

# IMAQ™ Vision 7 Development Module for LabVIEW™ Release Notes

The Vision 7 Development Module for LabVIEW is for engineers and scientists who are developing machine vision and scientific imaging applications. The development module includes NI Vision Assistant 7—an interactive environment for developers who need to quickly prototype vision applications without programming—and IMAQ Vision 7 for LabVIEW—a library of powerful functions for image processing. In addition, the development module includes NI-IMAQ 2.6, the National Instruments driver software for controlling IMAQ hardware products.

This document outlines new functionality, system requirements, installation procedures, and descriptions of the documentation included with the Vision 7 Development Module for LabVIEW. Refer to the `readme.wri` file, included with the software, for the most up-to-date information about the Vision 7 Development Module for LabVIEW.

## What's New in the Vision 7 Development Module for LabVIEW

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This section describes the new features available in the Vision 7 Development Module for LabVIEW.

### Image Display Control and Image Probe

The image display control and image probe features are available only in LabVIEW 7.0 or later.

IMAQ Vision 7 now includes a native LabVIEW image display control that you can drop onto a LabVIEW front panel as you would any other LabVIEW control or indicator. This feature is available from the LabVIEW controls menu.

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Additionally, you now can probe an image wire in LabVIEW, making design and development quick and easy. To see the run-time value of an image in a probe window, right-click the image wire and select **Probe**. To change the palette on the probe, right-click the probe and select **Palette**.

## Improved Particle Analysis

The particle analysis VIs provided with IMAQ Vision 7 for LabVIEW are two to ten times faster than those in previous versions of IMAQ Vision. These new VIs now support calibrated measurements. They are up to twice as fast as using uncalibrated measurements. Using the calibrated measurements feature of particle analysis yields results up to ten times faster than the previous method. The previous method required correcting the entire image before returning calibrated particle measurements.

IMAQ Vision 7 for LabVIEW features two new particle analysis VIs: IMAQ Particle Analysis and IMAQ Particle Analysis Report. Additionally, IMAQ Convex Hull, IMAQ Particle Filter 2, and IMAQ Label now use this improved particle analysis. For a demonstration of the new particle analysis functions, run the examples located in the following directory:  
<LabVIEW>\examples\Vision\2. Functions\Binary Analysis.

## AVI File Support

IMAQ Vision 7 for LabVIEW includes support for reading and writing multiple images to Audio Video Interleave (AVI) movie files. IMAQ Vision 7 for LabVIEW adds the ability to read AVI files, write compressed AVI files, and read and write additional data to the AVI file. To locate the AVI files, navigate to the **Vision»Vision Utilities»Files»AVI** palette in LabVIEW. AVI examples are located in  
<LabVIEW>\examples\Vision\2. Functions\AVI.

## Enhanced Circle and Ellipse Fitting

IMAQ Vision 7 for LabVIEW contains new circle and ellipse fitting routines that ignore outliers, providing a more accurate circle and ellipse fit. The degree to which outliers are ignored is user configurable. IMAQ Fit Circle 2 and IMAQ Fit Ellipse 2 are available in the **Vision»Machine Vision»Analytic Geometry** palette in LabVIEW.

## Time-Bounded Algorithms for LabVIEW Real-Time

This feature is available only in LabVIEW Real-Time 7.0 or later.

You can use the new VIs in the IMAQ RT menu to ensure that a series of Vision VIs return within a certain amount of time, regardless of whether the image processing algorithm has completed. This feature is useful for time-critical applications in which regaining timely execution control is very important.

For more information about this feature, refer to Appendix A, *Vision for LabVIEW Real-Time*, of the *IMAQ Vision for LabVIEW User Manual*.

## What's New in Vision Assistant 7

Vision Assistant 7 includes the following additions:

- Updated user interface—The Vision Assistant user interface now includes descriptive lists of the functions available in Vision Assistant, context-sensitive help for all Vision Assistant functions, and two shortcut options for each of the functions.
- 1D Barcodes—Vision Assistant includes functions to read 1D barcodes.
- OCR—Vision Assistant includes functions to read text using optical character recognition.

## What's New in NI-IMAQ 2.6

This release of NI-IMAQ includes the following new feature:

- Bayer decoding support and White Balancing Utility

## Minimum System Requirements

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The development computer must meet the following minimum system requirements to run the Vision 7 Development Module for LabVIEW:

- At least 233 MHz Pentium-class MMX processor
- Microsoft Windows 2000/NT 4.0/XP/Me/98
- 1024 × 768 resolution (or higher) video adapter, 65,536 colors (16-bit) or higher
- Minimum of 128 MB RAM (256 MB recommended)
- Minimum of 300 MB of free hard disk space



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

# Installing the Vision 7 Development Module for LabVIEW

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Complete the following steps to install the Vision 7 Development Module for LabVIEW.

1. Insert the Vision 7 Development Module for LabVIEW installation 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.

## Related Documentation

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In addition to these release notes, the Vision 7 Development Module for LabVIEW documentation set consists of the following manuals and help files.

### IMAQ Vision Documentation

- The *IMAQ Vision Concepts Manual* contains vision conceptual information. Read this document if you are new to vision.
- The *IMAQ Vision for LabVIEW User Manual* contains information about how to build vision applications using IMAQ Vision 7 for LabVIEW.
- The *IMAQ Vision for LabVIEW Help* (from inside the LabVIEW environment: **Help»IMAQ Vision**) contains reference information about IMAQ Vision VIs.
- The *Search Vision Examples Help* contains links to all installed IMAQ Vision examples. In LabVIEW 6.1 and earlier, select **Help»Search Vision Examples** to access these example links. In LabVIEW 7.0 and later, select **Help»Find Examples** to browse or search installed IMAQ Vision example VIs.
- The `readme.wri` file, located on the Vision 7 Development Module for LabVIEW installation CD, contains last-minute information concerning this release of the Vision 7 Development Module for LabVIEW.

## NI Vision Assistant Documentation

- The *IMAQ Vision Concepts Manual*.
- The *NI Vision Assistant Tutorial* contains step-by-step instructions for prototyping a vision application with Vision Assistant.
- The *Vision Assistant Help* details each of the Vision Assistant functions and how to use them. To open the help in Vision Assistant, select **Help»Online Help**.

## NI-IMAQ Documentation

- The *NI-IMAQ User Manual* provides information about how to use NI-IMAQ and IMAQ devices to capture images for processing.
- The *NI-IMAQ VI Reference Help* contains reference information about NI-IMAQ VIs. To open the help in LabVIEW, select **Help»NI-IMAQ VIs**.
- The *Search NI-IMAQ Examples Help* contains links to all installed NI-IMAQ examples. In LabVIEW 6.1 and earlier, select **Help»Search NI-IMAQ Examples** to access these example links. In LabVIEW 7.0 and later, select **Help»Find Examples** to browse or search NI-IMAQ examples.