

RELEASE NOTES

NI Vision 8.2.1 Development Module

This document outlines new functionality, system requirements, installation procedures, and descriptions of the documentation included with the NI Vision Development Module.

The Vision Development Module is for engineers and scientists who are developing machine vision and scientific imaging applications. The Vision Development Module includes NI Vision and NI Vision Assistant. NI Vision is a library of powerful functions for image processing, and is available for LabVIEW, LabWindows™/CVI™, and Microsoft Visual Basic. NI Vision Assistant is an interactive environment for developers who need to quickly prototype vision applications without programming. In addition, the Vision Development Module ships with the NI Vision Acquisition Software CD, which includes National Instruments driver software for controlling image acquisition products.

Refer to the `readme.rtf` file, included with the software, for the most up-to-date information about the Vision Development Module.

What's New in the Vision Development Module

This section describes the new features available in the Vision Development Module.

- Golden Template Comparison—Functions for comparing the pixel intensities of an image under inspection to a golden template. A golden template is an image containing an ideal representation of an object under inspection.
- Data Matrix—Enhancements in speed and accuracy and functions that output the ISO 16022 (AIM) grade for a given Data Matrix barcode.
- Geometric Matching Enhancements:
 - Calibrated Images—Uses calibration information attached to the inspection image to return the location, orientation, and angle of a match in pixels and real-world units.
 - Multiple Template Matching—Simultaneously locate multiple grayscale templates within a single grayscale image.
- Shape Detection—Functions for detecting circles, ellipses, lines, and rectangles within images.
- Curve Extraction—Functions for finding curves in a grayscale image.
- Watershed Transform—Partitions an image based on the topographic surface of the image. The image is separated into non-overlapping segments with each segment containing a unique particle.
- Locally Adaptive Threshold (Local Thresholding)—Creates a binary image by segmenting a grayscale image into a particle region and a background region, based on the specified local thresholding method.
- Optical Character Verification—An application for verifying the accuracy of characters within an image.
- JPEG2000 File I/O—Support for reading and writing JPEG2000 files.
- Support for LabVIEW 8.2.1.
- Support for Microsoft Windows Vista.



Note The Vision Development Module supports interoperability between the NI Vision ActiveX controls and Microsoft Visual Studio .NET 2003. Refer to the `readme.rtf` file for more information.

What's New in Vision Assistant

Vision Assistant includes the following additions:

- Run LabVIEW VI step—Allows users to call custom LabVIEW VIs from within Vision Assistant scripts.
- Image Overlay step—Overlay figures, text, and bitmaps onto an image without destroying the image data.
- Image Annotation—Save data with an image file.
- Support for 64-bit RGB images.
- Annulus ROI support for OCR/OCV step.
- GigE Vision camera support—Allows you to acquire images from GigE Vision cameras.
- Japanese language support—Vision Assistant software and documentation are available in Japanese.

System Requirements

The development computer must meet the following minimum system requirements to run the Vision Development Module:

	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
Free Hard Disk Space	700 MB	1 GB
Operating System	Microsoft Windows Vista/XP/2000	
Browser	Microsoft Internet Explorer 5.0 or later	
* Vision Assistant is best displayed using the Windows default font size with the system DPI set to 96 DPI.		



Note If you are acquiring images with NI Vision Assistant, the system must have National Instruments image acquisition hardware and Vision Acquisition Software 8.0 or later installed.



Note If you want to take advantage of LabVIEW Real-Time Module support, the remote system must meet additional system requirements. Refer to the *NI-IMAQ Help* for information about remote system requirements.

Installing the Vision Development Module

Complete the following steps to install the Vision Development Module.

1. Insert the Vision Development Module CD in the CD-ROM drive.
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.

By default, the Vision Development Module installation program creates a new folder, `C:\Program Files\National Instruments\Vision`, that contains the following items:

- Documentation folder—NI Vision user manuals, VI and function reference help, and other documents.
- dotNET folder—ActiveX interoperability libraries
- Examples folder—Example programs for C, Visual Basic, and Visual Basic .NET
- Images folder—Images used by example programs
- Include folder—Header files for C/C++
- Lib folder—Import libraries for C/C++
- OCR folder—Common OCR character sets
- Run-Time Engine folder—Run-time support for deploying NI Vision applications
- Source folder—Source code for the NI Vision library
- Utility folder—Training interface program files
- `readme.rtf`—Late-breaking information about NI Vision

By default, the Vision Assistant installation program creates a new folder, `C:\Program Files\National Instruments\Vision Assistant`, that contains the following items:

- `Vision Assistant.exe`, function libraries, and other related program files
- CG folder—LabVIEW VI and C code creation support files
- Examples folder—Images and scripts that you must have to complete the example tutorials
- Help folder—Online help files for Vision Assistant
- manuals folder—PDF versions of the Vision Assistant documentation
- Plugins folder—Image processing functions
- resources folder—Resource files
- solutions folder—Example images and scripts
- `readme.rtf`—Late-breaking information about Vision Assistant

Licensing the Vision Software

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

The following licensing option is available for the Vision Development Module.

Vision 8.2.1 Development Module (part number 777859-03)—Licenses NI Vision, Vision Assistant, and Vision Acquisition Software.

Complete the following steps to activate the NI Vision license through an Internet connection.

1. Run the product you want to license.
2. Click **Yes** when prompted to interactively activate your product.
3. Ensure that **Automatically activate through a secure Internet connection** is selected, and click **Next**.

4. Enter the serial number for the product, 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.

The Vision Development Module is now activated.

Deploying Vision Applications

Deployment refers to developing an application so that it can be distributed, or deployed, on a different computer than the one on which the application was developed. The Vision Development Module provides everything you need to deploy custom NI Vision applications to target computers. The Vision Development Module provides the following options:

- The ability to create NI Vision Run-Time Engine installers, which integrate with the LabVIEW Application Builder, applications built in LabWindows/CVI, or a custom installer.
- The ability to install the NI Vision Run-Time Engine directly from the Vision Development Module CD.
- One NI Vision Run-Time License, which allows you to install a custom application on a single machine.

You can install a number of different versions of the NI Vision Run-Time Engine. The Vision Development Module CD contains a run-time engine installer for NI Vision. Visit the **Drivers and Updates** section of ni.com to download software upgrades for NI Vision and the NI Vision Run-Time installers.

Purchasing NI Vision Deployment Licenses

You must purchase an NI Vision Run-Time License (part number 778044-03) for each target machine onto which you want to install your custom NI Vision application, even if you install the NI Vision Run-Time Engine directly from the Vision Development Module CD. The Vision Development Module CD ships with one run-time license. Contact a National Instruments sales representative or visit ni.com to purchase additional run-time licenses.



Note Additional NI Vision Run-Time Licenses do not include a CD. To install additional licenses, use the original Vision Development Module CD and the serial number provided by National Instruments.

Using the NI Vision Run-Time Engine

You can call the NI Vision Run-Time Engine installer from the application installer. If you create the application installer with the LabVIEW Application Builder or with LabWindows/CVI, you can direct the installer to call the NI Vision Run-Time Engine installer.

Refer to the *LabVIEW Help* for more information about the LabVIEW Application Builder. Refer to the *NI LabWindows/CVI Help* for more information about building and distributing LabWindows/CVI applications.

You can also direct a custom application installer to call the NI Vision Run-Time Engine installer. Refer to the documentation that came with the installer software to learn how to call executables from the custom installer. If you are using a custom installer, call the NI Vision Run-Time Engine installer at the end of the installation procedure because the installer may require the system to be restarted.

To use the NI Vision Run-Time Engine installer, you must add `/qn` as a command line argument to the run-time engine installer. For example, enter `<Vision>\Run-Time Engine\vision821rte.exe /qn` to run the NI Vision 8.2.1 Run-Time Engine installer, where `<Vision>` is the location to which NI Vision is installed.

Distributing LabVIEW Applications

The NI Vision Run-Time Engine installer does not install LabVIEW VIs. If you use the LabVIEW Application Builder to create an application (EXE) or dynamic link library (DLL), the Application Builder automatically includes the VIs used by the application. If you distribute a VI, you must include all subVIs that comprise the top-level VI. You must include the appropriate LabVIEW Run-Time Engine as part of the installation.

Refer to the *LabVIEW Help* for more information about viewing the hierarchy of VIs and for more information about using the LabVIEW Run-Time Engine.

Distributing LabWindows/CVI Applications

In addition to including the NI Vision Run-Time Engine with the installer, you must include the appropriate LabWindows/CVI Run-Time Engine. Refer to the *NI LabWindows/CVI Help* for more information about creating an executable, creating a dynamic link library, and distributing applications.

Documentation

In addition to these release notes, the Vision Development Module documentation set consists of the following manuals and help files.

- *NI Vision Concepts Manual*—Describes the basic concepts of image analysis, image processing, and machine vision. This document also contains in-depth discussions about imaging functions for advanced users.
- `readme.rtf` file—This file contains last-minute information concerning this release of the Vision Development Module.

The following sections describe the documents available for each application development environment.

NI Vision for LabVIEW Documentation

- *NI Vision for LabVIEW User Manual*—Describes how to create machine vision and image processing applications in LabVIEW using the Vision Development Module. It also describes how to create a real-time vision application using NI Vision and the LabVIEW Real-Time Module.
- *NI Vision for LabVIEW VI Reference Help*—Contains reference information about NI Vision VIs and details about how to use NI Vision with LabVIEW. In LabVIEW, select **Help»NI Vision for LabVIEW Help**.
- NI Example Finder—Illustrates common applications you can create with NI Vision. In LabVIEW, select **Help»Find Examples**. Click the Help button in the NI Example Finder to display the *NI Example Finder Help*.

NI Vision for LabWindows/CVI Documentation

- *NI Vision for LabWindows/CVI User Manual*—Describes how to create machine vision and image processing applications in LabWindows/CVI using the Vision Development Module.
- *NI Vision for LabWindows/CVI Function Reference Help*—Contains reference information about NI Vision for LabWindows/CVI functions.

- Function panel help within LabWindows/CVI—Allows you to right-click within each Vision function to access help for that function, control, function class, and function library. Function panels are installed at <CVI>\bin\NIVision.lfp, where <CVI> is the location to which LabWindows/CVI is installed.
- Example programs for specific applications are installed at <CVI>\Samples\Vision.

NI Vision for Visual Basic Documentation

- *NI Vision for Visual Basic User Manual*—Describes how to create machine vision and image processing applications in Visual Basic using the Vision Development Module.
- *NI Vision for Visual Basic Reference Help*—Contains reference information about NI Vision for Visual Basic objects and their associated properties, methods, and events. The help is available from within Visual Basic by pressing <F1>.
- Example programs for specific applications are installed at <Vision>\examples\MSVB and <Vision>\examples\MSVB.NET, where <Vision> is the location to which NI Vision is installed.

NI Vision Assistant Documentation

- *NI Vision Assistant Tutorial*—Describes the Vision Assistant software interface and guides you through creating example image processing and machine vision applications.
- *NI Vision Assistant Help*—Contains descriptions of Vision Assistant features and functions and provides instructions for using them. In Vision Assistant, select **Help»Online Help**.
- *NI Classification Training Interface Help*—Contains information about how to use the NI Classification Training Interface to classify binary samples. In the NI Classification Training Interface, select **Help»Online Help**.
- *NI OCR Training Interface Help*—Contains information about how to use the NI OCR Training Interface to learn characters, save character sets, and verify characters by comparing them to a reference character. In the NI OCR Training Interface, select **Help»Online Help**.
- *NI Vision Template Editor Help*—Contains information about how to use the NI Vision Template Editor to learn and edit template images that you can use with pattern matching, geometric matching, and golden template comparison functions. In the NI Vision Template Editor, select **Help»Online Help**.

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