



Impact ActiveX Excel Getting Started

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Technical Support

If you have technical questions about the operation of any Datalogic product, contact your distributor or Datalogic. Please have the following information available before you call:

- The model and serial number of the Datalogic vision device, located on the bottom of the unit. The version number of the Impact software you are running, found in the title bar of the software.
- The type and version number of the operating system software you are running on the client computer.

T A B L E O F C O N T E N T S

Chapter 1: Using Excel with Impact ActiveX

Excel Programming Environment	1-1
Impact dll	1-2
Excel File	1-2
Macro Security	1-2
Spreadsheet Interface	1-5
Additional Instructions	1-7
Sample Program Code	1-8

Using Excel with Impact ActiveX

This manual documents the Excel sample programs provided by Datalogic that uses the Impact ActiveX interface. The interface allows Excel programmers to access data and events on Datalogic Impact cameras and machine vision devices.

Using ActiveX, an Excel programmer can monitor and operate a Datalogic device, including the ability to read and write tool and task inputs and outputs, load and unload programs, trigger the device to snap an image, and respond to device events.

This manual shows an example of an Excel implementation of the Impact ActiveX interface.

For a more general overview of Impact ActiveX installation, configuration, and use, refer to the Impact ActiveX Reference Guide (Publication # 843-0119).

NOTE: This manual does not provide detailed information about Datalogic Cameras. It assumes you have some knowledge of how vision programs and Impact tools and tasks are structured, how to access tool and task data, and that you understand Impact terminology.

For more details about using Impact Vision Program Manager (VPM) and Datalogic cameras, refer to the Hardware Guides and the Impact Software Reference Guide.

NOTE: Impact ActiveX cannot be used on the Datalogic model A30, T4x-Series, or P-Series Smart Cameras.

Excel Programming Environment

To initially configure the Datalogic camera and create Impact vision programs and control panels, you need to install Impact software, including Vision Program Manager (VPM) and Control Panel Manager (CPM) on a host computer. If you do not intend to create or modify vision programs, you do not need to install the Impact software (VPM and CPM) on the host computer. Refer to the Impact Software Reference Guide for the client computer's requirements.

The Impact Active X Application Programming Interface (API) lets you write a program in Excel Visual Basic to access vision device data by using the necessary function calls. That data can then be sent directly from a Datalogic camera to other devices, such as a Quality Control monitoring system.

A sample Excel spreadsheet interface is provided to help you use the APIs. This includes the Excel Visual Basic code and a sample Impact vision program. To view and modify the program code, you need to install Microsoft Excel 2003 or greater. Refer to the Microsoft software installation and configuration guide for details on installing Excel software. To access these sample programs, you need to install the Impact ActiveX components on the host computer.

To access the Impact ActiveX API, you must install Impact Software Release 8.3.0 or greater on the Datalogic vision device.

You must also include the Impact dynamic link library (IMPACT.dll) in your Excel spreadsheet. This dll is installed and registered by the Impact ActiveX install. See "Impact dll" on page 1-2.

You may copy, modify, and use this sample program code, subject to the terms of Datalogic's Software End User License Agreement.

Impact dll

The Impact ActiveX dynamic link library (IMPACT.dll) is installed and registered when Impact ActiveX is installed. When you create a new Excel spreadsheet, you must include the dll so you can use the Impact ActiveX method calls in your program. These instructions are for Excel 2003.

To include the dll in your program

1. Open the Visual Basic editor window for your xls file.
2. From the menu, select Tools.
3. Select References.
4. Scroll down the list to Impact 1.0 Type Library and select it.
5. Click OK

Excel File

The sample Excel file, named ExcelActiveXSample.xls is installed in a directory under the "install folder" ("install folder" is where the software was installed):

C:\install folder\IMPACT\Vision Device APIs\ActiveX\Sample Applications\ExcelActiveX

A sample Impact vision program named ExcelActiveXSample.vp is included for use with the sample executable program. If you load the sample vision program on the vision device or ImpactEmulator, the sample Excel spreadsheet will display information when you connect to the Emulator or vision device. This sample vision program file is installed in a directory under the "installation folder."

C:\install folder\IMPACT\Vision Device APIs\ActiveX\Sample Applications\ExcelActiveX

Macro Security

When you start Excel and open the sample file named ExcelActiveXSample.xls, certain security level settings in Excel may cause a security warning dialog to be displayed. This warning indicates that the spreadsheet contains mac-

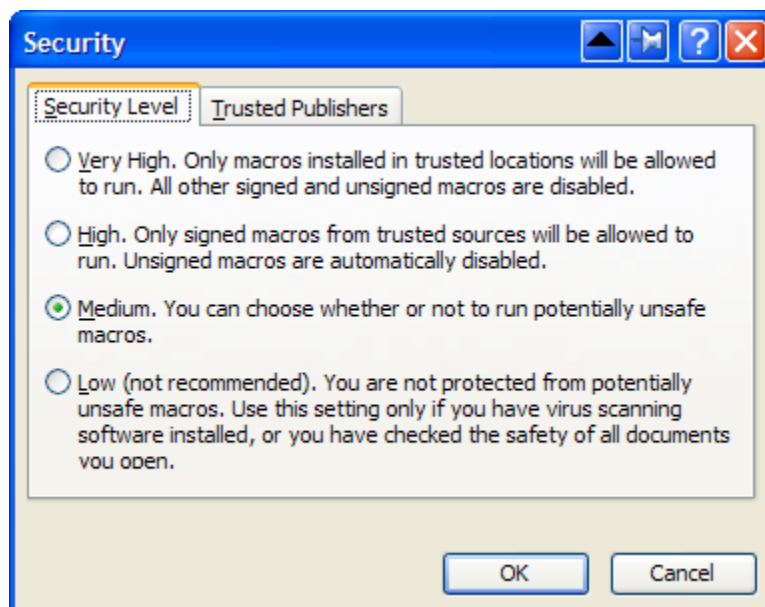
ros. If you have the security level set to Very High or High, the following dialog will prevent you from running the sample spreadsheet.



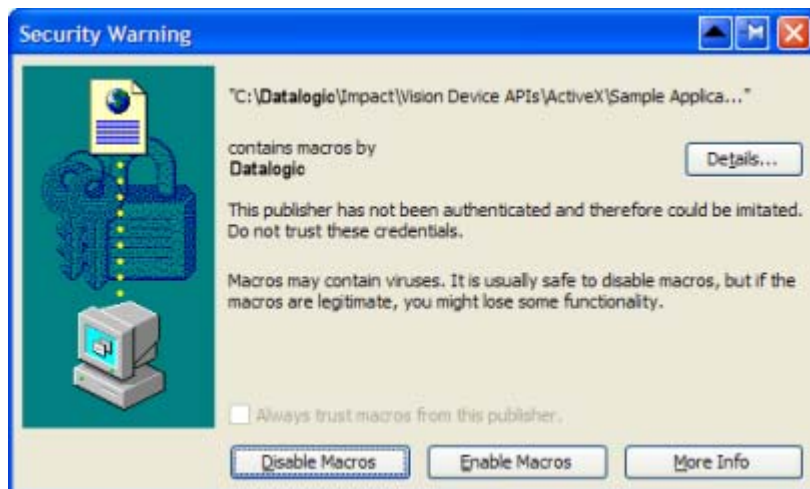
To enable the macros in the sample spreadsheet, you either need to adjust the security level to Medium or install the digital signature certificate. See "To install the digital signature certificate" on page 1-4 for details about installing the digital signature certificate.

To adjust the Excel security level

1. In Excel, select Tools from the menu.
2. Select Macro.
3. Select Security.
4. In the Security dialog, select the Medium radio button.
5. Click OK.



Once the security level is set to Medium, the Security Warning dialog will be displayed when you open the spreadsheet. This will let you enable the macros and use the sample spreadsheet.

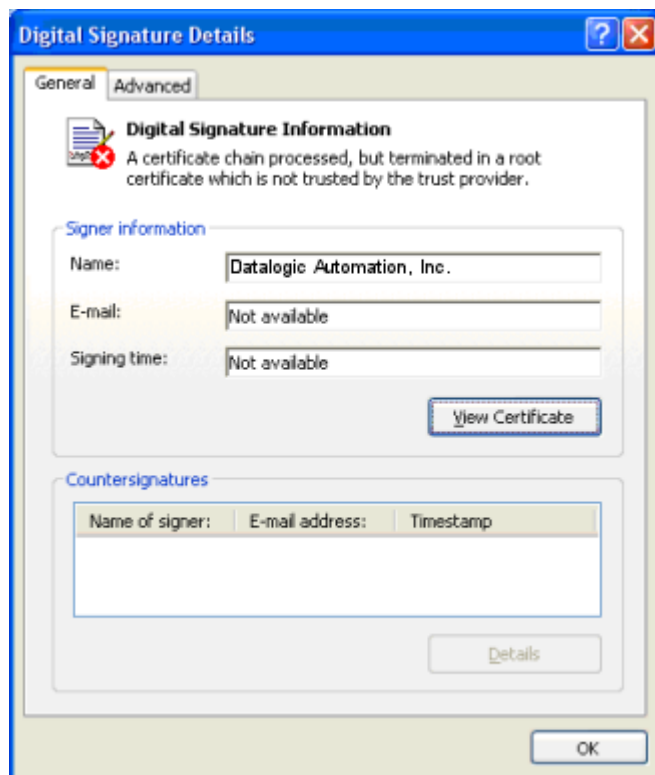


To enable the macros and use the sample spreadsheet if the certificate is not installed

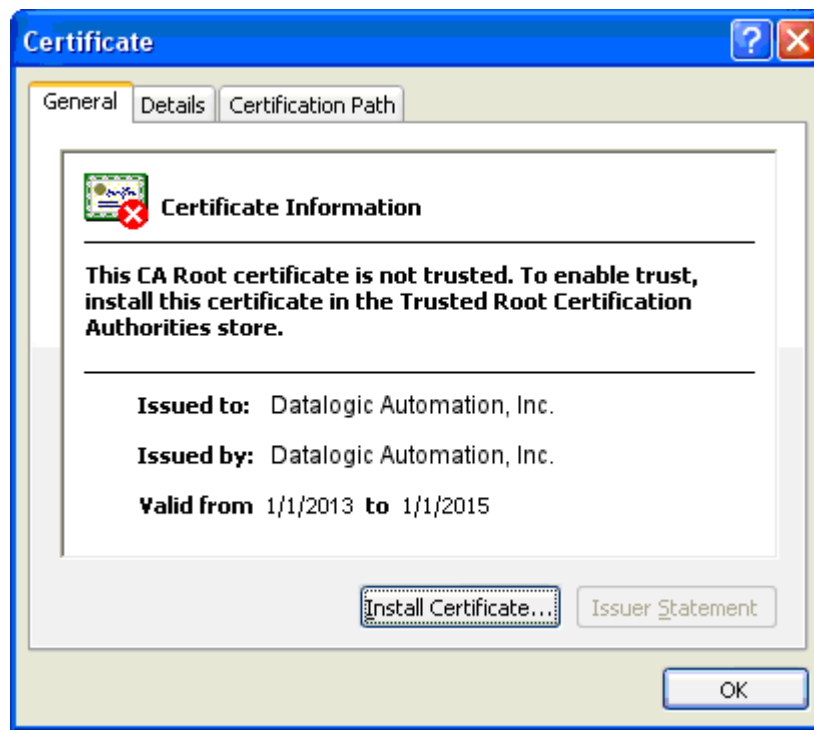
1. When the Security Warning dialog is displayed, click the Enable Macros button.

To install the digital signature certificate

1. When the Security Warning dialog is displayed, click the Details button.
2. The digital signature details dialog is displayed.



3. Click the View Certificate button. The certificate dialog is displayed.



4. Click the Install Certificate button. The Certificate Import Wizard starts. Follow the on-screen instructions, using the default selections. When the Security Warning dialog is displayed, click Yes to confirm the certificate installation.
5. Click OK on the final Certificate Import Wizard dialog.
6. Close Excel and open the sample file named ExcelActiveXSample.xls.

Spreadsheet Interface

The sample spreadsheet provided lets you monitor and control a Datalogic Impact camera. This section briefly explains parts of the interface. Scroll to the right side of the interface display for more instructions. See “Additional

Instructions” on page 1-7.

Copy the desired device IP Address from the list

Paste the device IP Address into this cell, then click Connect

IMPACTs	Program Directory	Program Name	Target IP address	Average Intensity	Last Result
192.168.108.51	C:\Datalogic\Impact\Vision Device APIs\ActiveX\Sample Applications\ExcelActiveX\				
192.168.108.55					
192.168.108.56					
192.168.108.63		ExcelActiveXSample.vp			
192.168.108.65					
192.168.108.98					
			192.168.108.65		
192.168.108.185				35.23429711	
192.168.108.186					
192.168.108.191					
192.168.108.201					GetRealPort : OK
192.168.108.221					
192.168.109.26					
192.168.109.49					

Find

Connect

Disconnect

Write File

Load File

☐ Online

Trigger

Update

Refresh the device list

Connect to the selected device

Image display area

Impacts

This column lists all the Datalogic vision devices on the network. Click the Find button to refresh this device list.

Program Directory

This cell contains the path for the file listed in the Program Name cell. The path string must end with a backslash (\).

Program Name

This cell contains the vision program file name to load on the vision device. The file must be located in the directory indicated in the Program Directory cell.

Target IP Address

This cell contains the IP Address of the desired vision device. You can copy and paste the desired IP Address from the Impacts column.

Average Intensity

This cell contains the result of reading the Real value from the Average Intensity Result port of the Average Intensity tool in the sample vision program. The GetRealPort API call is used. See “Sample Program Code” on page 1-8 to examine the sample code.

Last Result

This cell contains the result or error code returned by the most recent command.

Find

When you click this button, the sample code searches the network for vision devices then displays the IP Addresses of all the devices that respond in the Impacts column.

Connect

Click this button to connect to the device at the IP Address currently entered in the Target IP Address cell.

Disconnect

Click this button to disconnect from the currently connected device.

Write File

When you click this button, the vision program file indicated by the by the name in the Program Name cell and the path in the Program Directory cell is copied from the directory to the vision device. You must then click the Load File button to load the vision program into the device's memory so it can run.

Load File

When you click this button, the vision program file indicated by the name in the Program Name cell and the path in the Program Directory cell is loaded into the device's memory. You must click the Write File button first to copy the file to the vision device.

Online

When this check box is checked, the device is put online. When it is unchecked, the device is put offline. This check box must be checked for the Trigger button to create triggers.

Trigger

Click this button to trigger the device, capture an image, and run the vision program. The Online check box must be checked for the trigger to succeed.

Update

Click this button to refresh the displayed port values, including the image.

Image Display Area

The image indicated by the Read Image Port fields is displayed in this area. The image placement and size are determined by the GetImagePort method call.

Additional Instructions

When the Spreadsheet Interface is displayed, scroll to the right side of the interface display to view the following instructions.

Instructions for running the demonstration

1. Click "Find" to locate Datalogic cameras.
2. Copy and paste the desired IP address into the cell labeled "Target IP Address".
3. Click "Connect" to establish a session.

4. Click "Write" to transfer the file in the "Program Name" cell from the "Program Directory" location to the vision device.
5. Click "Load" to have the transferred file loaded as a program on the vision device.
6. Click "Online" to have the camera go into online mode.
7. Click "Trigger" to acquire an image and run the program.
8. The ImageInEvent will come back from the vision program and the Excel program code will display the new image and the Average Intensity Result.
9. Click "Update" to display the previously sampled data again.
10. Click "Disconnect" to end the session. This also clears the image since Excel cannot save the image in the xls file.

Sample Program Code

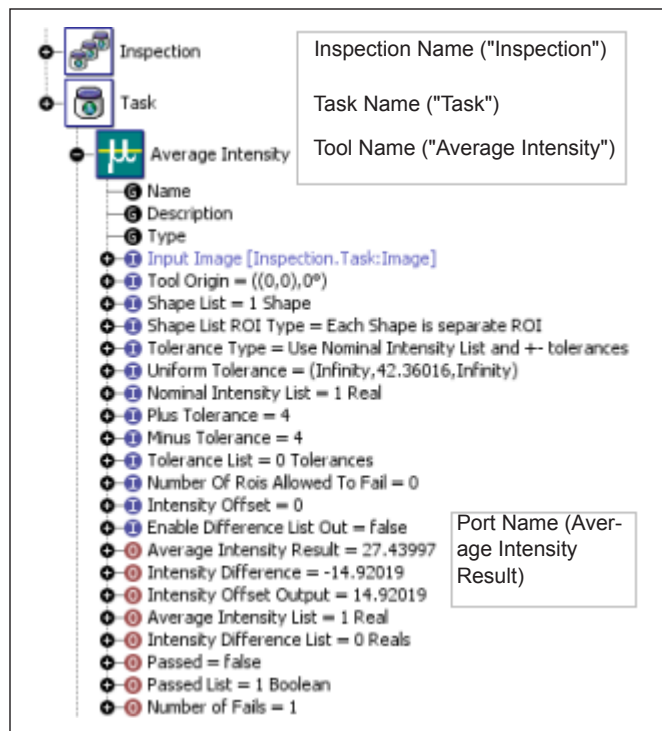
The sample program code shown here is extracted from the Excel file installed with Impact ActiveX. When you create your own Excel spreadsheet, you will need to add the Impact library reference to it so you can make Impact API calls. See "Impact dll" on page 1-2 for details.

See the remainder of the sample program code for the appropriate variable and procedure declarations.

Vision Program

When you connect to a device with the sample spreadsheet, you can write a sample vision program to the device and load it. The program, task, and port names in the spreadsheet API call to read and write data must match the names in the vision program.

When you create your own spreadsheet, you need to use the names from the vision program to access the data. For example, here is a portion of the sample vision program referred to in the code.



Update Values

Here is the section of the Spreadsheet Interface sample code that reads the Image and the Average Intensity Result Real value from the vision program. See the rest of the program for variable and procedure declarations. It uses the Impact API calls named GetImagePort and GetRealPort. Refer to the Impact ActiveX Reference Guide for more details.

```
,
' Subroutine that updates the image and result of Average Intensity tool
,
Public Sub UpdateScreen()
    Dim realVal As Double
    Call Initialize

    ' Get the image from the Task node of the program
    ' The names used are specific to the program that is loaded
    eRes = oper.GetImagePort(devHnd, "Inspection", "Task", "", "Image", pngImg)
    Call ShowError("GetImagePort", eRes)

    ' Display the image into the Image control
    Set Image.Picture = pngImg.ConvertToIPictureDisp

    ' Get the result of the Average Intensity tool calculation
    ' These names are specific to the program on the Datalogic device
    eRes = oper.GetRealPort(devHnd, "Inspection", "Task", "Average Intensity",
"Average Intensity Result", "", realVal)
    Call ShowError("GetRealPort", eRes)\
    ActiveSheet.Range("AvgInt").Value=realVal
End Sub
```


A C T I V E X E X C E L R E F E R E N C E

Index

A

API 1-1
Average intensity 1-6

C

Connect 1-7
CPM 1-1

D

Device
 find 1-7
 list 1-6
Digital signature certificate 1-4
Directory
 program 1-6
Disconnect 1-7
Display image 1-7
Dll
 Impact 1-2

E

Environment
 programming 1-1

F

Files
 Excel 1-2
 load 1-7
 write 1-7
Find 1-7

I

Image
 display 1-7
Impact
 dll 1-2
Impact list 1-6
IP address
 list 1-6
 target 1-6

L

Last result 1-6
Load file 1-7

M

Macro
 security 1-2

O

Online 1-7

P

Program
 directory 1-6
 name 1-6

R

Read real 1-6
Result 1-6

S

Security
 macro 1-2
Software
 version required 1-1
Spreadsheet interface 1-5

T

Target IP address 1-6
Trigger 1-7

U

Update 1-7

V

Version
 software required 1-1
VPM 1-1

W

Write file 1-7

