Guide*
- *NI Vision Builder for Automated Inspection: ActiveX Component Reference Help*
- *NI Vision Concepts Manual*

PDF Documents

You must have Acrobat Reader installed on your computer to view PDF files.



Note If you do not already have Acrobat Reader version 4.0 or later installed on your computer, refer to the Adobe Systems Incorporated Web site to download the Acrobat Reader.

To view the installed PDF documents, select **Start»All Programs»National Instruments»Vision Builder AI 3.0»Documentation**, and select the document you want to view.

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