



Sample Programs Guide

Version 11.8

This document is a guide to the sample Impact vision programs and images that are provided as part of the Impact software package. These programs are designed so you can get started quickly and to help you understand how to use Impact software to best solve your vision inspection applications.

Impact is the most complete vision system product line that uses the same software for all of its Intelligent cameras. Impact software and hardware provides you with the flexibility that today's quickly changing manufacturing environment requires.

The sample programs and accompanying images are installed by the Impact software installation program. This document contains an overview of the sample programs, as well as information about each of them.

NOTE: These sample programs were created using specific tool and task settings. If you make any program changes, the pass and fail results may not match those shown in the sample.

The Impact components that relate to these sample programs are Vision Program Manager (VPM) or VPM Lite (a subset of VPM), Control Panel Manager (CPM), and the Emulator.

After the installation is complete, you start VPM (Vision Program Manager) or VPM Lite to access the sample programs. This document provides basic information about how to use VPM and VPM Lite to access and learn about the sample programs. For more details about how to use VPM and VPM Lite, refer to the Impact Reference Guide.

Vision Program Manager (VPM) and VPM Lite

VPM and VPM Lite create, edit, and organize the vision program, the basic building block of the inspection application. The vision program contains one or more tasks that contain all the tools used for the inspection. You can create and use program templates, as well as reuse a sample task. No software programming knowledge is needed to create either simple or complex inspections using the drag and drop interface.

Control Panel Manager (CPM)

CPM also uses drag and drop to create custom Control Panels (operator interfaces) to control and monitor the inspection applications you create with VPM. You can easily create connections between the Control Panel and VPM tools to display inspection results. Only one sample program uses CPM, and it cannot connect to VPM Lite.

Impact Emulator

When you start VPM or VPM Lite and connect to the Impact Emulator, the Emulator starts and runs in the background. It simulates all the functions of a Datalogic smart camera. While it is running, you can create and test vision programs without using a camera. The sample programs and images are installed on the Emulator along with Impact software, but they will run on either the Emulator or any suitable Datalogic device.

Check our website at <http://www.datalogic.com/> for more sample programs and more recent software releases, as well as information about other Impact software and hardware products.

Click a link below for details about each sample program.

Overview

How to look at the sample programs

Sample Code Reader Program

Uses the Blob, Code Reader, Pass/Fail, and Discrete Output tools to locate, read, and verify 1D and 2D Codes.

Sample Measurement Program

Uses the Origin, Line Gauge, Line Gauge Dual ROI, Greyscale Template, Pass/Fail, Discrete Output, and String Builder tools to verify the measurements and shape of connector pins.

Sample Color Program (VPM Only)

Uses the Color Blob and Basic tools to recognize and count the number of tablets of each color and the total number of tablets.

Sample OCR Program

Uses the Blob, OCR (Optical Character Recognition), Pass/Fail, and Discrete Output tools to locate, read, and verify a string of characters.

Sample Bulb Program (VPM Lite)

Uses seven different kinds of tools to inspect various aspects of a light bulb. The program can be opened in either VPM or VPM Lite.

Sample Bulb Program (VPM Only)

This is a complex inspection that combines sixteen different kinds of tools in several tasks to inspect various aspects of a bulb. CPM uses twenty different kinds of controls in a Control Panel to display data and control VPM inspection parameters.

How to look at the Sample Bulb Control Panel

A brief look at the Control Panel that works with the Sample Bulb Program. CPM uses 20 different kinds of controls to display data and control VPM inspection parameters.

Sample Template Program

Uses the Pinpoint Pattern Find, Greyscale Template, Pass/Fail, and Discrete Output tools to locate and verify the print and background on a part.

Sample Pinpoint Verify Program

Uses the Pinpoint Pattern Find, Circle Gauge, and Pass/Fail tools to locate and verify the pattern on a rotating part.

Sample Pinpoint Pick and Place Program

Uses the Pinpoint Pattern Find and Pass/Fail tools to find multiple patterns (parts) in the Field of View. The output can then be used by a robot to Pick and Place the correct parts.

Sample Pattern Sort Program (VPM Only)

Uses the Pattern Sort tool to find patterns in the input image that match patterns in a searchable binary pattern file (database). The Origin, Pinpoint Pattern Find, Contrast, and Pass Fail tools are used to sort inspected parts that are not in the database.

NOTE: Install the Pattern Database Manager (IMPACTPDMSetup) to use this program.

Overview

The sample programs do not incorporate all the capabilities of Impact software, but altogether they do provide a way to explore most of its functions. You can use VPM and VPM Lite to access and run the programs, and to view the results of the inspection on the sample images.

VPM and VPM Lite

File Camera

Over 80 sample images are included. You use the File Camera to make these images available to the sample programs. If you are using an M-Series, MX-U Series, or MX-E Series processor, be sure no cameras are connected.

Vision Program

All the supplied vision program names begin with Sample. You can modify and use these programs if they work for your application. This guide explains how to find and open the programs, what they are doing and, briefly, how each of the tools work.

IMPORTANT NOTE: If you modify a vision program file and want to save it, use a different name or put it in a different directory. Installing a new version of Impact Software will overwrite the sample files. These sample programs were created using specific settings. If you make any changes, the results may not match those shown in the sample.

CPM

Note: The CPM Sample Bulb Control Panel is intended for use with the VPM Sample Bulb Program. It will not work with the VPM Lite Sample Bulb Program.

Control Panel

Control panels are the interface between the inspection and the operator and can be combined into a Control Panel application. The included application is intended for use with the VPM Sample Bulb program, but you can modify and use it if it works for your application. This guide explains how to find and open the Control Panel, what it does and, briefly, how each of the controls work.

IMPORTANT NOTE: If you modify the control panel and want to save it, put it in a different directory or use a different name. Installing a new version of Impact Software will overwrite the sample files. This sample control panel was created using specific settings. If you make any changes, the results may not match those shown in the sample.

How to look at the sample programs

1. [Start VPM or VPM Lite.](#)
2. [Deactivate currently active images](#), if necessary.
3. [Activate the desired sample images.](#)
4. [Close any open programs](#), if necessary.
5. [Open the desired sample program.](#)
6. [Choose the Display mode.](#)
7. [Run the sample program.](#)

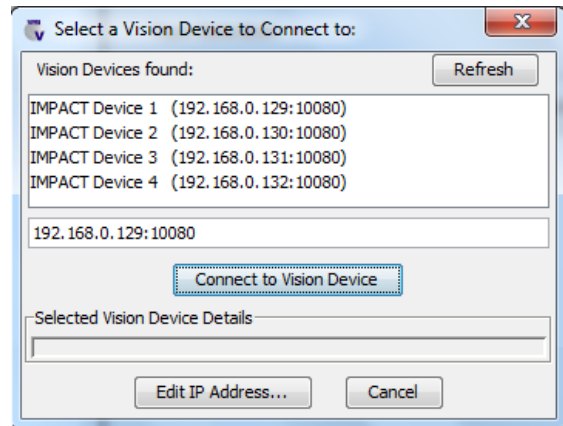
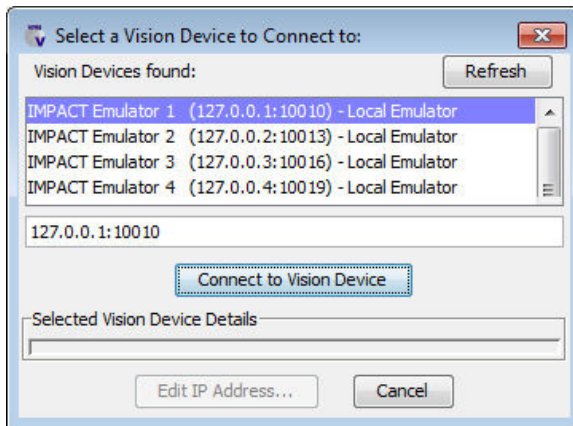
Start VPM or VPM Lite

When Impact software is installed, a VPM or VPM Lite icon is created on the computer's desktop.

To start VPM or VPM Lite and the Emulator



1. Double-click the desktop icon.
2. When the dialog titled “Select a Vision Device to Connect to” is displayed, select a device. The devices listed will depend on the type of system you are using.
If you are using a PC, select IMPACT Emulator 1.
If you are using an M-Series, MX-U Series, or MX-E Series processor, select IMPACT Device 1.



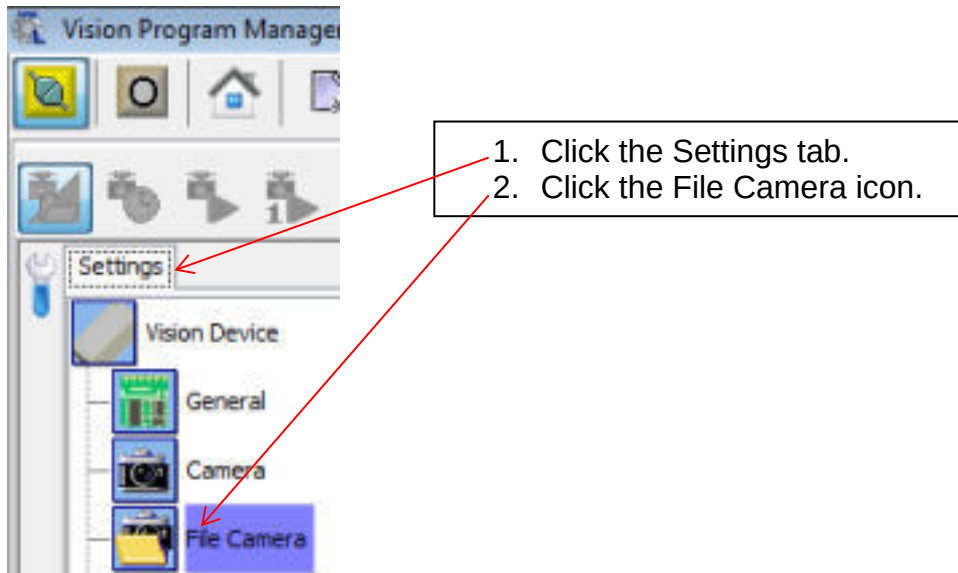
3. Click the button “Connect to Vision Device.”
4. Proceed with the next section.

Deactivate Currently Active Images

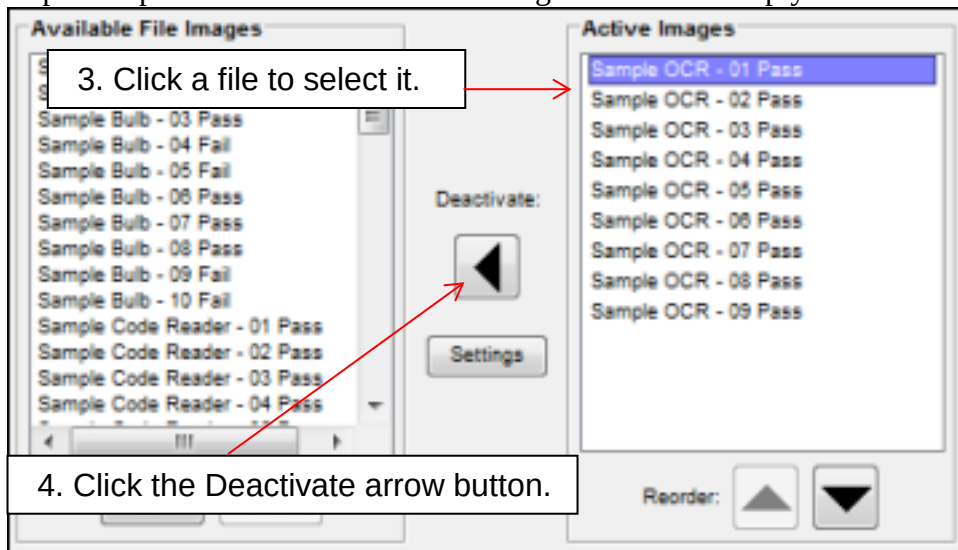
If there are no currently active images, skip to [Activate the Desired Sample Images](#) in the next section. If there are active sample images, you should deactivate those images before you activate new images to avoid confusion and incorrect inspection results.

To deactivate currently active images

1. In VPM or VPM Lite, click the Settings tab.
2. Click the File Camera icon.



1. Click the Settings tab.
2. Click the File Camera icon.
3. In the Active Images window, click an image file to select it.
4. Click the Deactivate arrow button.
5. Repeat steps 3 and 4 until the Active Images window is empty.



Activate the Desired Sample Images

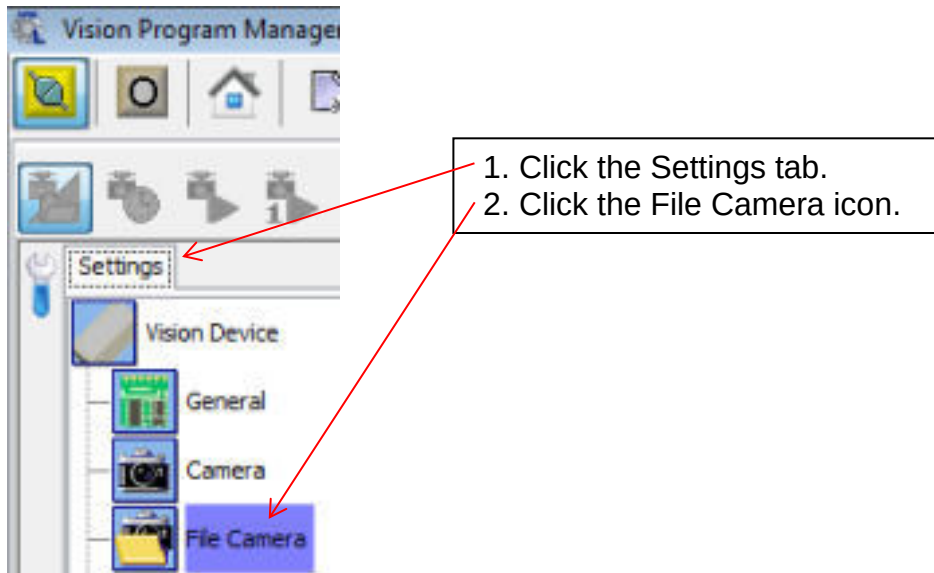
The tools in each sample program were configured specifically for the program's accompanying images. You should activate the appropriate images for the desired sample program, to insure correct inspection results.

The images that accompany a sample program have the same beginning name as the program. This list shows the name of the sample program and the images that accompany them. The "vnn" in the program name represents the program's version number. The Pass or Fail designation indicates whether the image should pass or fail the inspection.

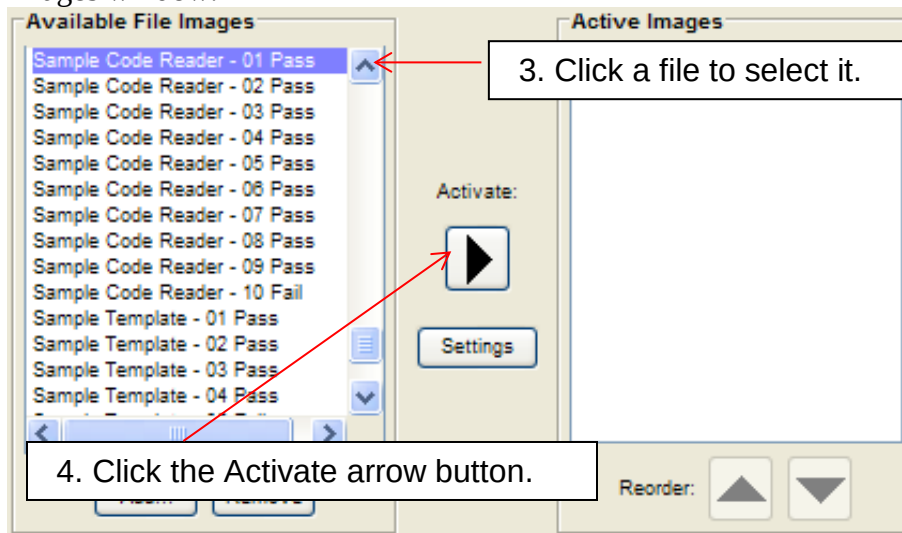
Sample Program Name	Sample Image Names
Sample Code Reader vnn.vp	Sample Code Reader – 01 through 09 Pass Sample Code Reader – 10 Fail
Sample Measurement vnn.vp	Sample Measurement – 01 through 03 Pass Sample Measurement – 04 through 05 Fail Sample Measurement – 06 through 09 Pass Sample Measurement – 10 Fail
Sample OCR vnn.vp	Sample OCR – 01 through 09 Pass Sample OCR – 10 Fail
Sample Color vnn.vp	Sample Color – 01 through 10
Sample Bulb vnn.vp	Sample Bulb – 01 through 03 Pass Sample Bulb – 04 through 05 Fail Sample Bulb – 06 through 08 Pass Sample Bulb – 09 through 10 Fail
Sample Template vnn.vp	Sample Template – 01 through 04 Pass Sample Template – 05 Fail Sample Template – 06 Pass Sample Template – 07 through 10 Fail
Sample Pinpoint Verify vnn.vp	Sample Pinpoint Verify – 01 through 03 Pass Sample Pinpoint Verify – 04 Fail Sample Pinpoint Verify – 05 and 06 Pass Sample Pinpoint Verify – 07 through 09 Fail Sample Pinpoint Verify – 10 Pass
Sample Pinpoint PickPlace 2 vnn.vp	Sample Pinpoint PickPlace 2 – 01 and 02 Pass Sample Pinpoint PickPlace 2 – 03 Fail Sample Pinpoint PickPlace 2 – 04 through 06 Pass Sample Pinpoint PickPlace 2 – 07 Fail Sample Pinpoint PickPlace 2 – 08 through 10 Pass
Sample Pattern Sort vnn.vp	Sample Pattern Sort – 01, 04, 06, 08, 10 Fail Sample Pattern Sort – 02, 03, 05, 07, 09 Pass

To Activate the Desired Sample Images

1. Click the Settings tab.
2. Click the File Camera icon.



3. In the Available File Images window, click a sample image file to select it.
4. Click the Activate arrow button.
5. Repeat steps 3 and 4 until all the desired sample image files are displayed in the Active Images window.

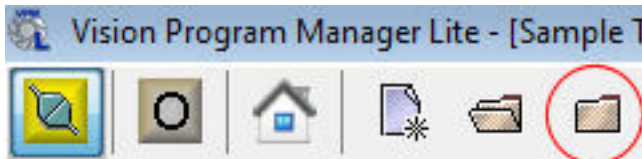


Close Any Open Programs

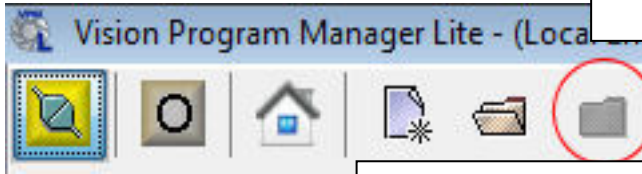
If there are no currently open programs, skip to Open the Desired Sample Program in the next section. If there are open programs, you should close those programs before you open the new one to avoid confusion and incorrect inspection results.

To Close Open Programs

1. Click the Unload (Close) button in the main toolbar. This button is disabled if there are no programs open.



1. Click the Close button.



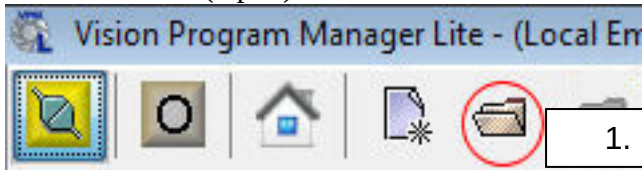
No programs open. Close button is disabled.

Open the Desired Sample Program

Each of the sample programs is described in the following sections.

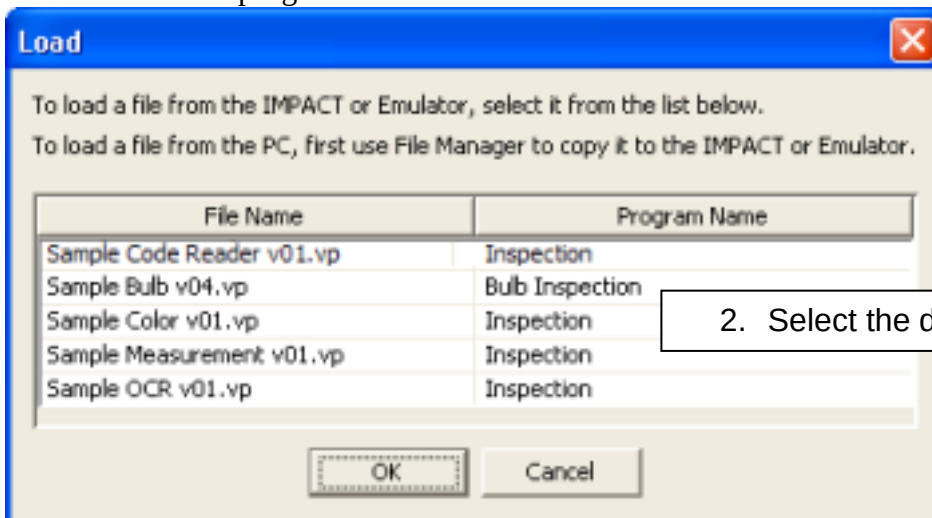
To Open A Sample Program

1. Click the Load (Open) button in VPM's main toolbar.



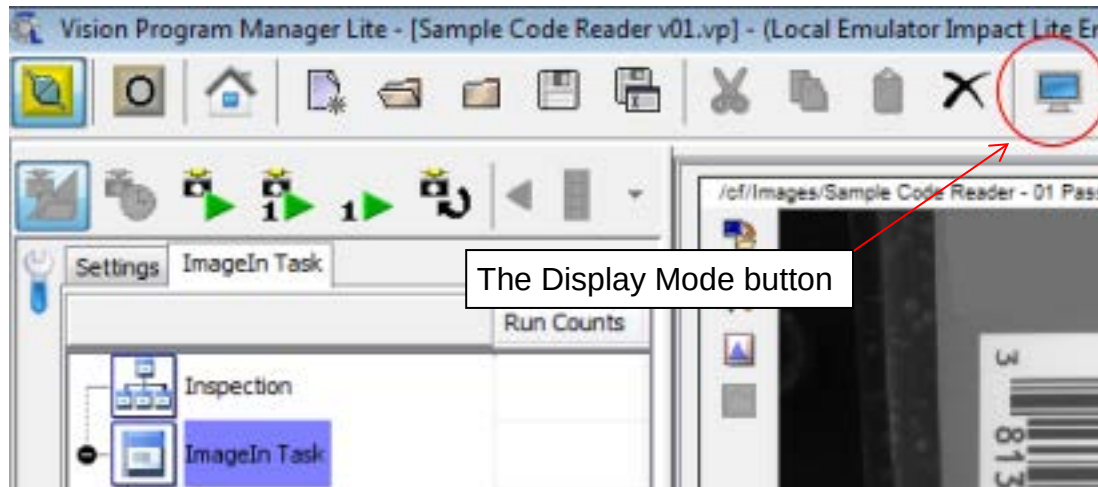
1. Click the Open button.

2. Select the desired program from the list then click OK.



2. Select the desired program.

Choose the Display Mode



VPM's Display button is designed to provide a quick and easy-to-create way to display the information from the inspection. Each sample program Display button is set up specifically to show information from each tool in that program. Since there are different tools in each program, their respective Display buttons show different information.

Run the Sample Program



To run the Sample Program once on the next image, click the Trigger Once button in the main toolbar. The program runs once and updates the Display with a new image, the inspection results, the pass/fail chart, and the most recently inspected images below the image display window.



To run the Sample Program continuously, click the Trigger Continuously button in the main toolbar. When the button is depressed, the program runs continuously and updates the Display with a new image, the inspection results, the pass/fail chart, and the most recently inspected images below the image display window.

Sample Code Reader Program

NOTE: This program will not load on the A30, P-Series, or T4x-Series cameras.

Uses the Blob, Code Reader, Pass/Fail, and Discrete Output tools to locate, read, and verify 1D and 2D Codes

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

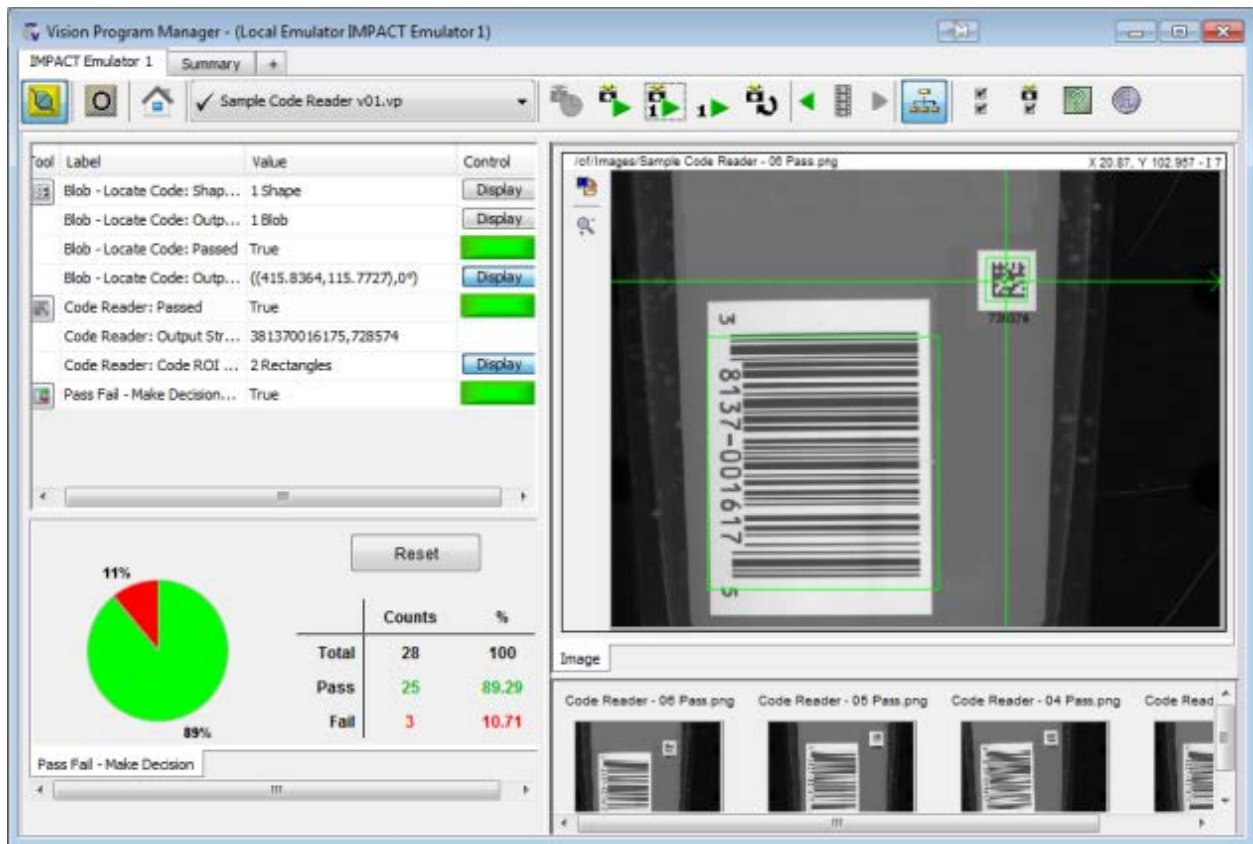
[Activate the images](#) that have a name starting with Sample Code Reader.

[Close any open programs.](#)

[Open the program](#) Sample Code Reader vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Measurement Program

This program uses the Origin, Line Gauge, Template, and Discrete Output tools to verify the measurements and shape of connector pins.

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

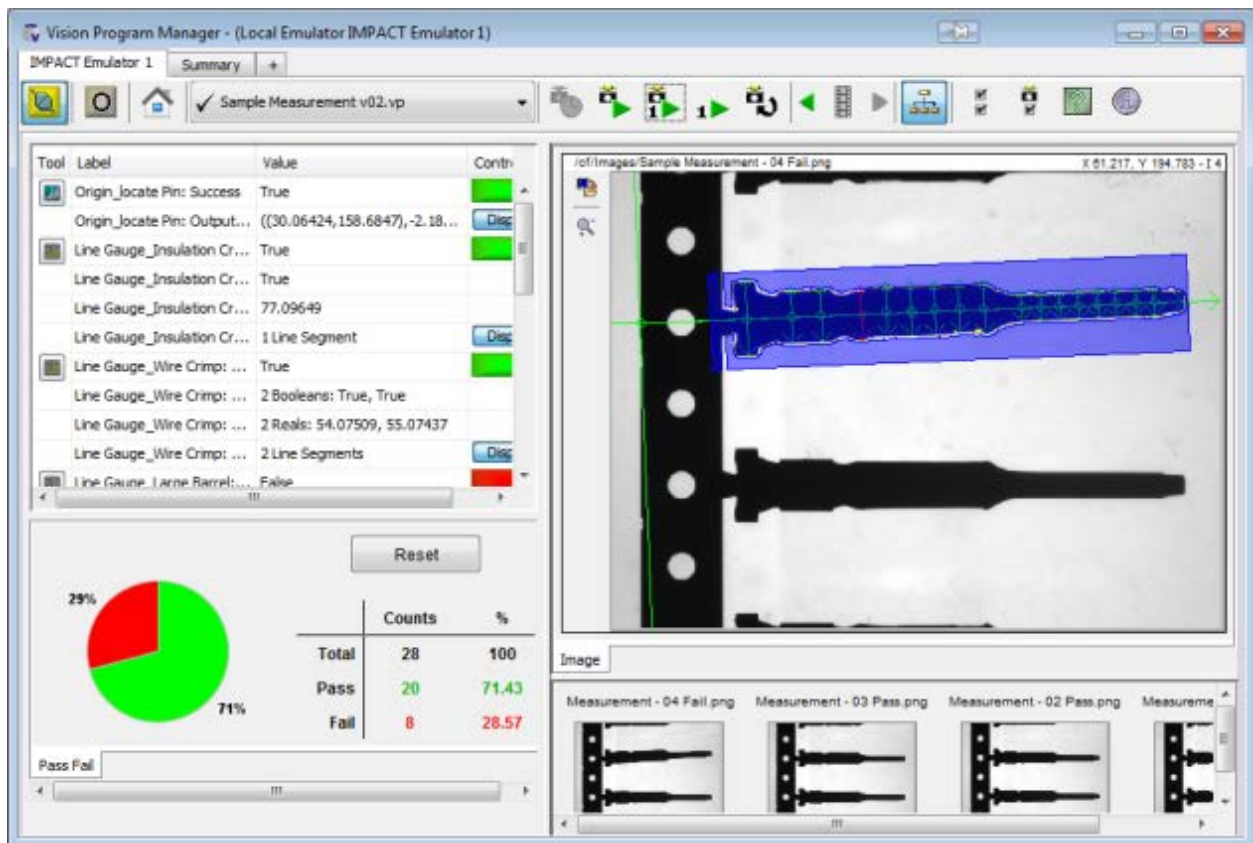
[Activate the images](#) that have a name starting with Sample Measurement.

[Close any open programs.](#)

[Open the program](#) Sample Measurement vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Color Program (VPM Only)

This program uses the Color Blob and Basic tools to recognize and count the number of tablets of each color and the total number of tablets.

[Start VPM.](#)

[Deactivate any active images.](#)

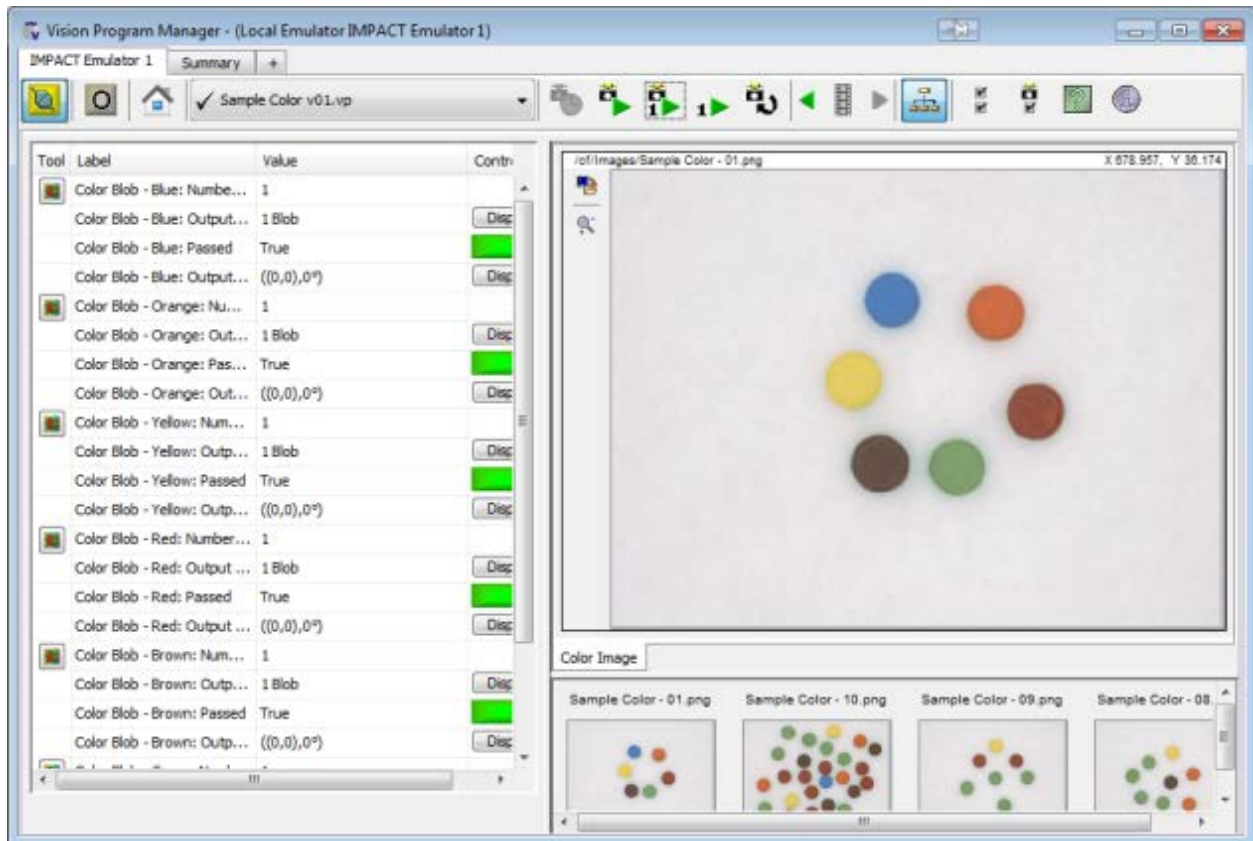
[Activate the images](#) that have a name starting with Sample Color.

[Close any open programs.](#)

[Open the program](#) Sample Color vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)



Sample OCR Program

This program uses the Blob, OCR (Optical Character Recognition), and Discrete Output tools to locate, read, and verify a string of characters.

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

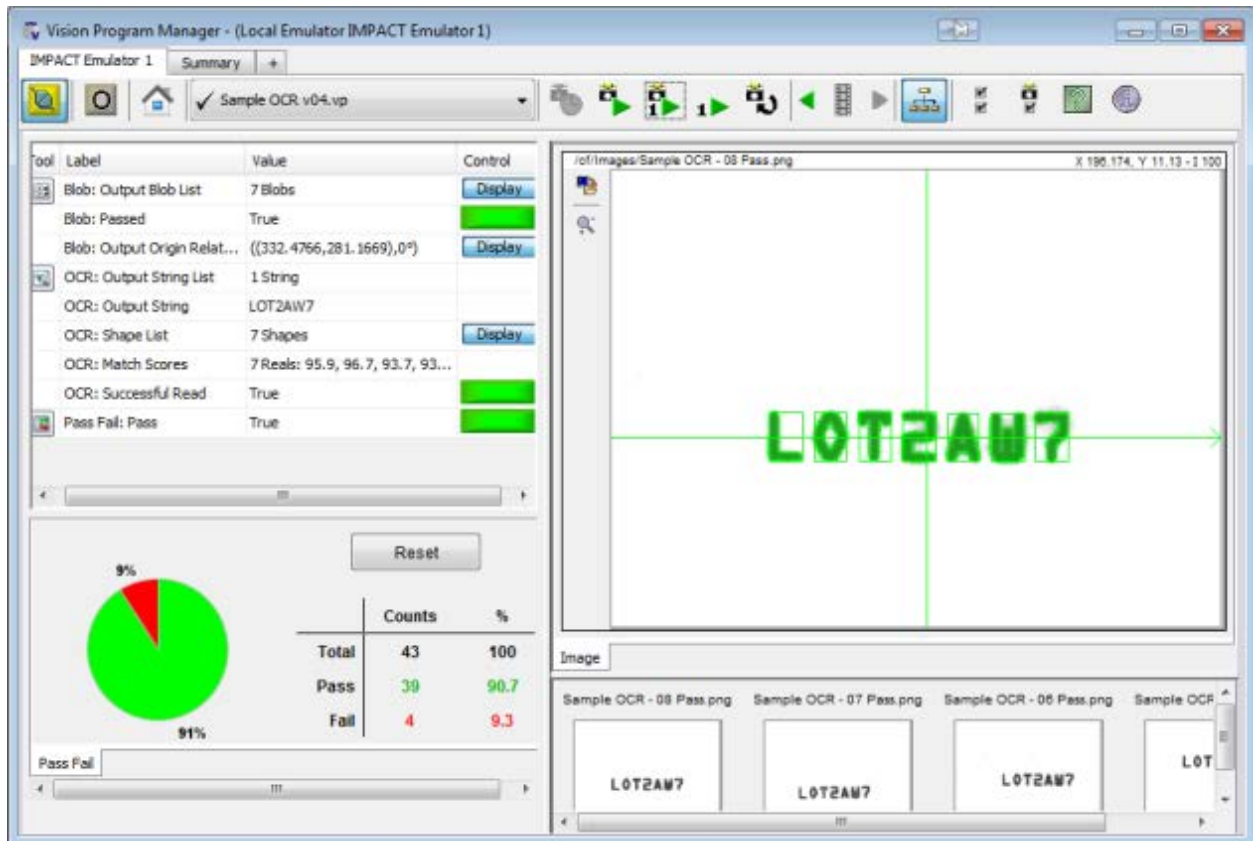
[Activate the images](#) that have a name starting with Sample OCR.

[Close any open programs.](#)

[Open the program](#) Sample OCR vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Bulb Program (for VPM Lite)

This inspection uses eight different kinds of tools to inspect various aspects of a light bulb.

[Start VPM Lite.](#)

[Deactivate any active images.](#)

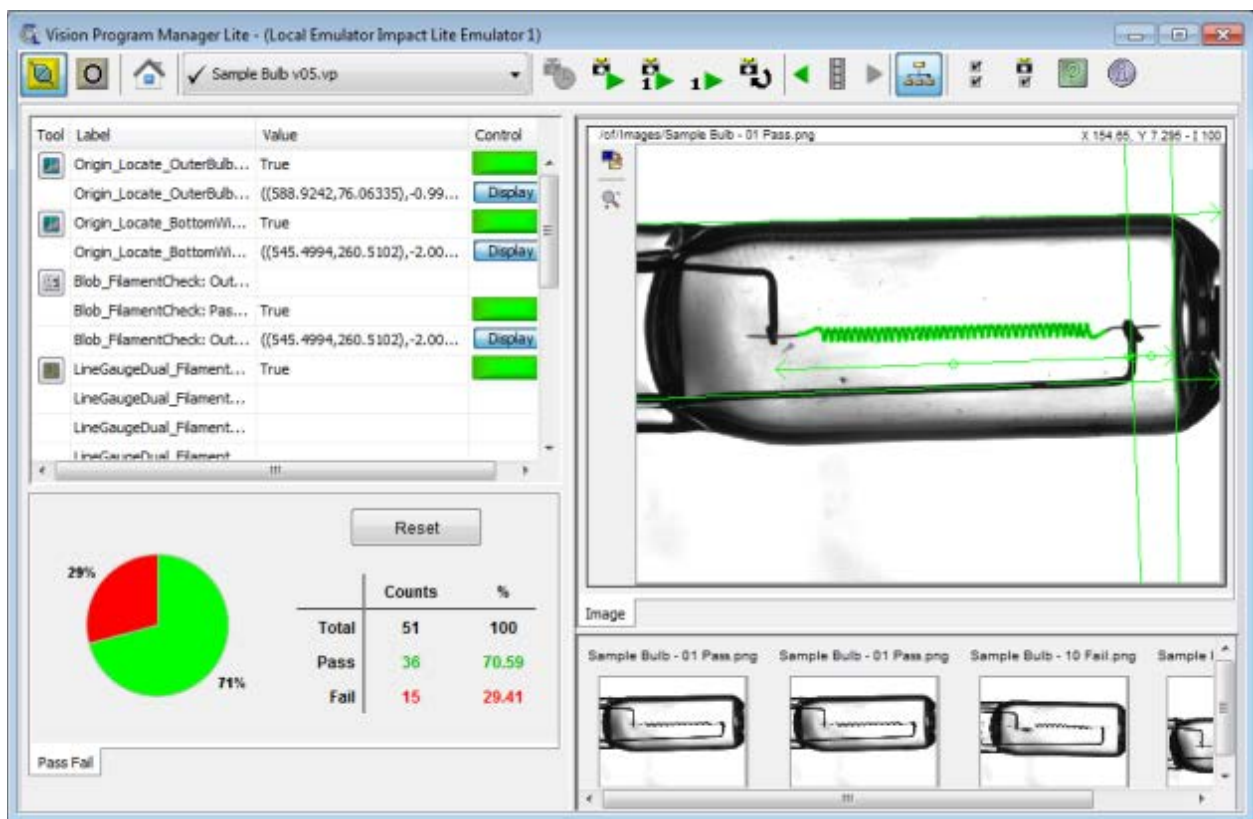
[Activate the images](#) that have a name starting with Sample Bulb.

[Close any open programs.](#)

[Open the program](#) Sample Bulb v05.vp. (this program can be opened in VPM or VPM Lite)

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Bulb Program (for VPM)

This is a complex inspection that combines sixteen different kinds of tools in several tasks to inspect various aspects of a bulb. CPM uses twenty different kinds of controls in a Control Panel to display data and control VPM inspection parameters.

[Start VPM.](#)

[Deactivate any active images.](#)

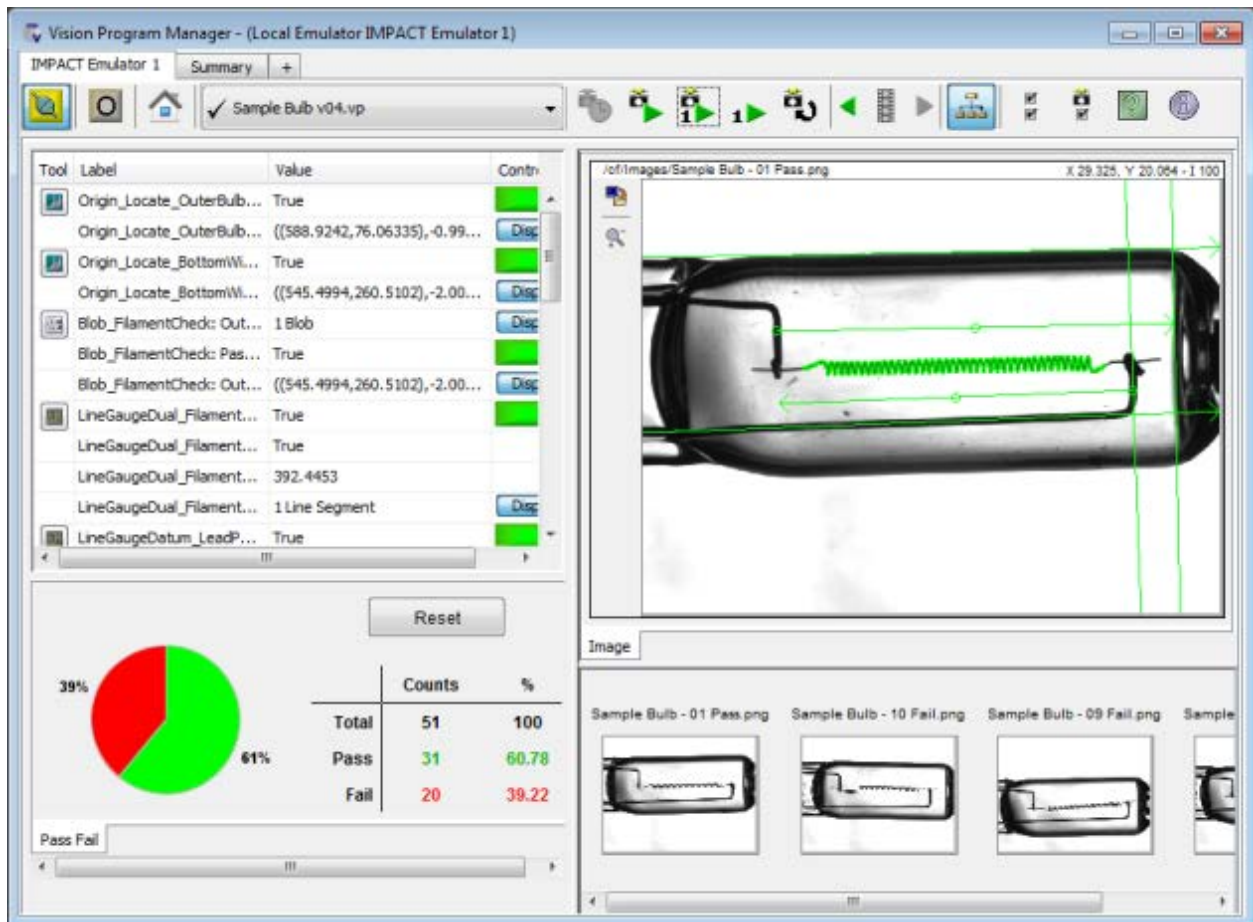
[Activate the images](#) that have a name starting with Sample Bulb.

[Close any open programs.](#)

[Open the program](#) Sample Bulb v04.vp. (this program can only be opened in VPM)

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



How to look at the Sample Bulb Control Panel

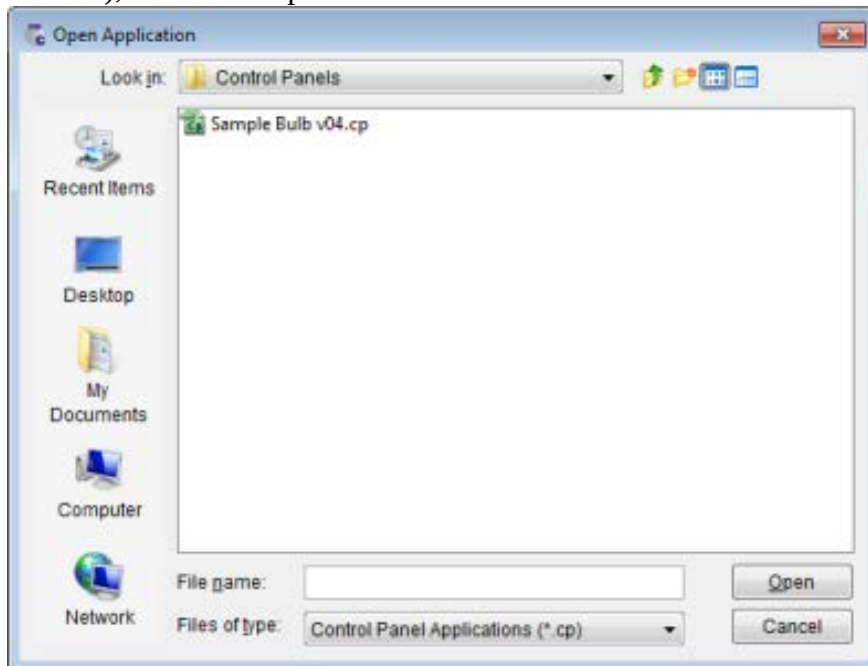
A Control Panel is provided for the VPM Sample Bulb program so you can see how to create a user interface for a vision program. This is not a complex process, but this section of the guide does not provide much detail. For more details on how to create and use a Control Panel, refer to the Impact Reference Guide (Part Number 843-0093).

NOTE: At this point, before you start CPM, you should start VPM, [activate the images](#) that have a name starting with Sample Bulb, and [open the program](#) Sample Bulb v04.vp.

To use the Sample Bulb Control Panel



1. Be sure that VPM is running, that the Sample Bulb images are active, that the Sample Bulb Program is loaded, and VPM is in Design mode.
2. To start CPM, double-click on the desktop icon.
3. Click the Open Control Panel Application button in the main toolbar.
4. From the Open dialog, click on the file Sample Bulb vnn.cp (where vnn is the version number), then click Open.



5. After the Control Panel has finished opening, click the Design/Run Mode button in the main toolbar.
6. In the “Connect to Device” area of the Control Panel, find the Device IP Address field:
If you are using a PC, type: 127.0.0.1:10010 in the field
If you are using an M-Series, MX-U Series, or MX-E Series processor, type: 192.168.0.129:10080 in the field.



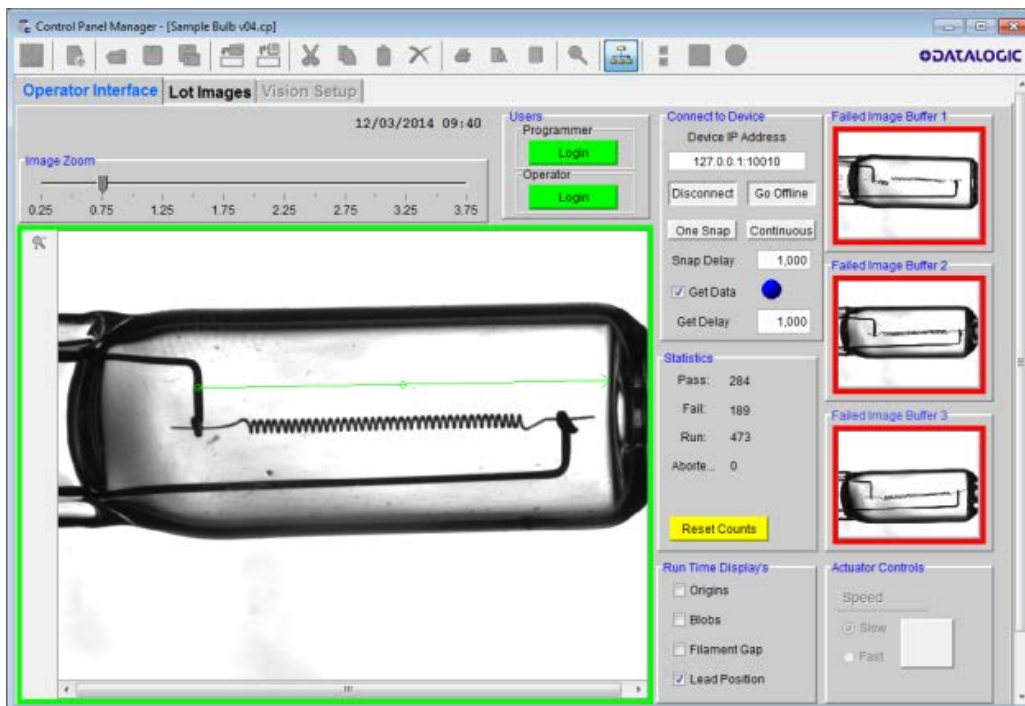
7. Click the Connect button.



8. Click the Go Online button.

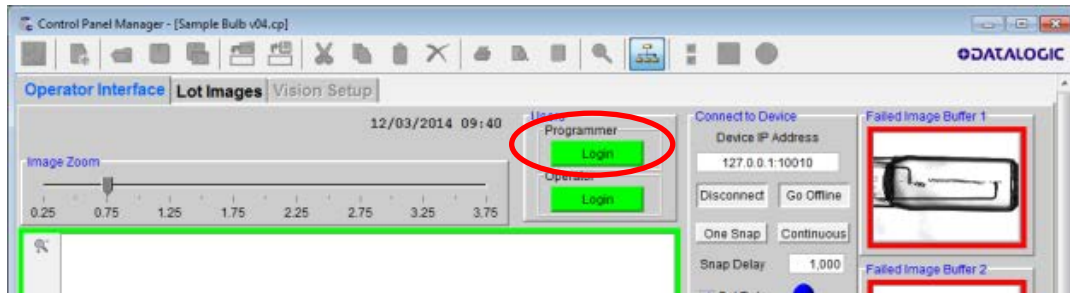


To run the Sample Bulb program and see the results in the Operator Interface tab, click the One Snap button in the “Connect to Device” area of the Control Panel. The program runs once and updates the image and all the appropriate data in the Control Panel. To run the Sample Program continuously, click the Continuous button. While the button is depressed, its name changes to “Stop Snaps” and the program runs continuously.



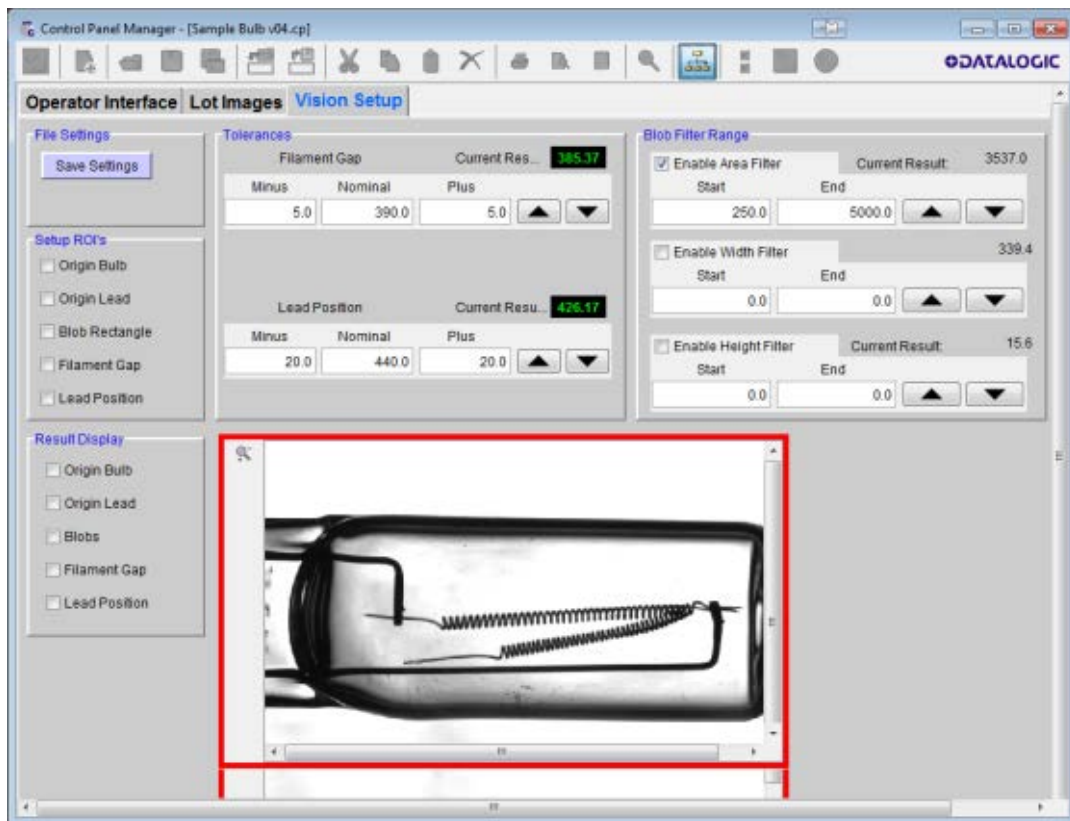
Vision Setup Tab

The Vision Setup tab contains over twenty inspection adjustments you can use to experiment.



To access the Vision Setup tab

1. The Control Panel must be connected to the Emulator. Click the green Programmer Login button in the Users area of the Operator Interface tab.
2. In the User Logon dialog, select a User ID.
3. In the Password field, enter the string 123456.
4. Click the Log On button. The Vision Setup tab is enabled.



Sample Template Program

This program uses the Pinpoint Pattern Find, Greyscale Template, Pass/Fail, and Discrete Output tools to locate and verify the print and background on a part.

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

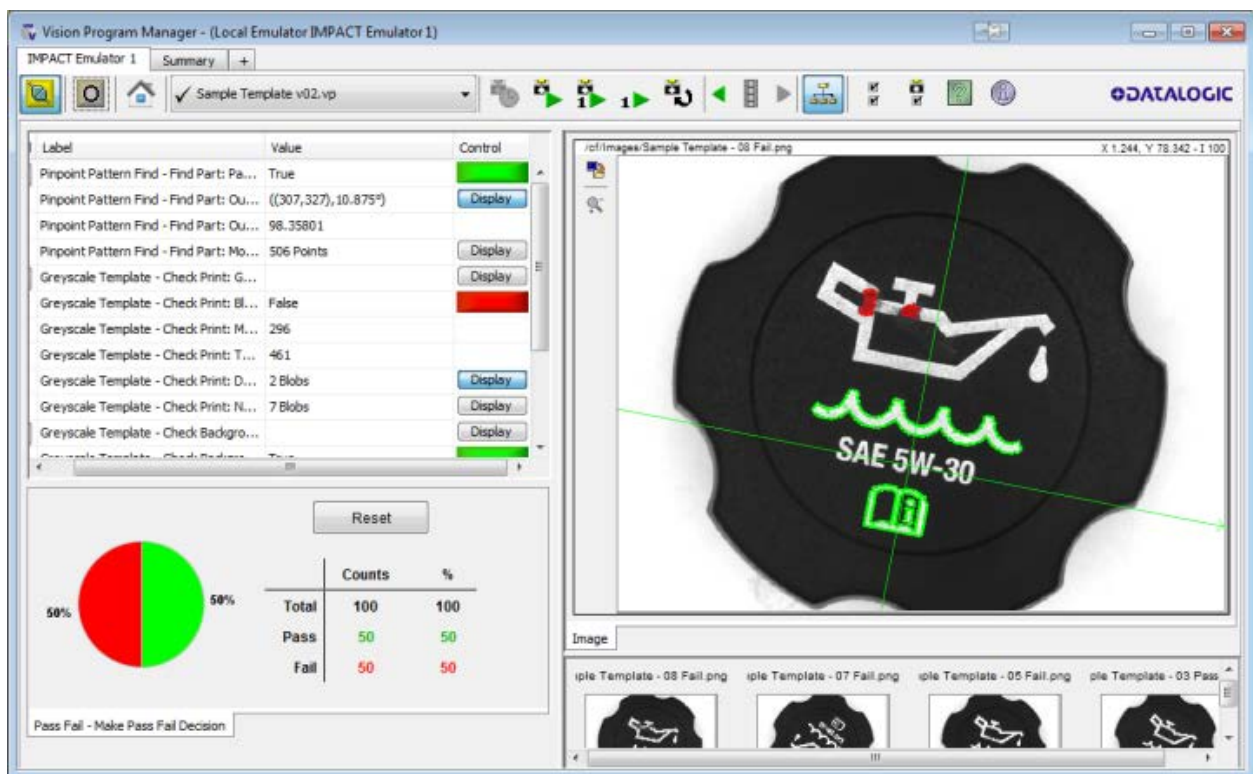
[Activate the images](#) that have a name starting with Sample Template.

[Close any open programs.](#)

[Open the program](#) Sample Template vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Pinpoint Verify Program

This program uses the Pinpoint Pattern Find, Circle Gauge, and Pass Fail tools to locate and verify the pattern on a rotating part.

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

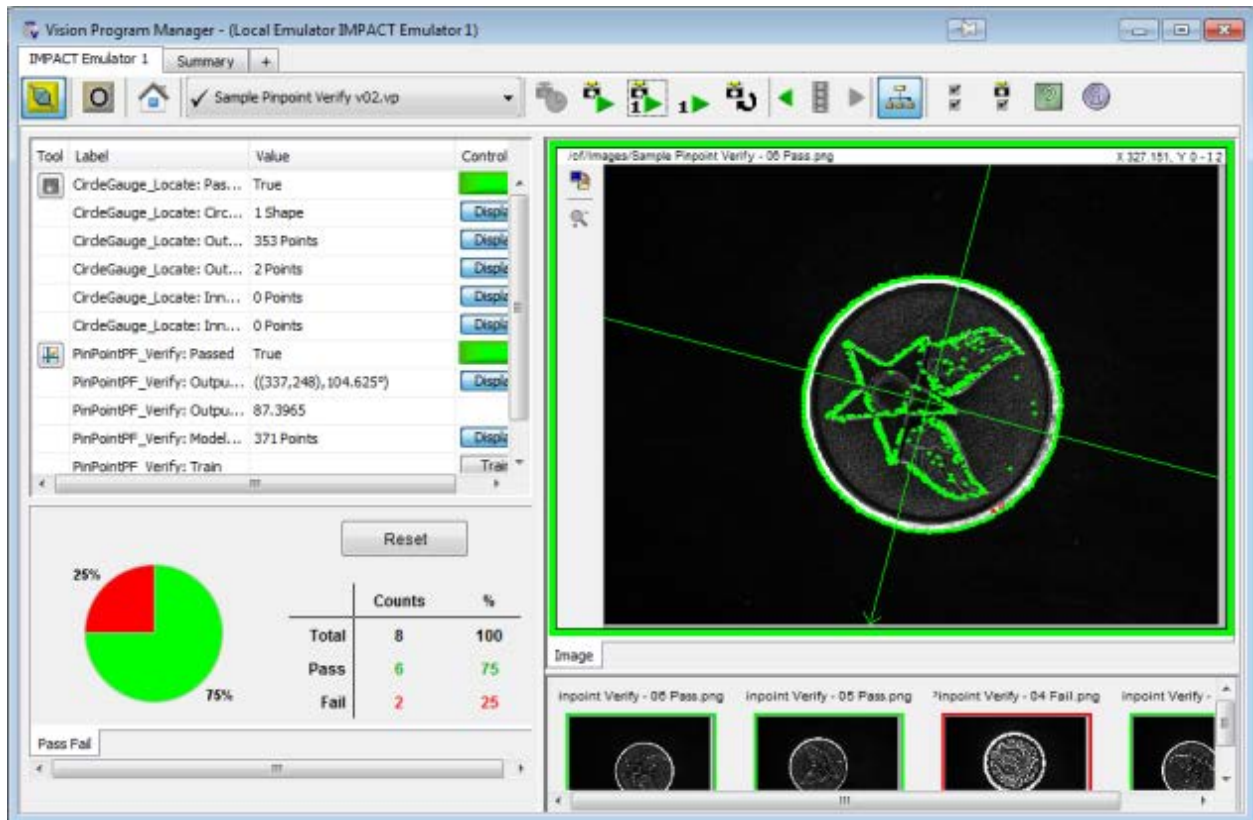
[Activate the images](#) that have a name starting with Sample Pinpoint Verify.

[Close any open programs.](#)

[Open the program](#) Sample Pinpoint Verify vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Pinpoint PickPlace 2 Program

This program uses the Pinpoint Pattern Find and Pass Fail tools to find multiple patterns (parts) in the Field of View. The output can then be used by a robot to Pick & Place the passing parts.

[Start VPM or VPM Lite.](#)

[Deactivate any active images.](#)

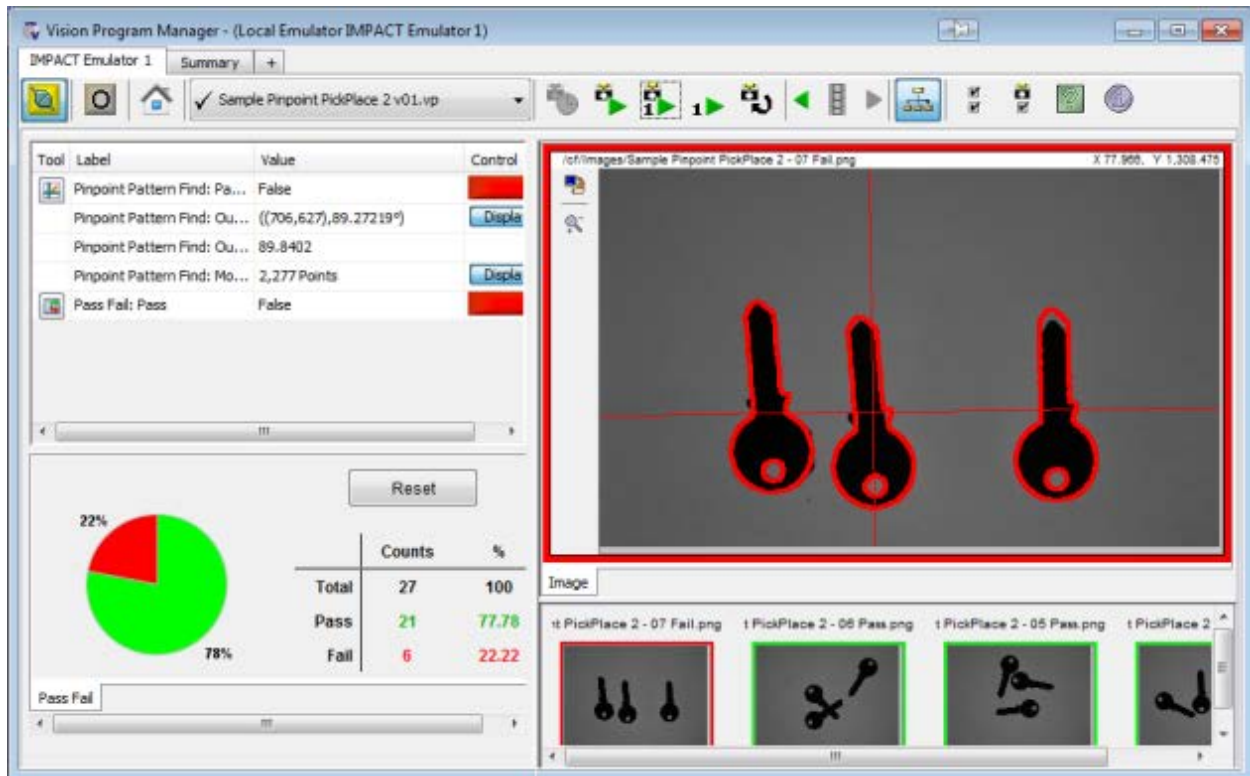
[Activate the images](#) that have a name starting with Sample Pinpoint PickPlace 2.

[Close any open programs.](#)

[Open the program](#) Sample Pinpoint PickPlace 2 vnn.vp (where vnn is the version number).

[Choose the Display Mode.](#)

[Run the Sample Program.](#)



Sample Pattern Sort Program (VPM Only)

NOTE: This program runs only on MX40, MX80, MX-U40, MX-U80, MX-E40, and MX-E80 processors and the Emulator. The Pattern Sort tool will not run on other devices.

This program uses the Pattern Sort tool to find patterns in the input image that match patterns in a searchable binary pattern file (database). The Origin, Pinpoint Pattern Find, Contrast, and Pass Fail tools are used to sort inspected parts that are not in the database.

NOTE: Before you can use this program, you must install the Pattern Database Manager (IMPACTPDMSetup) which installs the sample pattern database that the Pattern Sort tool uses.

[Start VPM.](#)

[Deactivate any active images.](#)

[Activate the images](#) that have a name starting with Sample Pattern Sort.

[Close any open programs.](#)

[Open the program](#) Sample Pattern Sort vnn.vp (where vnn is the version number).

[Choose the Display Tab.](#)

[Run the Sample Program.](#)

