



# Maintenance and Troubleshooting Training

This two-day training course gives an overview of machine vision applications used by Integro Technologies. This training focuses on maintenance and troubleshooting of general machine vision applications and is ideal for technicians.

## Topics Include:

- Setting up a machine vision system
- Automatic operations and results
- Debugging strategies
- Intro to Integro In-Sight format
- Detailed review of Cognex standard parts
- Troubleshooting inspection tools and programs
- System backup and restore
- On-going system maintenance
- Hands-on lab work

## Prerequisites:

- Attendees must bring a laptop and have administrative rights
- Laptop must have Windows 7
- Moderate to mid-level experience with Windows

## Registration:

The training will be offered at Integro Technologies. Cost for this two-day training is \$750 per person. The cost includes breakfast and lunch.

Class sizes are small and space is limited. Credit card and purchase order payments are accepted. Please contact Training, at [training@integro-tech.com](mailto:training@integro-tech.com), if you require a quote. To register, visit [www.integro-tech.com/training/](http://www.integro-tech.com/training/).



### Detailed Class Syllabus:

- Setting up a machine vision system
  - Hardware connections
  - Connection issues
- On-going maintenance of a system
  - Optical changes-brightness, focus, blur, position, dirt
  - Dialog boxes
  - User access
- Debugging strategies
  - Job audit arrows, boxes, question marks
  - ErrFree and CountError
  - -1, 0, and +1 boolean logic
  - Induce errors and check behavior
- Introduction to Integro Insight format
  - Custom View
  - Dialog boxes
  - Edit Regions
  - Error Analysis
  - Image Saving
  - Discrete I/O
  - EIP Format Buffers
  - Spreadsheet organization
  - C:\Cognex Images and C:\Cognex Backups
  - Integro1 and Vision1
- Introduction to general inspection tools
  - PatMax, FindPatterns
  - Blob, Histogram, FindLine, FindSegment, FindCircle
  - PlotLine, PlotPoint
- Detailed review of Cognex standard parts
  - 5000, 7000, Micro camera models
  - I/O module models
  - Cables
- Troubleshooting Inspection tools and Programs
- System Backup and Restore
- On-going system maintenance
- Hands on Lab work



### Advanced Topics Include:

- Automatic operations and results
  - Error analysis
  - Passed and Failed Image replaying
  - Filmstrip, saving images from filmstrip
  - Adding interesting or borderline images to known good and bad directories for Test Run
- Measurement, gauging, positioning, recognition, and verification
  - Tool parameters and linking in spreadsheet
- PLC, serial, and I/O Control
  - I/O modules
  - EIP communications
- Lighting techniques
  - Backlighting, dark field, bright field, RGB, white, DOAL, dome
- Manual operation
  - Manual online trigger mode
- Live mode
  - Display resolution
- Automatic mode
  - Display resolution
  - Conditional refresh on custom view
- Barcode recognition
  - Tool usage
- Template matching
  - Tool usage