NATIONAL INSTRUMENTS

IMAQ VISION FOR LABVIEW

Version 6.0

IMAQ Vision for LabVIEW adds multipurpose image processing and machine vision capabilities to LabVIEW. These release notes describe system requirements, provide installation instructions, and contain updated information about IMAQ Vision for LabVIEW.

System Requirements

To run IMAQ Vision 6.0 on your machine, you must have the following minimum system requirements:

- Microsoft Windows 2000/NT version 4.0 or Windows Me/9*x*

- 50 MB or more of free hard disk space

- 32 MB RAM or more

- NI-IMAQ 2.2 or higher if you use NI-IMAQ driver software

- LabVIEW 5.1 or higher

Note Consult the LabVIEW release notes for the required system configurations for LabVIEW.

Installation Instructions

Follow these instructions to install IMAQ Vision 6.0 on your computer:

1. Insert the IMAQ Vision for LabVIEW installation CD.

2. If you do not have autorun enabled, double-click on setup.exe. If you have autorun enabled, setup.exe runs automatically.

3. Follow the instructions on your screen.

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Distributing Applications that Use IMAQ Vision

If you want to distribute an application developed with IMAQ Vision, use the IMAQ Vision Deployment Engine.

Before distributing an application developed with IMAQ Vision, you must have the IMAQ Vision Deployment Engine and an IMAQ Vision deployment license for each target machine. Contact your National Instruments sales representative or visit `ni.com` to purchase deployment licenses.

New Functionality

This section briefly summarizes the new functionality found in version 6.0 of IMAQ Vision for LabVIEW.

Palette Reorganization

IMAQ Vision features reorganized palettes that create an easy interface for developing machine vision applications. There are three main palettes of IMAQ Vision VIs: Vision Utilities, Image Processing, and Machine Vision. The Vision Utilities palette contains VIs for creating and disposing images, display, image and pixel manipulation, calibration, and region of interest tools. The Image Processing palette contains a wide range of VIs for processing and analyzing color, grayscale, and binary images. The Machine Vision palette contains new high-level machine vision VIs, as well as VIs for pattern matching, analytic geometry, and instrument reading.

Color Pattern Matching

Use color pattern matching to quickly locate known reference patterns, or fiducials, in a color image. Color pattern matching can simplify a monochrome problem by improving contrast or separation of the object from the background. Color pattern matching expands the powerful IMAQ Vision grayscale pattern matching feature by locating patterns that can be distinguished only by color. In some cases, the extra color information allows the algorithm to find patterns more quickly than with grayscale pattern matching. Color pattern matching also provides extremely quick color location solutions.

Calibration

Use IMAQ Vision spatial calibration functions to calibrate your image to take accurate, real-world measurements from images, regardless of camera perspective or lens distortion. You can set simple calibration data by hand or let IMAQ Vision automatically learn the calibration data for an image. You can then convert from pixels to real-world coordinates for simple measurements or correct the image so you can do complex measurements, such as blob analysis.

Machine Vision VIs

IMAQ Vision 6.0 includes a new palette of high-level machine vision VIs to simplify common machine vision tasks, such as selecting regions of interest in the shapes of points, lines, rectangles, and annuluses. Other machine vision VIs give you the ability to define coordinate systems based on features in an image, which allows you to make reliable measurements even as objects in your image move and change orientation. Functions that count and measure objects, measure intensities, measure distances between edges, and locate edges all make machine vision tasks easier than ever.

Analytic Geometry Functions

The new analytic geometry functions provide common analytic geometry algorithms, such as line fitting with outlier rejection, circle and ellipse fitting, calculating line intersections, bisecting lines, and finding the angle between lines. You can also use them to calculate polygon areas, get points along a line or region of interest, and create a coordinate reference system based on an arbitrary plane.

Regions of Interest

Two new regions of interest—the rotated rectangle and the annulus— give you more flexibility in selecting particular regions in an image for processing and analysis. These new regions work with all new machine vision VIs and existing functions.

Image Display Options

IMAQ Vision 6.0 allows you to specify display options for 16-bit grayscale images. You can choose to bitwise-shift the pixel values to use the most significant bits, choose to have IMAQ Vision automatically use the dynamic range of pixel values in an image to scale the image to an 8-bit range, or choose to specify a user-defined range of pixel values to dynamically scale into an 8-bit range.

About Your IMAQ Vision Documentation Set

In addition to these release notes, the IMAQ Vision documentation set consists of the following:

- 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 on how to build your vision applications using IMAQ Vision for LabVIEW.

- The IMAQ Vision for LabVIEW online help (from inside the LabVIEW environment: **Help»IMAQ Vision**) contains reference information about IMAQ Vision VIs.

- The IMAQ Vision examples help file (from inside the LabVIEW environment: **Help»Search IMAQ Examples**) contains links to all installed IMAQ Vision examples.

- The readme.txt file (located on your IMAQ Vision installation CD) contains last-minute information concerning this release of IMAQ Vision for LabVIEW.

For your convenience, all IMAQ Vision documentation is also available in PDF format, which you can access from the **Start»Programs» National Instruments»Vision»Documentation** menu.