



THE VISION IS YOURS

IMPACT DEVICE RSLogix 5000 EDS-AOI Installation Guide

Updated Feb. 2016

Overview

- *The Electronic Data Sheet (EDS) and Add-On Instruction (AOI) are designed to enhance the integration experience of the technician tasked with the installation and commissioning of EIP communication between an IMPACT Vision Device and a PLC which is programmed with RSLogix 5000 software.*
- *The EDS file registers the IMPACT Device as a selectable Ethernet Module in the RSLogix 5000 software. When the module is added to a Controllogix or Compactlogix project, it configures the communication parameters.*
- *The AOI is imported to a RSLogix 5000 Controllogix or Compactlogix project, and is instantiated for each IMPACT device.*
- *The AOI v2.x was created with RSLogix v20.03. It is intended for use with RSLogix v20 and later.*
- *This User Manual will guide the installer through the process.*

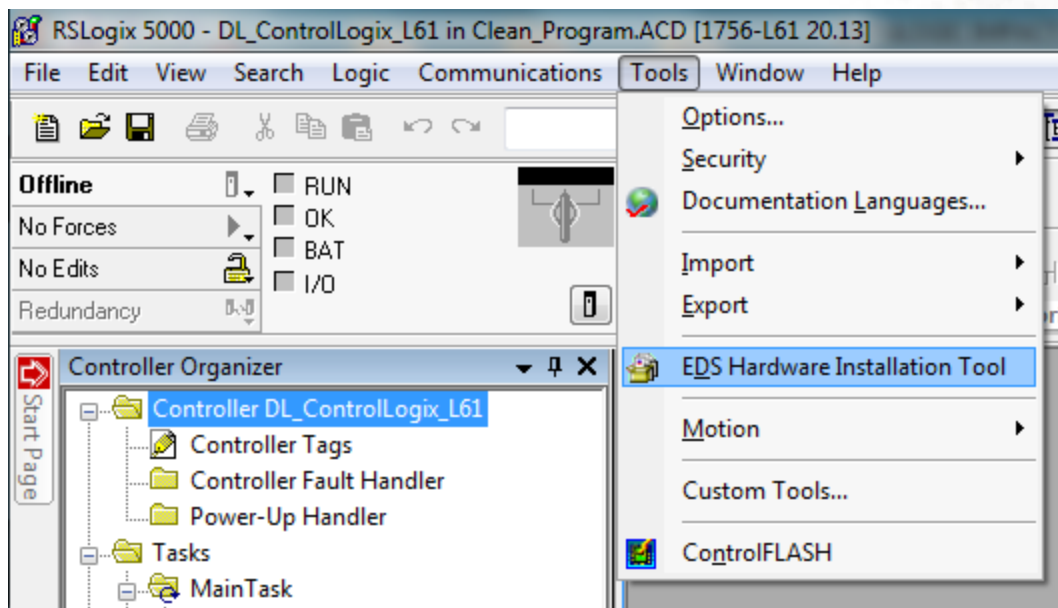
Before You Begin

- *This User Manual is intended for a maintenance or engineering member with more than a cursory level of training and experience implementing PLC programming.*
- *Although the procedure is the same for Offline or Online, DATALOGIC recommends that initial implementations be performed Offline.*
- *Follow the steps carefully, read the entire instruction before beginning, and reference the material as often as necessary during installation.*

Registering the EDS File

- *The EDS file identifies the module, it's capabilities, and how to communicate with it.*
- *Once registered, the IMPACT module can be created and installed into the Ethernet I/O tree of the Logix Processor.*
- *V2.x creates a data transfer of 48 values both in and out. The first 8 are reserved for dedicated control and status. The remaining 40 values are for User Data.*

Registering the EDS File – Step 1



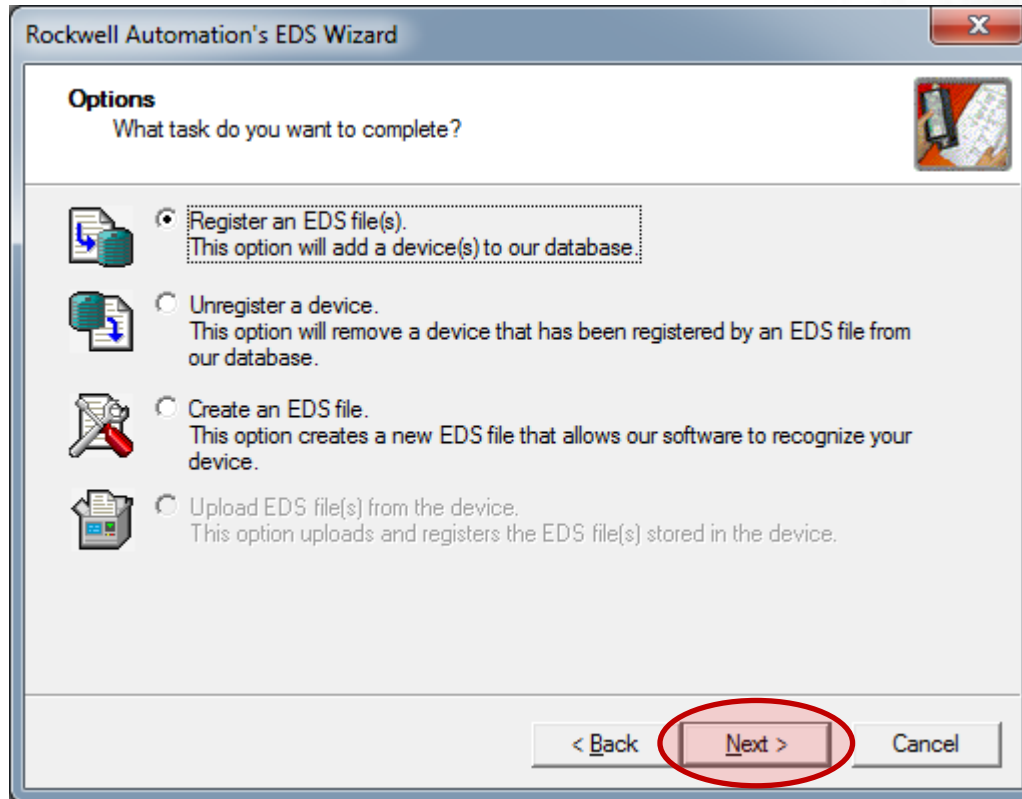
With an RSLogix5000 project open, pick the Tools heading at the top of the window, and select the EDS Hardware Installation Tool option from the menu.

Registering the EDS File – Step 2



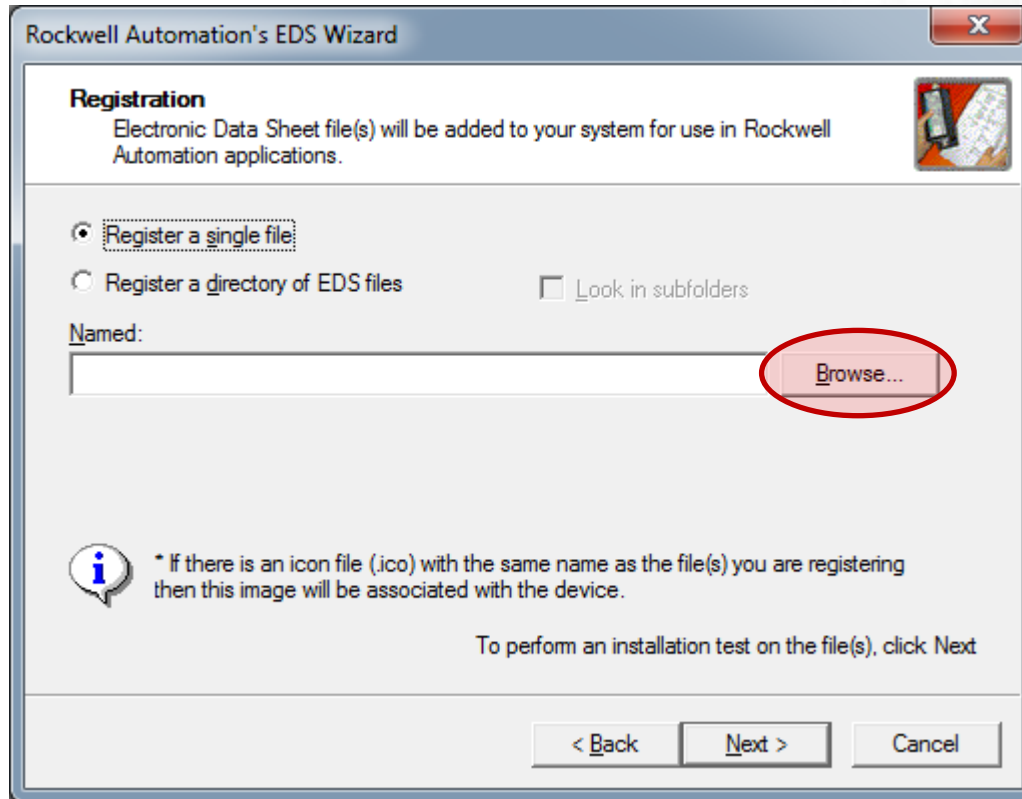
This is the Splash window that appears.
Select Next to continue.

Registering the EDS File – Step 3



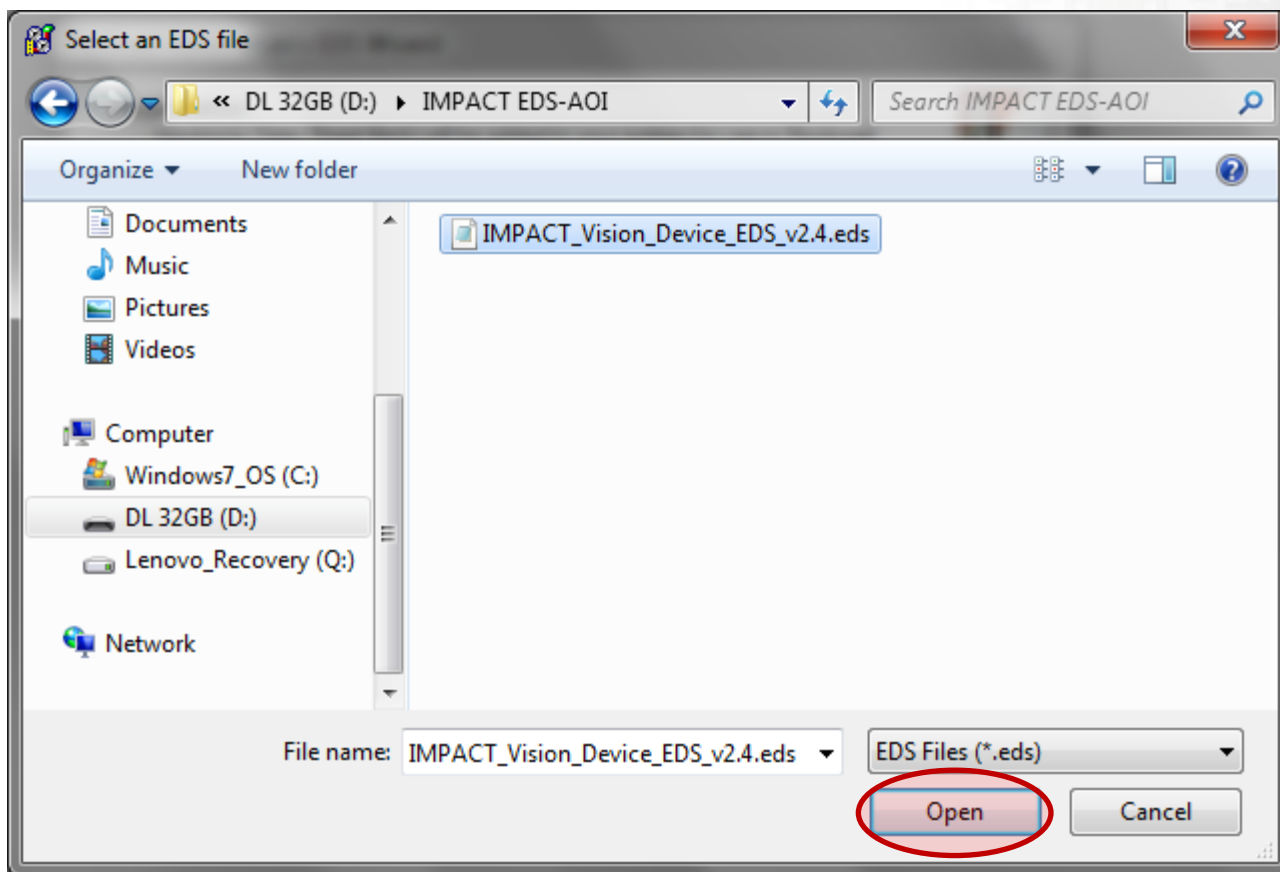
Ensure that the Register an EDS File option radio button is selected.
Select Next to continue.

Registering the EDS File – Step 4



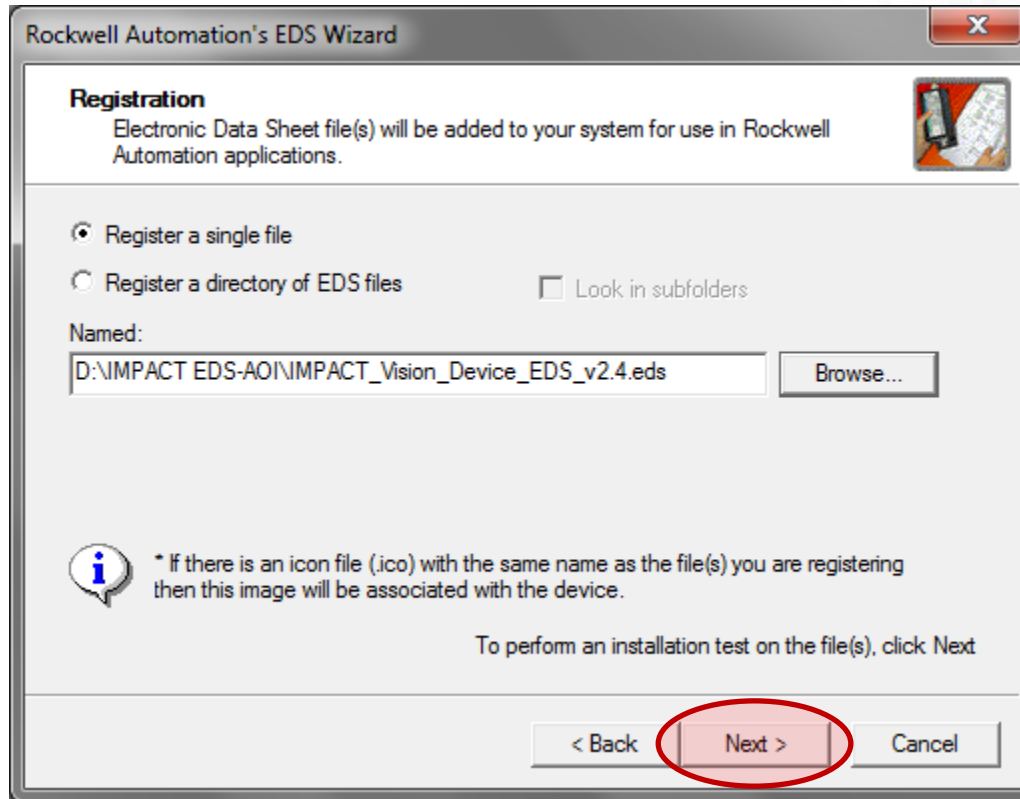
The next step is to point the software to the location of the downloaded EDS file.
Select Browse to continue.

Registering the EDS File – Step 5



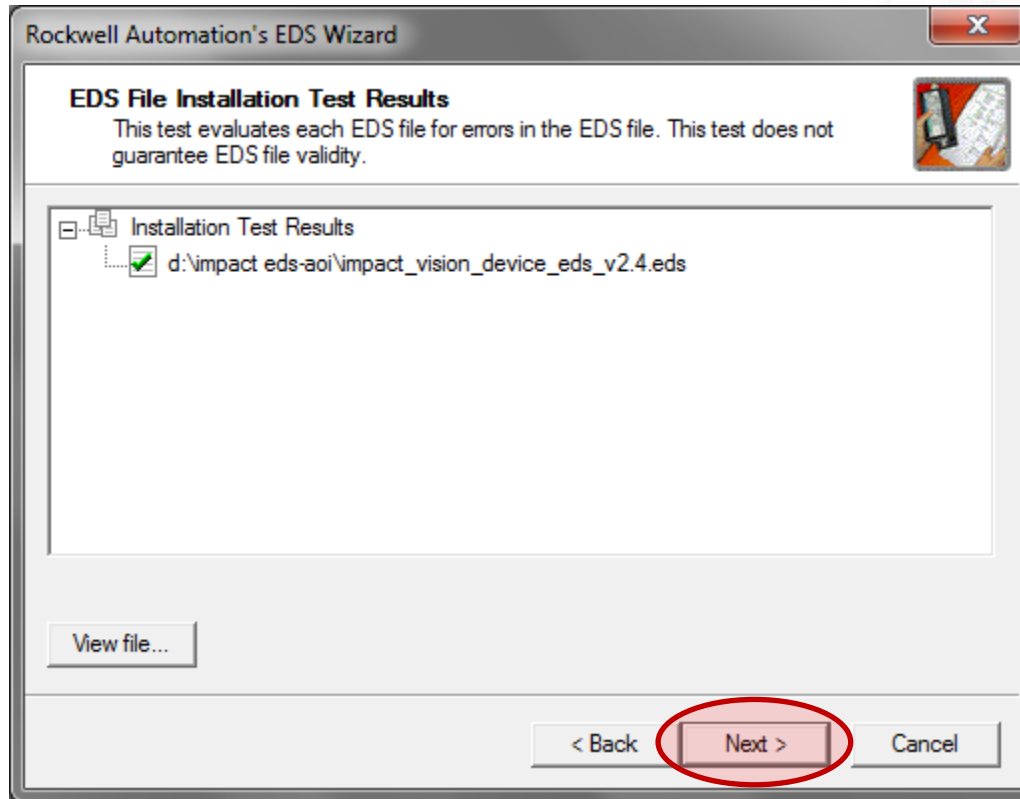
Point the software to the EDS file to be registered. The current EDS file revision may differ from the one shown. Select Open to continue.

Registering the EDS File – Step 6



With the proper path and file identified,
select Next to continue.

Registering the EDS File – Step 7

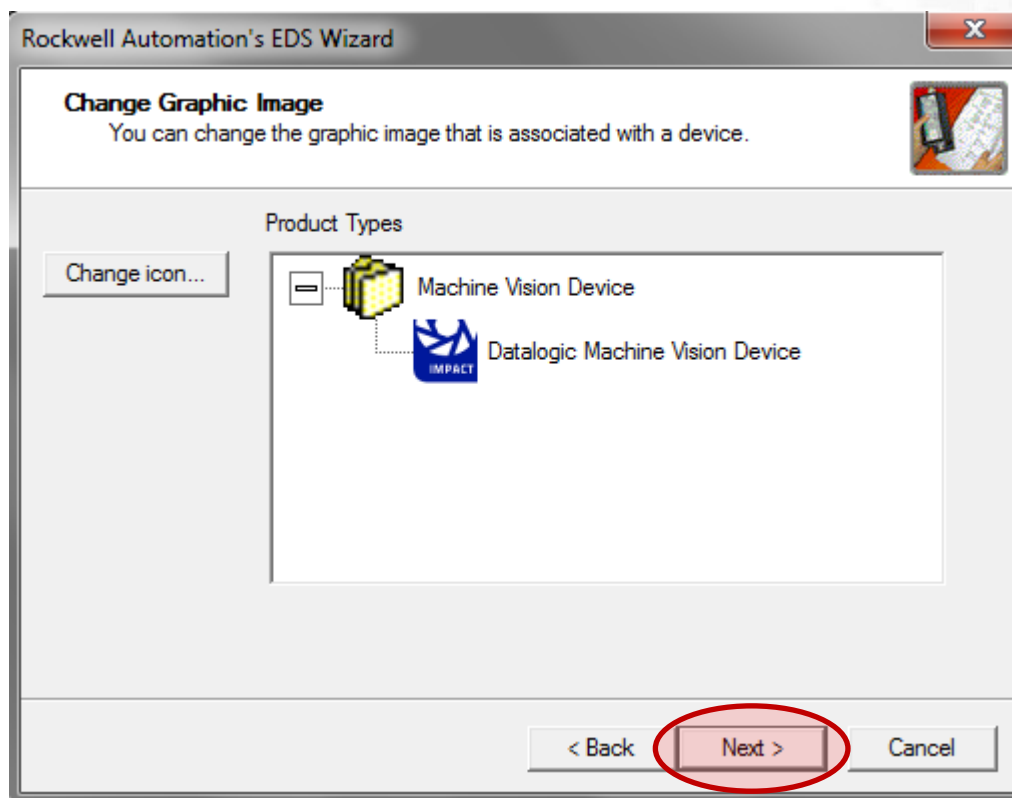


Note:

If an error notification appears at this point, select Cancel, and use the EDS Hardware Installation Tool that installs with RSLinx Classic. It can be found in the Tools folder within the RSLinx Classic folder of the Windows Start menu.

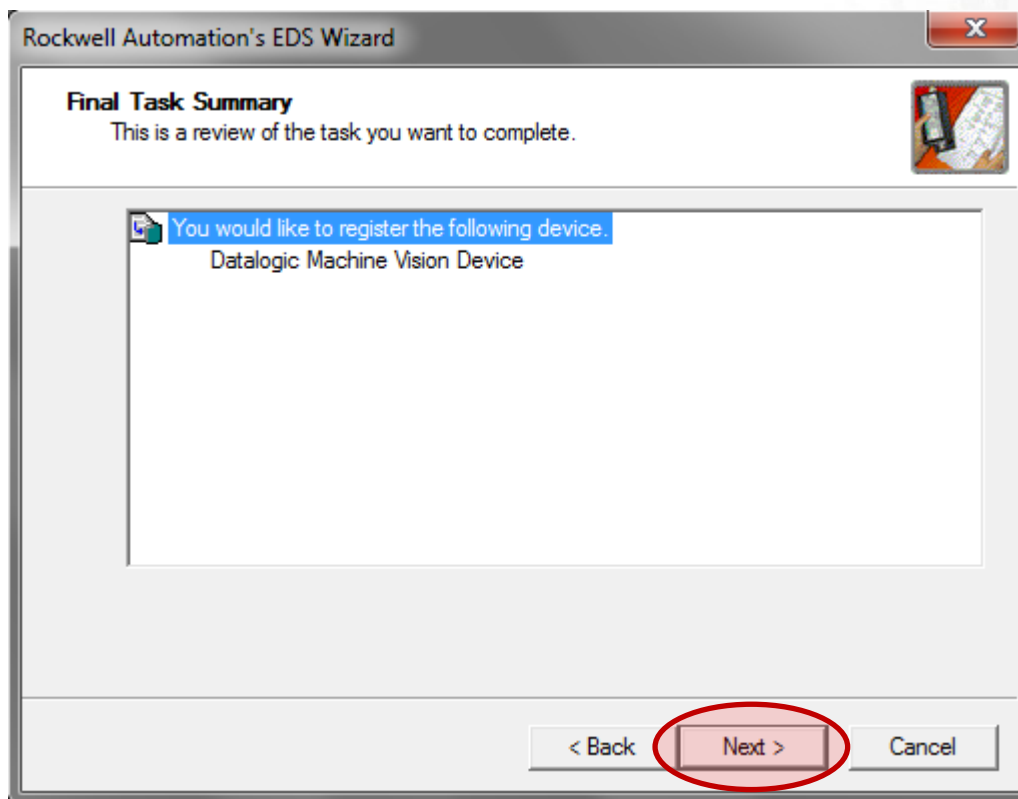
If the EDS file is valid, the path/file appears with a green check mark.
Select next to continue.

Registering the EDS File – Step 8



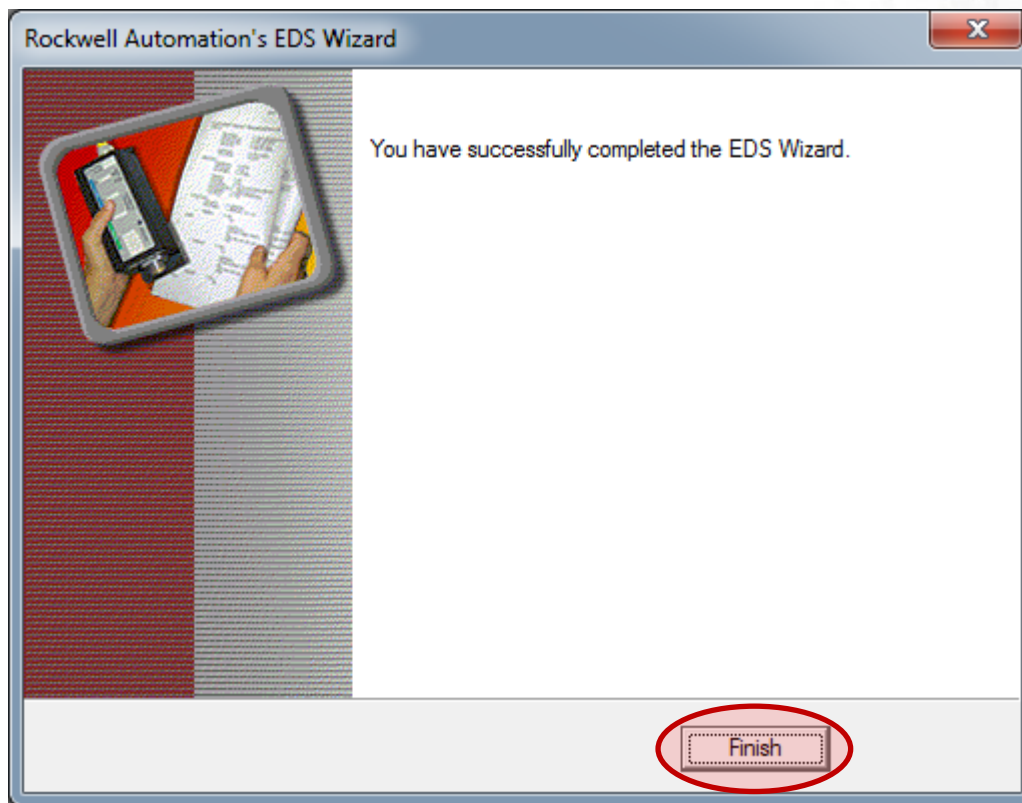
The software then displays the graphical image which occupies the module location in the Ethernet I/O tree.
Select Next to continue.

Registering the EDS File – Step 9



The software displays a brief summary of what will be registered.
Press Next to continue.

Registering the EDS File – Step 10



You have completed registration of the Datalogic Machine Vision Device.
Select Finish.

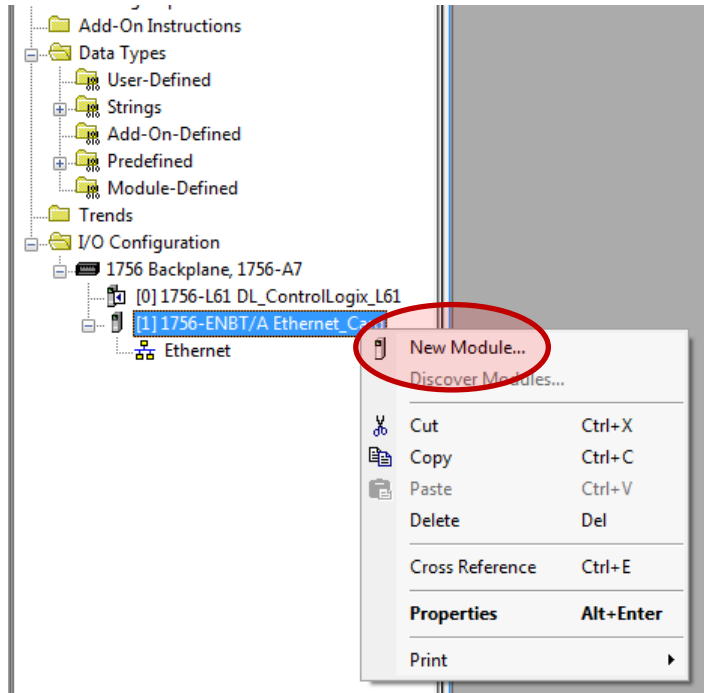
Congratulations!

You have registered the IMPACT Vision Device EDS!

Creating the Ethernet I/O Module

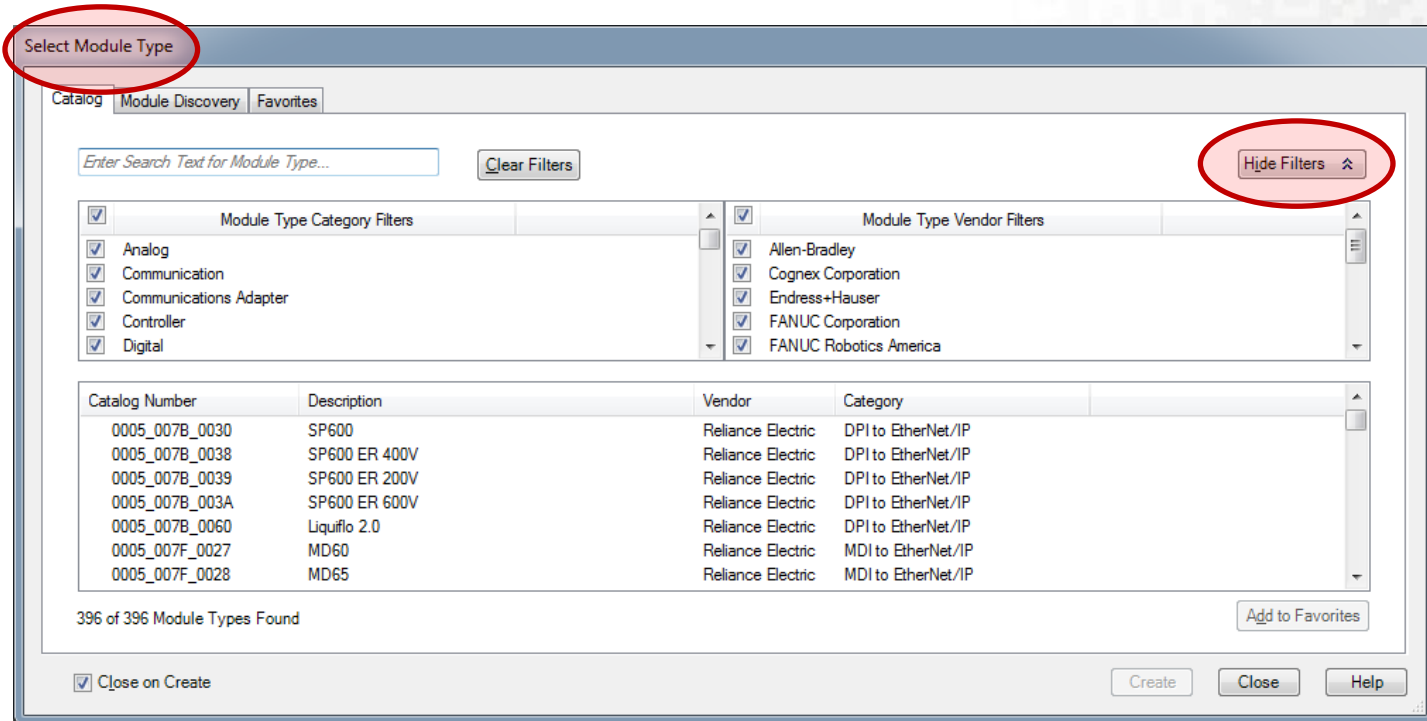
- *Once the EDS file has been successfully registered with the RSLogix 5000 software, the next phase is to create an Ethernet I/O module in the I/O tree of the processor.*
- *The creation of the Ethernet module will also create Module-Defined Data Types, as well as add Input and Output tag sets to the Controller Tags database. The Input and Output tag sets use the name defined in the creation of the Ethernet module.*

Creating the Module – Step 1



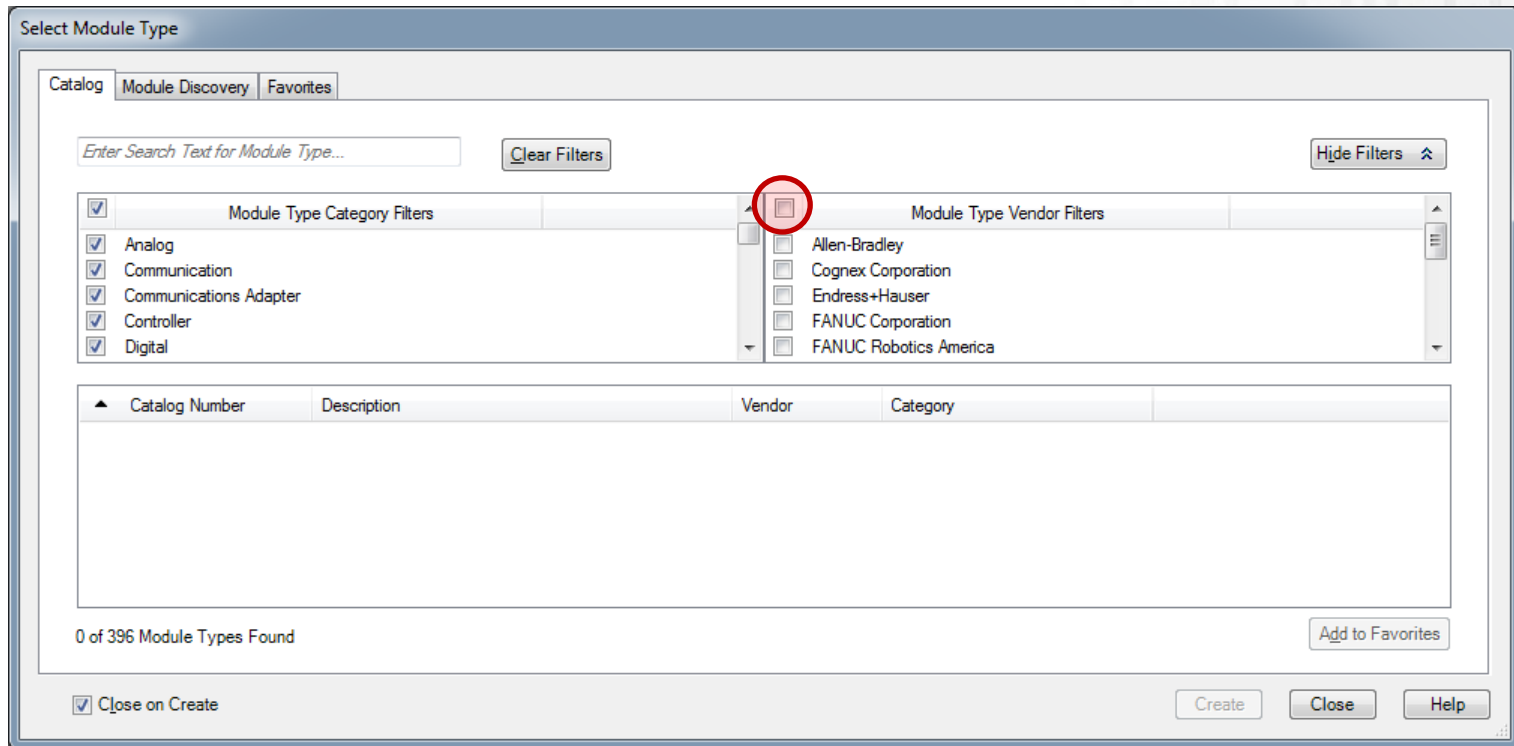
With the Ethernet module of the intended network highlighted, right click the mouse and select the **New Module** option from the drop down menu.

Creating the Module – Step 2



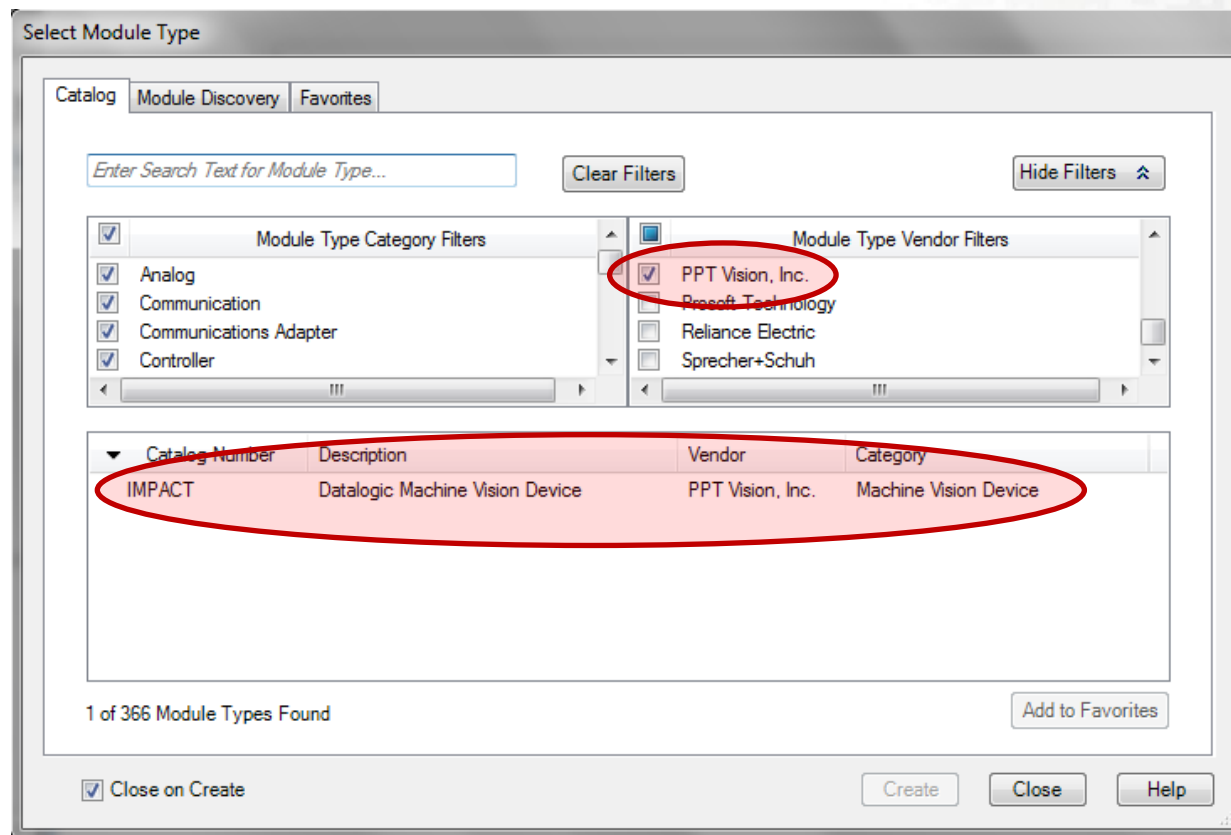
Select Show/Hide Filters such that Filters are displayed.

Creating the Module – Step 3



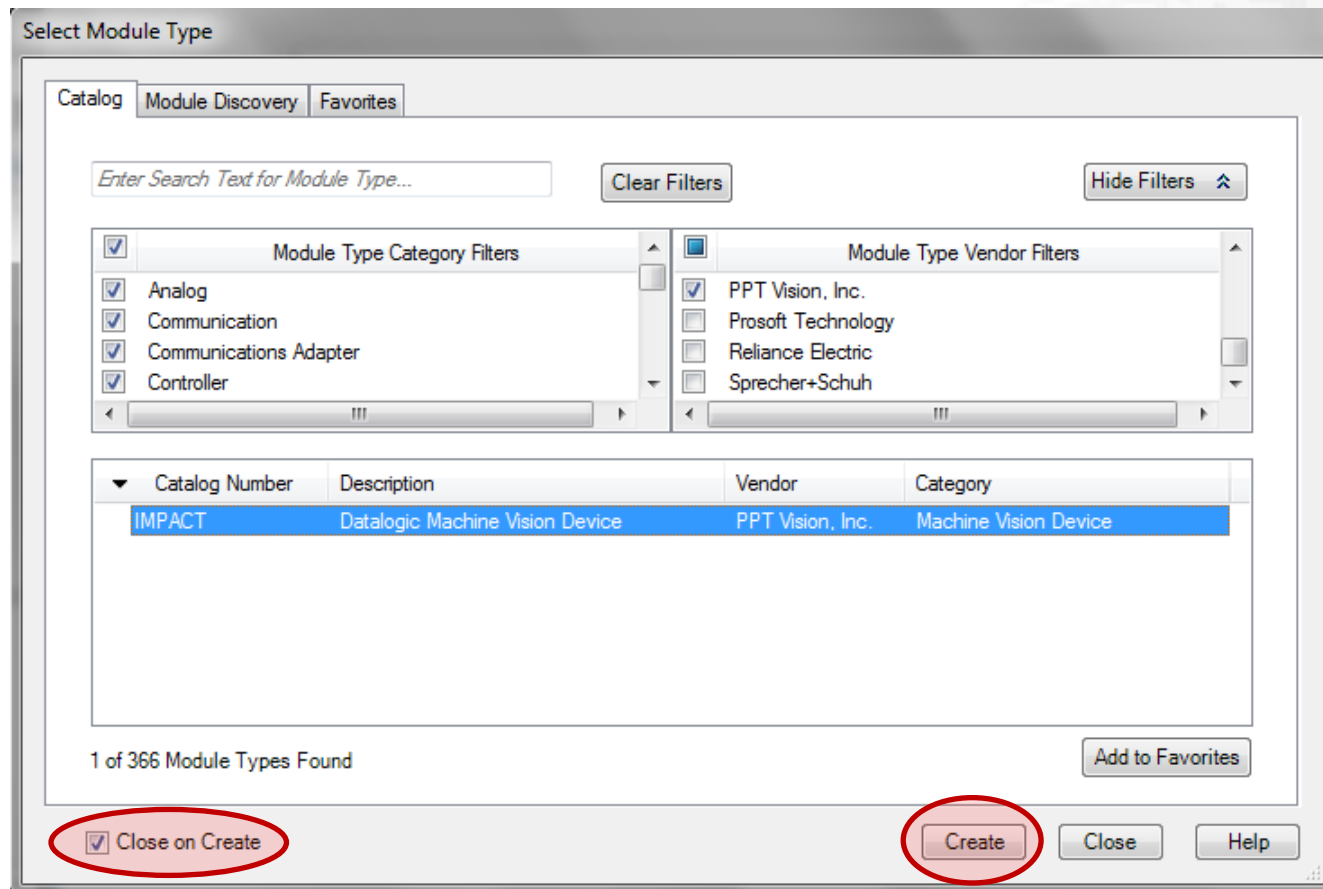
Clear the Vendor Filters checkbox before scrolling down the filters list. This clears the lower pane of all catalog numbers.

Creating the Module – Step 4



Selecting the vendor (Datalogic Machine Vision or PPT Vision, Inc.) will populate the Device Selection pane at the bottom of the Module Type window with all available device' catalog numbers from that vendor. Select the appropriate device.

Creating the Module – Step 5



Creating the Module – Step 6

The screenshot shows the 'New Module' dialog box with the following details:

- General Tab:**
 - Type: IMPACT Datalogic Machine Vision Device
 - Vendor: PPT Vision, Inc.
 - Parent: EIP_Scanner
 - Name: Camera_1
 - Description: (Empty text area)
- Ethernet Address:**
 - ☐ Private Network: 192.168.1
 - ☒ IP Address: 192 . 168 . 108 . 81
 - ☐ Host Name: (Empty text field)
- Module Definition:**
 - Revision: 1.1
 - Electronic Keying: Compatible Module
 - Connections: O<->T
 - Change ... button
- Status:** Creating
- Buttons:** OK, Cancel, Help

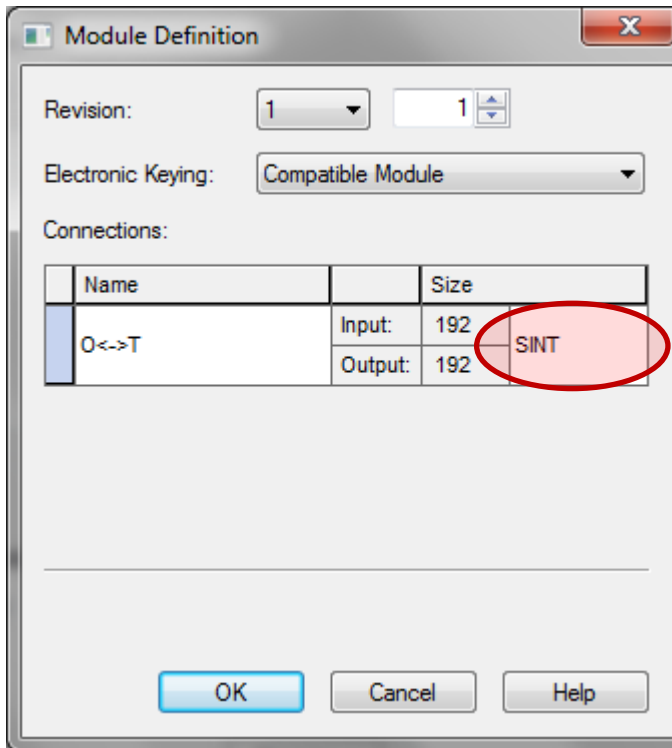
The new module window appears once the module has been created.

Naming the device in a relevant manner to the process or task intuitively identifies the device for all users.

Enter the IP address for the device. With a unique identifier for a name, (Camera_1 in this example), and an IP address

Select the Change button under Module Definition.

Creating the Module – Step 7



The screenshot shows the 'Module Definition' dialog box. It has fields for 'Revision' (set to 1), 'Electronic Keying' (set to 'Compatible Module'), and a 'Connections' table. The table has columns for 'Name', 'Input', 'Output', and 'Size'. The first row is selected, showing 'O<->T' as the name, '192' for both input and output, and 'SINT' for the size. The 'SINT' text is circled in red. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

| Name | Input | Output | Size |
|-------|-------|--------|------|
| O<->T | 192 | 192 | SINT |

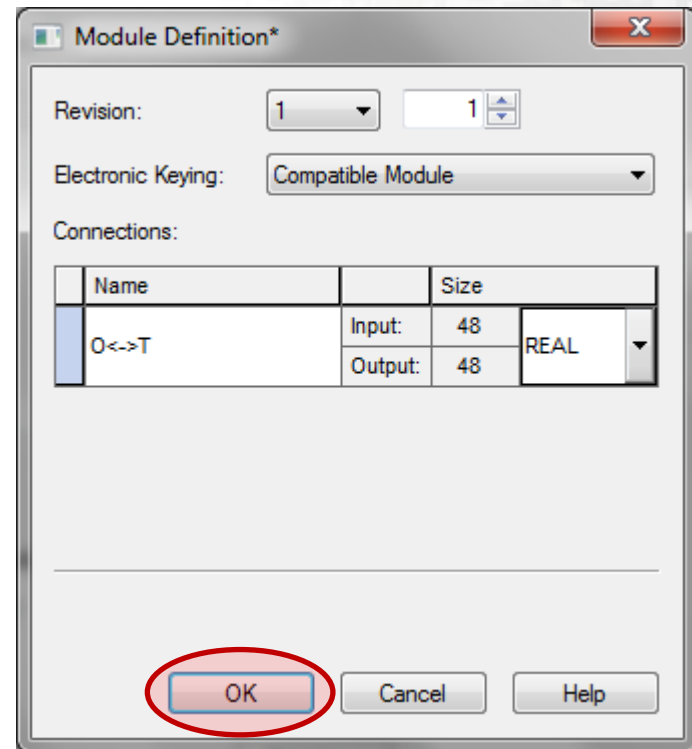
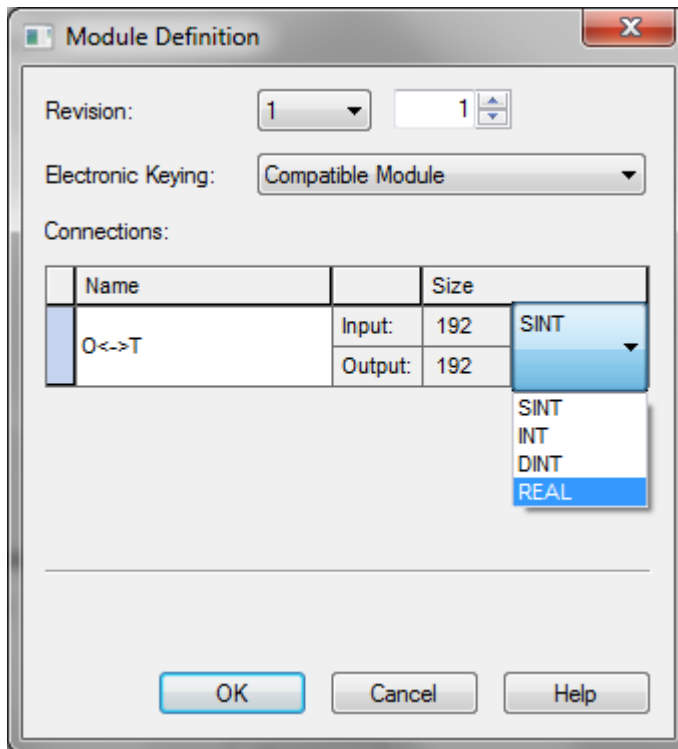
The Module Definition window will appear as pictured.

The default data structure for an EDS file generated module is SINT.

For our purposes it must be changed to REAL.

Click on the text SINT, and a drop-down menu will appear.

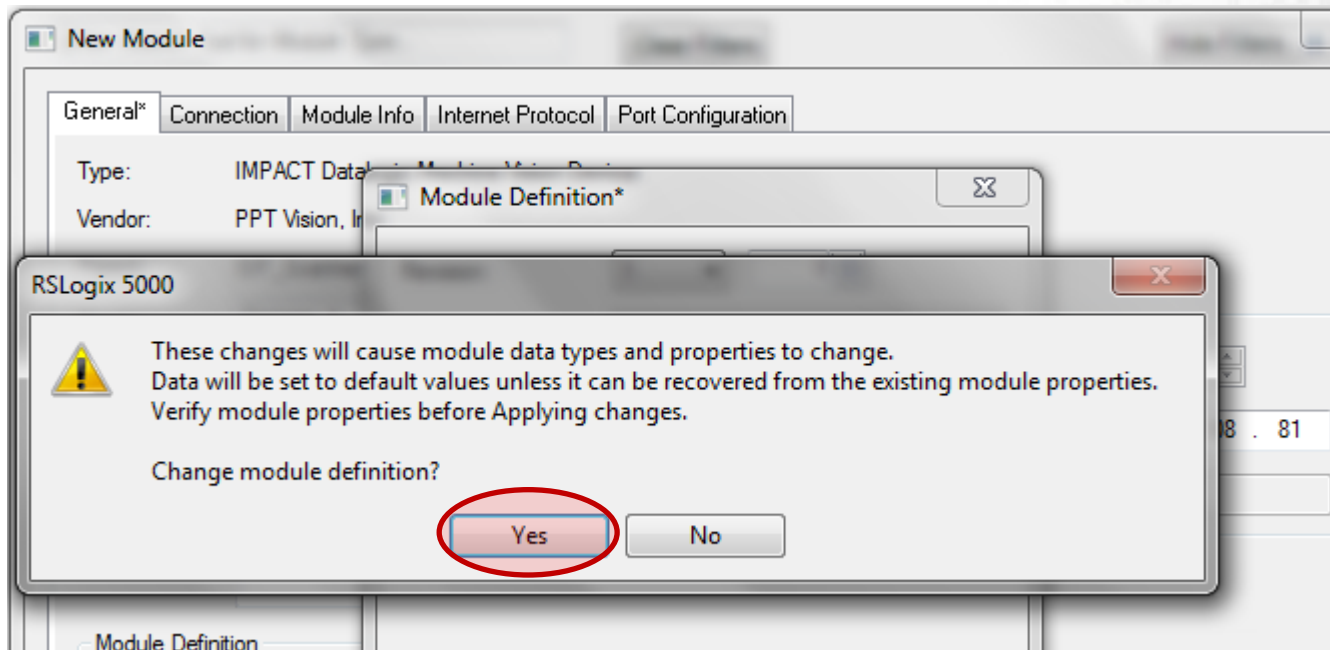
Creating the Module – Step 8



Select REAL. When the SINT has been replaced with REAL, press the OK pushbutton.

A message box will appear notifying that the data type of the module will be changed.

Creating the Module – Step 9



Select Yes to the question: “Change module definition?”

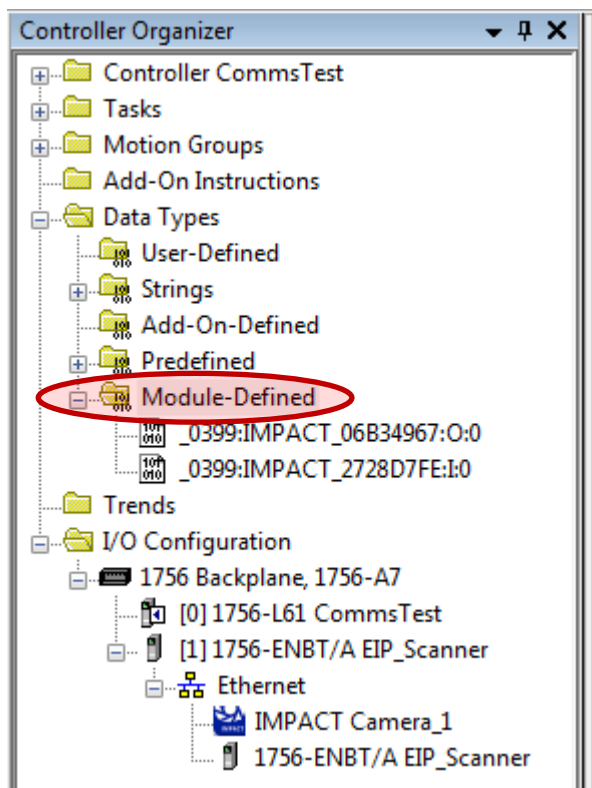
Creating the Module – Step 10

The screenshot shows the 'New Module' dialog box with the following details:

- General* Connection* Module Info* Internet Protocol* Port Configuration*** (Tabs)
- Type:** IMPACT Datalogic Machine Vision Device
- Vendor:** PPT Vision, Inc.
- Parent:** EIP_Scanner
- Name:** Camera_1
- Description:** (Empty text area)
- Ethernet Address:**
 - ☐ Private Network: 192.168.1.
 - ☒ IP Address: 192 . 168 . 108 . 81
 - ☐ Host Name:
- Module Definition:**
 - Revision:** 1.1
 - Electronic Keying:** Compatible Module
 - Connections:** O<->T
- Buttons:** Change ... (bottom right of Module Definition), OK (circled in red), Cancel, Help
- Status:** Creating

Returning to the New Module window, select the OK pushbutton to finish module installation.

Creating the Module – Step 11



The new module icon appears in the Ethernet I/O tree under the appropriate Ethernet Card.

Using a process-based naming approach to identify the I/O module makes module identification easier and quicker.

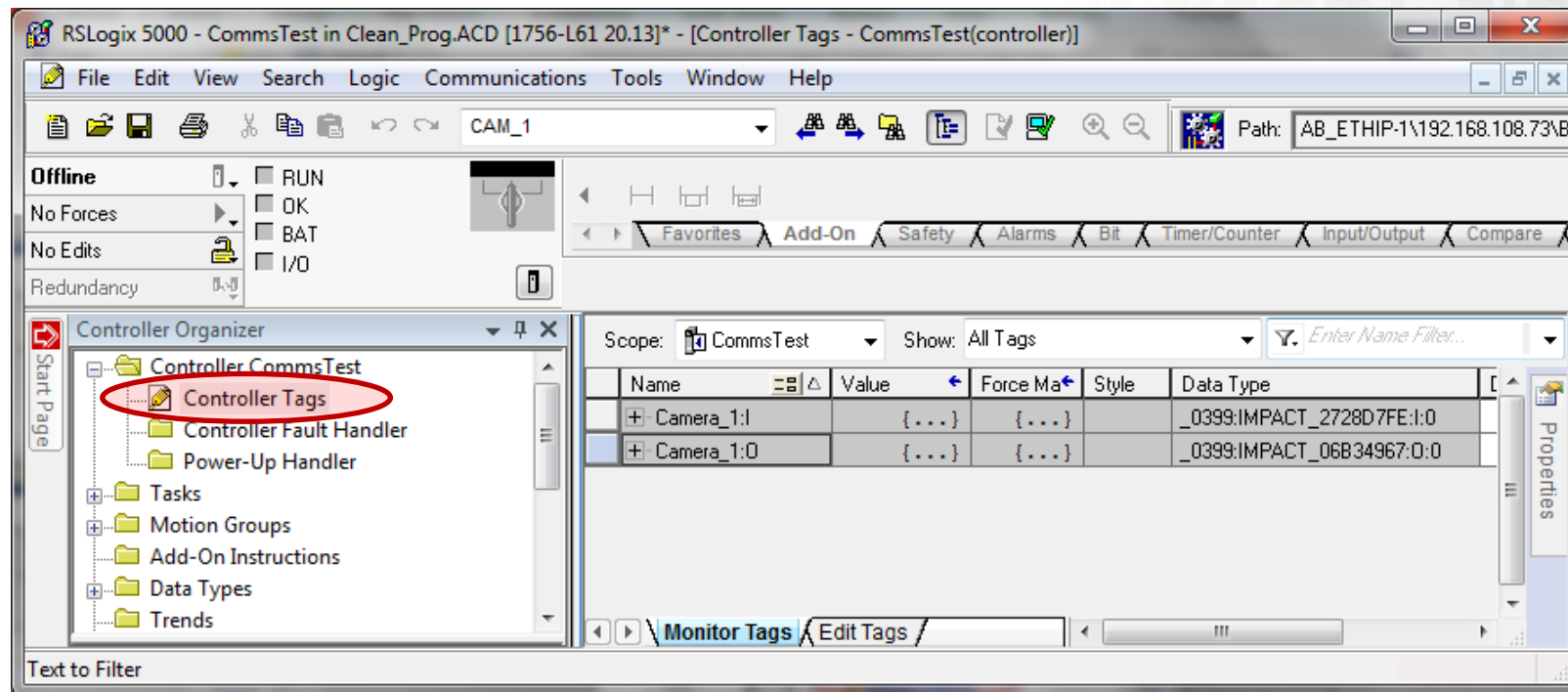
Open the Data Type directory, and double click on the Module Defined sub-folder to reveal the two data types created with the module.

The Data types created by the module consist of two data types, an Input and an Output.

The first 8 REALS in either direction are reserved for IMPACT Control use.

There are 40 Real In and 40 Real Out available as User Data for transfer purposes. Though they are defined here as Real, an Integer, or a String can be Copied to these values and then defined as such in the Impact software to transfer data using these data types.

Creating the Module – Step 12



Two controller-level tag sets were also created, one for each Module-Defined Data Type, and named the same as the module name entered in Step 6.

These tags will be used by the Add-On Instruction, as illustrated in the Instantiating the Add-On Instruction section.

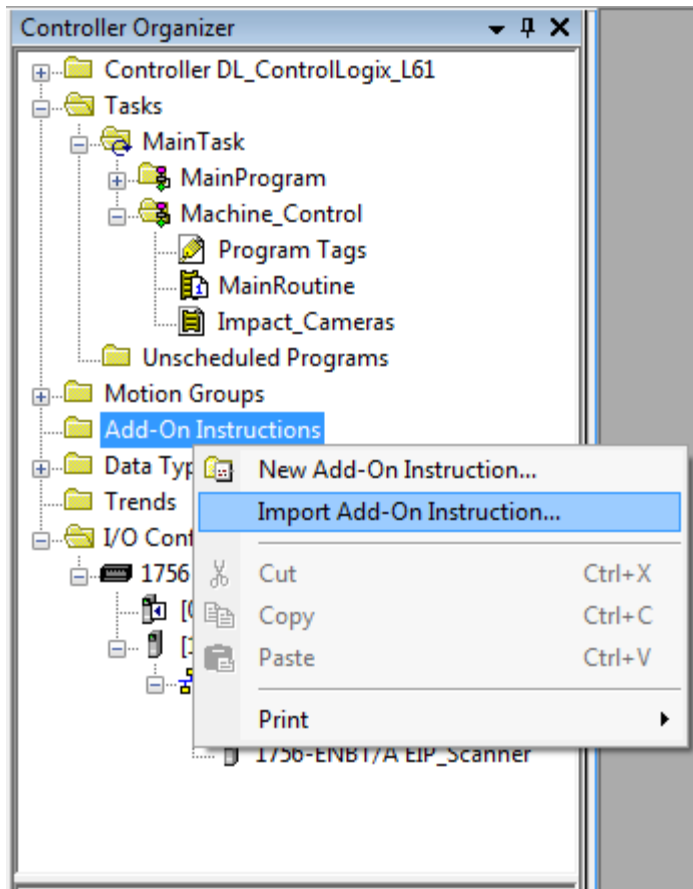
Congratulations!

You have installed the IMPACT Datalogic Machine Vision Device Ethernet I/O module!

Importing the AOI

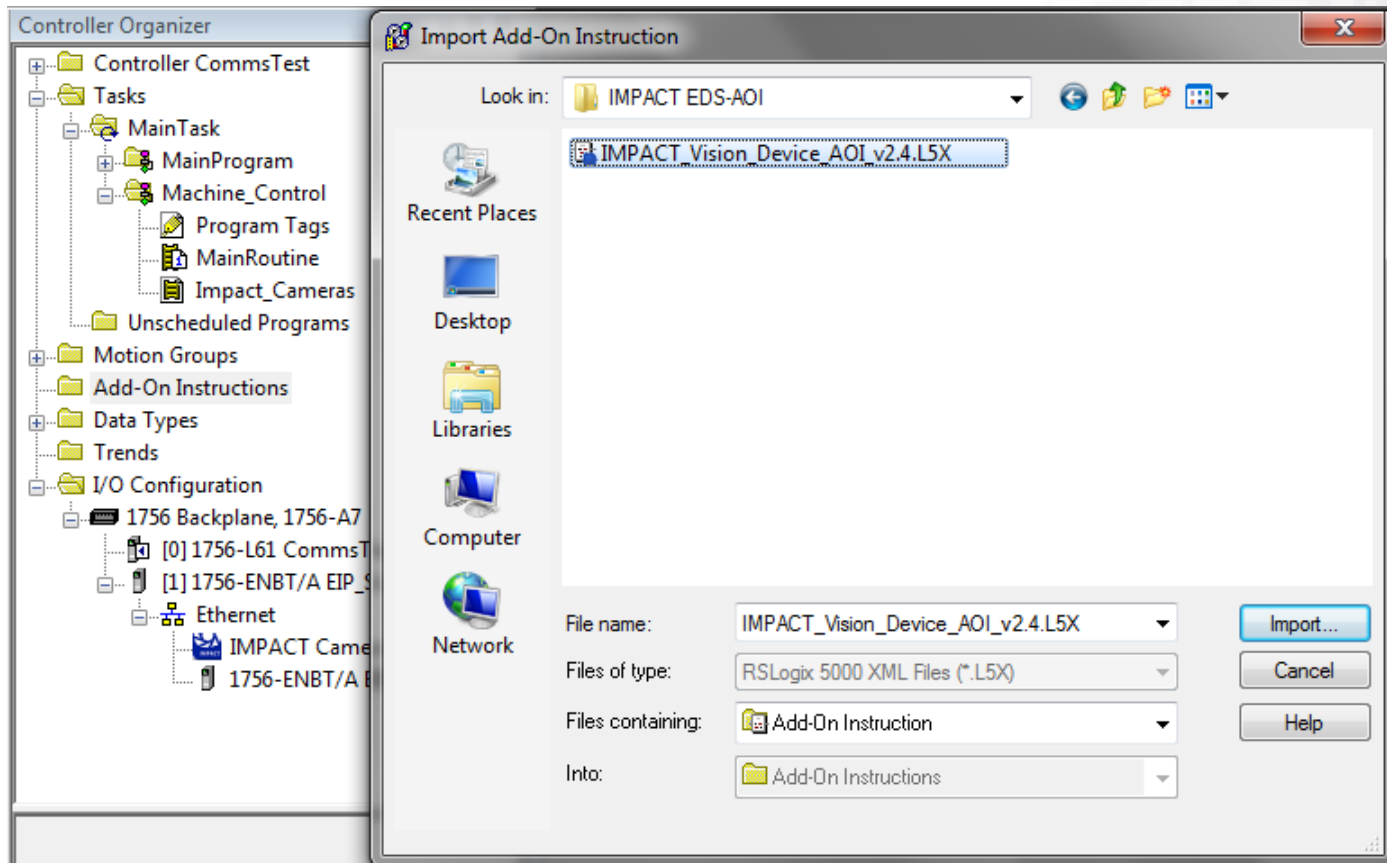
- *Once the IMPACT Vision Device EDS file is registered with the RSLogix5000 software, and the module has been created, the Add-On Instruction can be imported.*
- *The AOI references the Module-Defined data types, as well as the tags created with the module, thus the installation sequence.*

Importing the AOI – Step 1



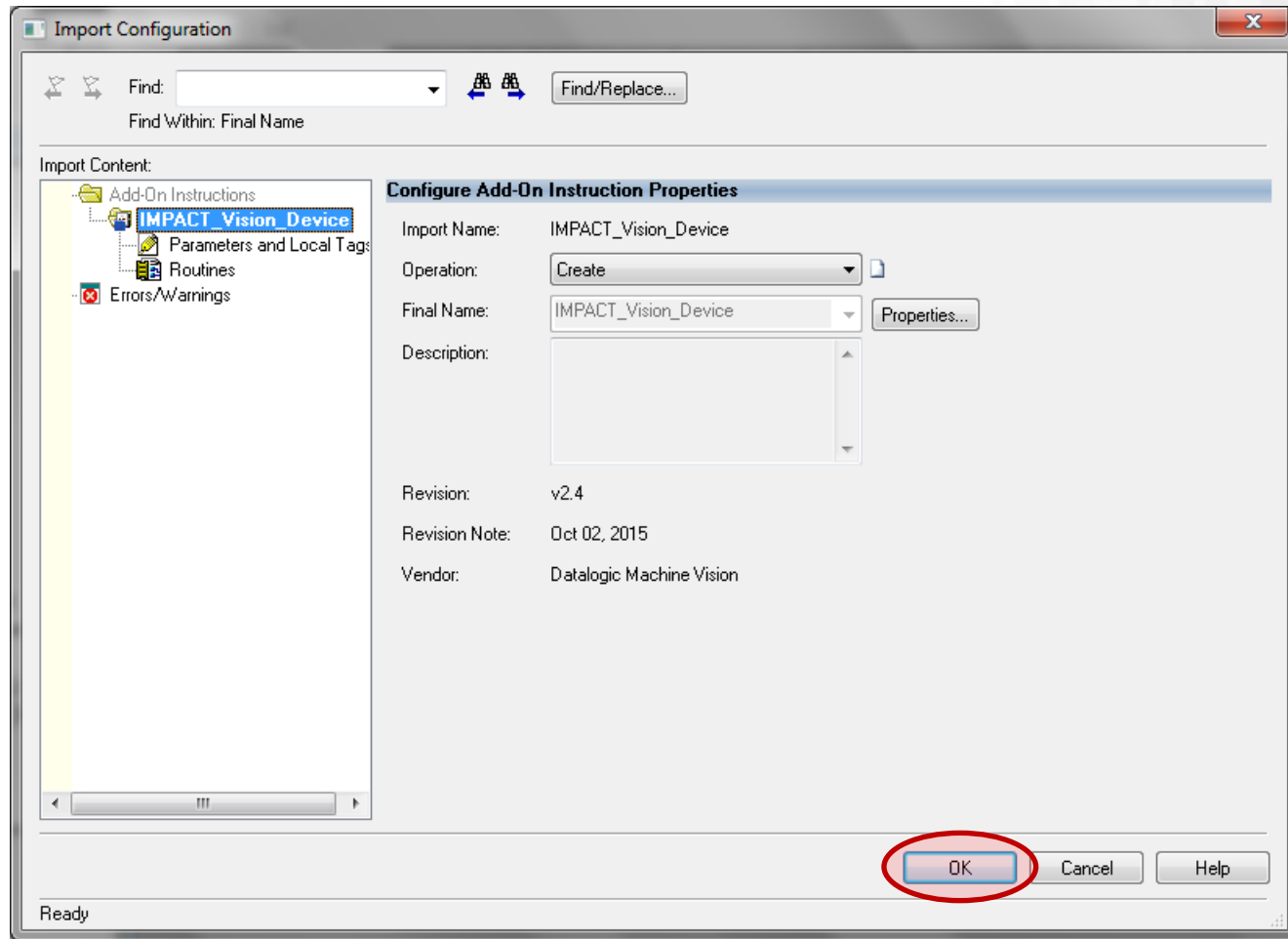
Right click the Add-On Instruction folder and select Import Add-On Instruction from the menu.

Importing the AOI – Step 2



Point the AOI selection to the folder where the AOI was copied into, and select the IMPACT_Vision_Device_AOI file. The current Add-On file revision may differ from the one shown. Select Import.

Importing the AOI – Step 3



The Import Configuration Screen appears, but in this instance, there isn't anything to change. Select OK.

Importing the AOI – Step 4

Controller Organizer

- Controller CommsTest
- Tasks
- Motion Groups
- Add-On Instructions
 - IMPACT_Vision_Device
 - Parameters and Local Tags
 - Logic
- Data Types
 - User-Defined
 - Strings
 - Add-On-Defined
 - Predefined
 - Module-Defined
 - _0399:IMPACT_06B34967:O:0
 - _0399:IMPACT_2728D7FE:I:0
- Trends

Scope: IMPACT_Vision_Device Show: All Tags

Data Context: IMPACT_Vision_Device <d

| Name | Usage | Default | Force Ma | Style | Data Type | De |
|---------------------|--------|---------|----------|---------|---------------------------|----|
| ModInstIn | InOut | {...} | {...} | | _0399:IMPACT_2728D7FE:I:0 | |
| ModInstOut | InOut | {...} | {...} | | _0399:IMPACT_06B34967:O:0 | |
| Online_Control | Input | 0 | | Decimal | BOOL | |
| Online_Status | Output | 0 | | Decimal | BOOL | |
| ShutterTime | Input | 0.0 | | Float | REAL | |
| ShutterTime_Status | Output | 0.0 | | Float | REAL | |
| Trigger | Input | 0 | | Decimal | BOOL | |
| Trigger_Overrun_... | Output | 0 | | Decimal | BOOL | |
| Trigger_Status | Output | 0 | | Decimal | BOOL | |
| User_Event_1 | Input | 0 | | Decimal | BOOL | |
| User_Event_1_St... | Output | 0 | | Decimal | BOOL | |
| User_Event_2 | Input | 0 | | Decimal | BOOL | |

Double Click on the Parameters and Local Tags under the newly imported IMPACT_Vision_Device Add-On Instruction, which brings up the definition screen for the Instruction.

Verify that the ModInstIn and ModInstOut Data Type ID numbers match that of the Module Defined Data Type. If not, this signifies that the EDS and AOI do not match. Contact DATALOGIC for further assistance.

Congratulations!

You have imported the IMPACT_Vision_Device Add-On Instruction!

The instruction is now resident in the processor, and can be invoked in the same manner as any other instruction - using the instruction palette.

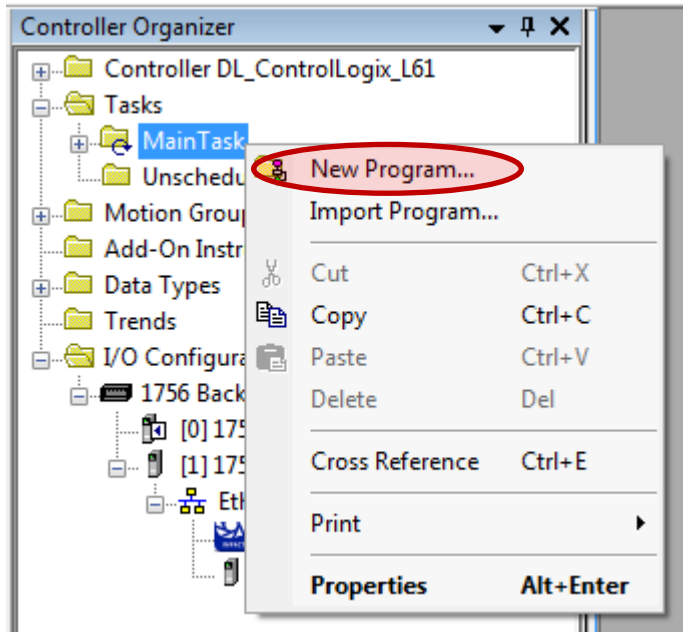
The tab in the language elements toolbar is called Add-On.

The Instruction is IMPACT.

Preparing to use the AOI

- *Once the IMPACT Vision Device EDS file is registered with the RSLogix5000 software, the module has been created, and the Add-On Instruction has been imported, the IMPACT Add-On instruction can be used.*
- *The AOI references the Module-Defined data types, as well as the tags created with the module.*
- *When the IMPACT Add-On instruction is instantiated, it created Program specific tags within the Program it is instantiated in.*
- *This section helps the user to implement the AOI using good programming practices.*

Preparing to use the AOI – Step 1



Because the Controller-Level tags for Camera_1 already exist, in order to avoid naming conflicts, the AOI should be implemented in it's own Program and Routine folder.

Right click on the Main Task heading and select New Program from the drop-down menu.

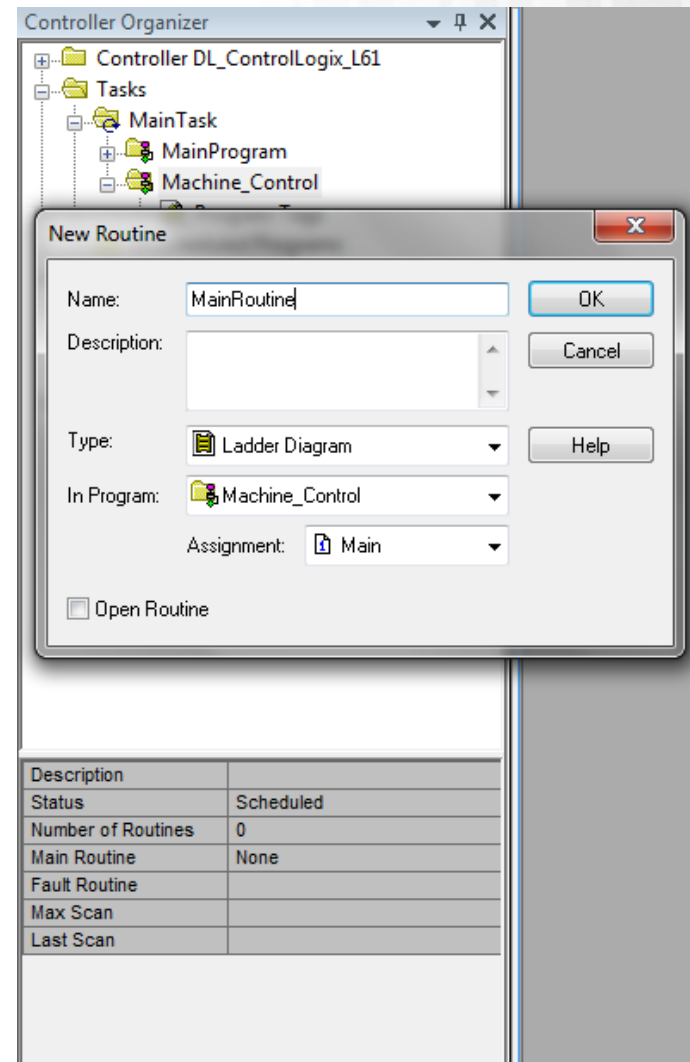
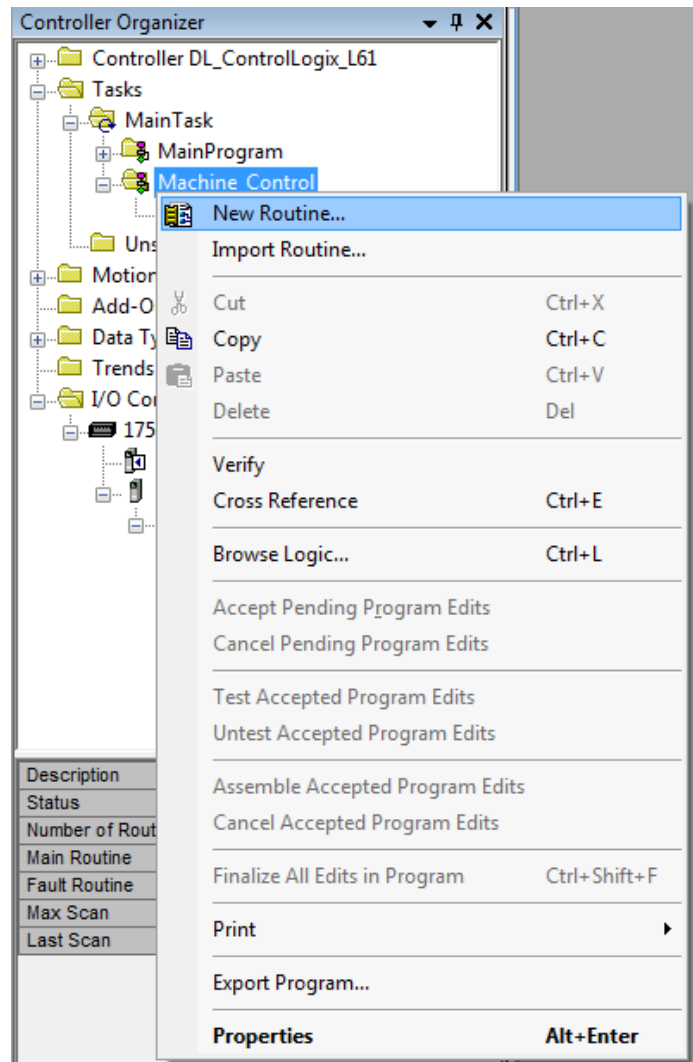
When the New Program window appears, name the program anything except the name of the installed module (in this example we used Machine_Control).

Once the program has been created (Machine_Control) in our example, two routines will need to be created in that program sub-folder.

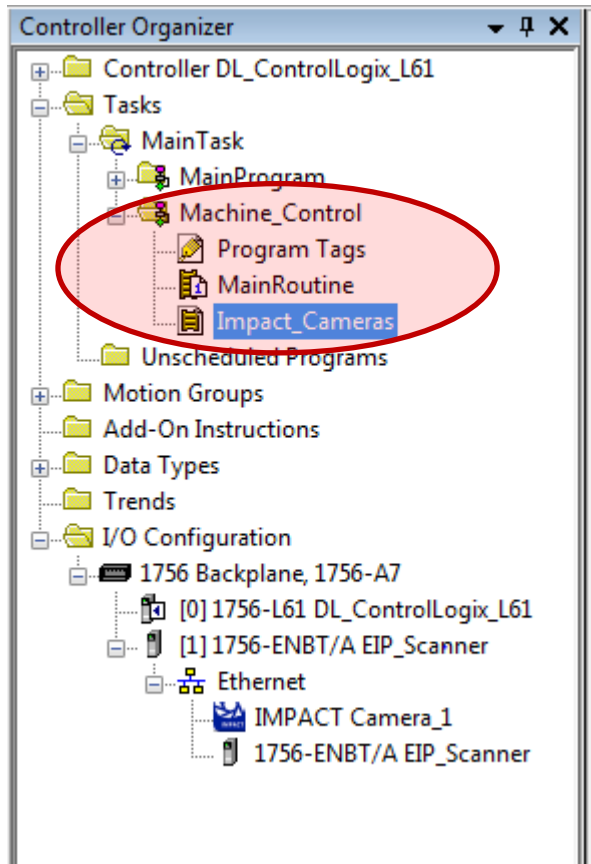
The first routine is to be the MainRoutine, which will contain typical main routine coding such as JSRs.

The second will be named Impact_Cameras and will contain the IMPACT AOI and associated programming.

Preparing to use the AOI – Step 2



Preparing to use the AOI – Step 3



In this example, the Machine_Control program is where the AOI will be installed once it is imported.

Additional devices can be added to this program, and, although they could all be placed in the Impact_Cameras routine, each should occupy it's own routine, which makes locating device logic, and troubleshooting easier.

One need only create a device routine, and create a JSR rung in the Machine_Control Program' MainRoutine for each device routine created.

Conversely, if you already have a program established that you want to use, create only the device routine within that program.

Preparing to use the AOI – Step 4

The screenshot displays the Datalogic software interface, divided into two main sections. On the left is the 'Controller Organizer' tree, and on the right is the 'Machine_Control - MainRoutine*' ladder diagram editor.

Controller Organizer:

- Controller DL_ControlLogix_L61
 - Tasks
 - MainTask
 - MainProgram
 - Machine_Control
 - Program Tags
 - MainRoutine (highlighted)
 - Impact_Cameras
 - Unscheduled Programs
 - Motion Groups
 - Add-On Instructions
 - Data Types
 - Trends
 - I/O Configuration
 - 1756 Backplane, 1756-A7
 - [0] 1756-L61 DL_ControlLogix_L61
 - [1] 1756-ENBT/A EIP_Scanner
 - Ethernet
 - IMPACT Camera_1
 - 1756-ENBT/A EIP_Scanner

Machine_Control - MainRoutine* Ladder Diagram:

The diagram shows a single rung starting at address 0. The rung contains a 'JSR' (Jump to Subroutine) instruction. A callout box for the JSR instruction displays the following information:

- Jump To Subroutine
- Routine Name Impact_Cameras

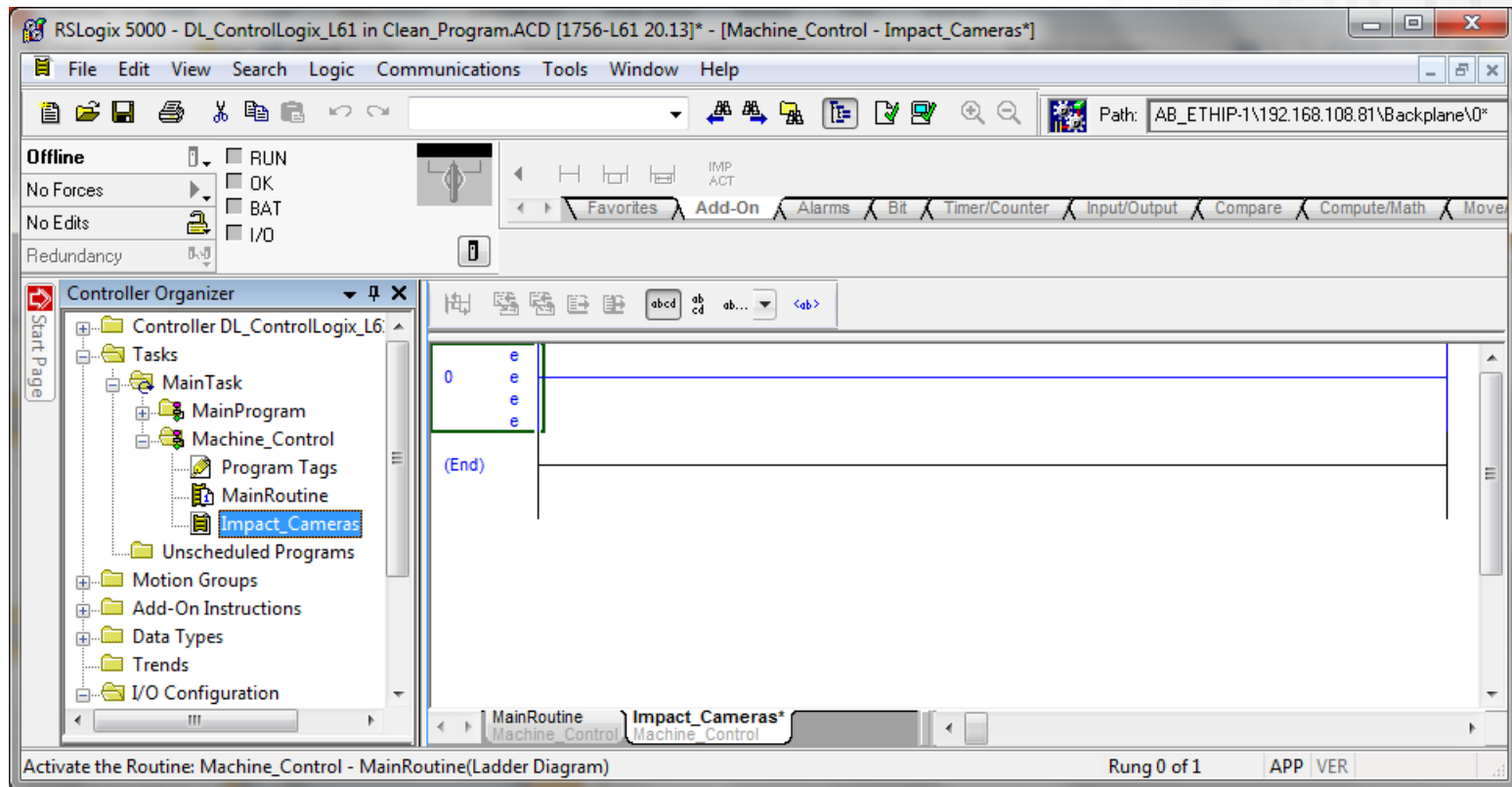
The diagram ends with an '(End)' label. The bottom status bar indicates the current routine is 'MainRoutine*' and the program is 'Machine_Control'.

| Type | Ladder Diagram (Main) |
|-----------------|-----------------------|
| Description | |
| Program | Machine_Control |
| Number of Rungs | 1 |

Instantiating the AOI

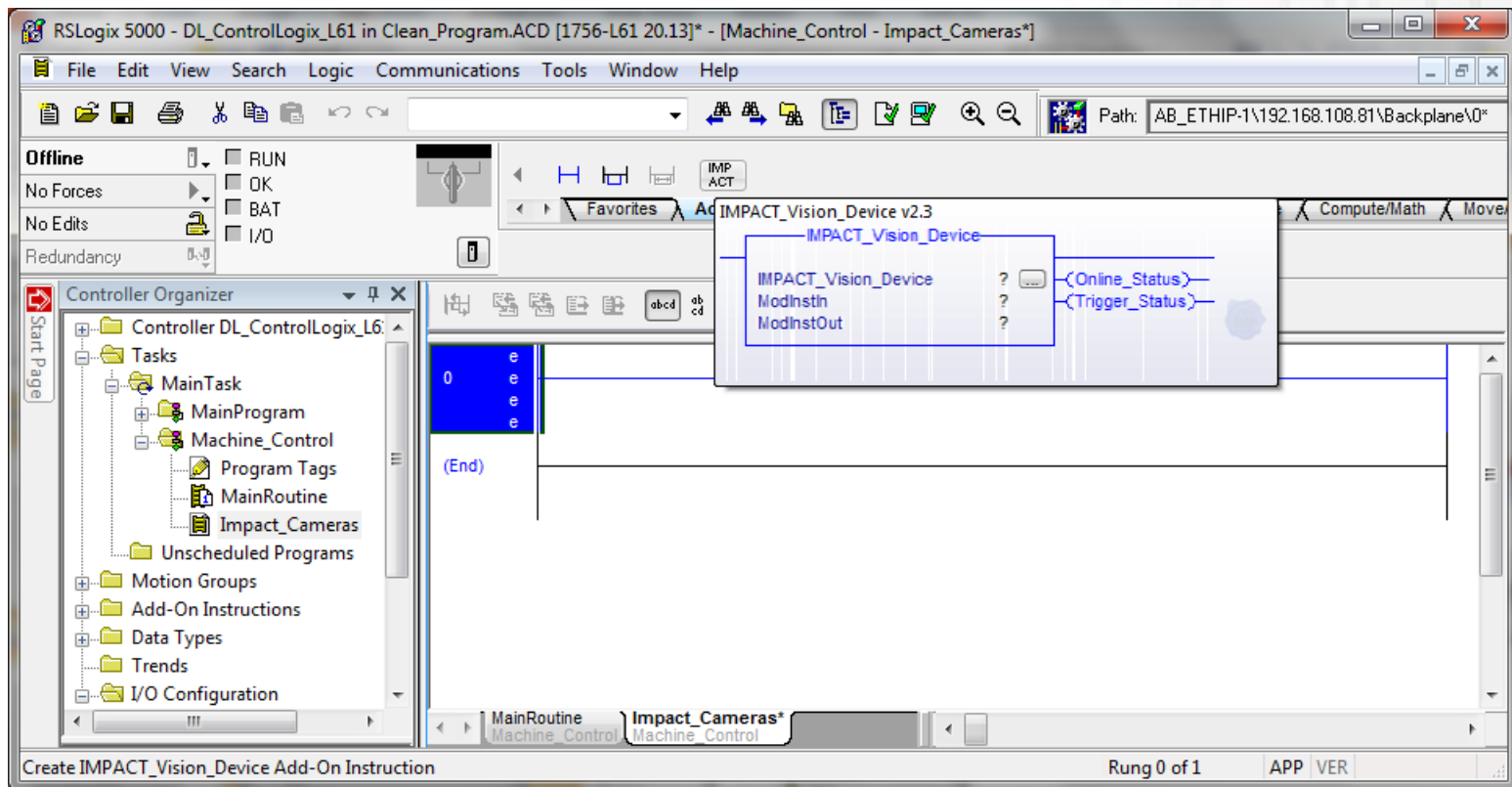
- *Instantiating the IMPACT Device within the PLC is straight-forward, and intuitive.*
- *The majority of the parameters required by the instruction (tags) already exist because of the EDS file registration, Ethernet module installation, and AOI importation.*
- *A basic installation only requires instantiating the device.*

Instantiating the AOI – Step 1



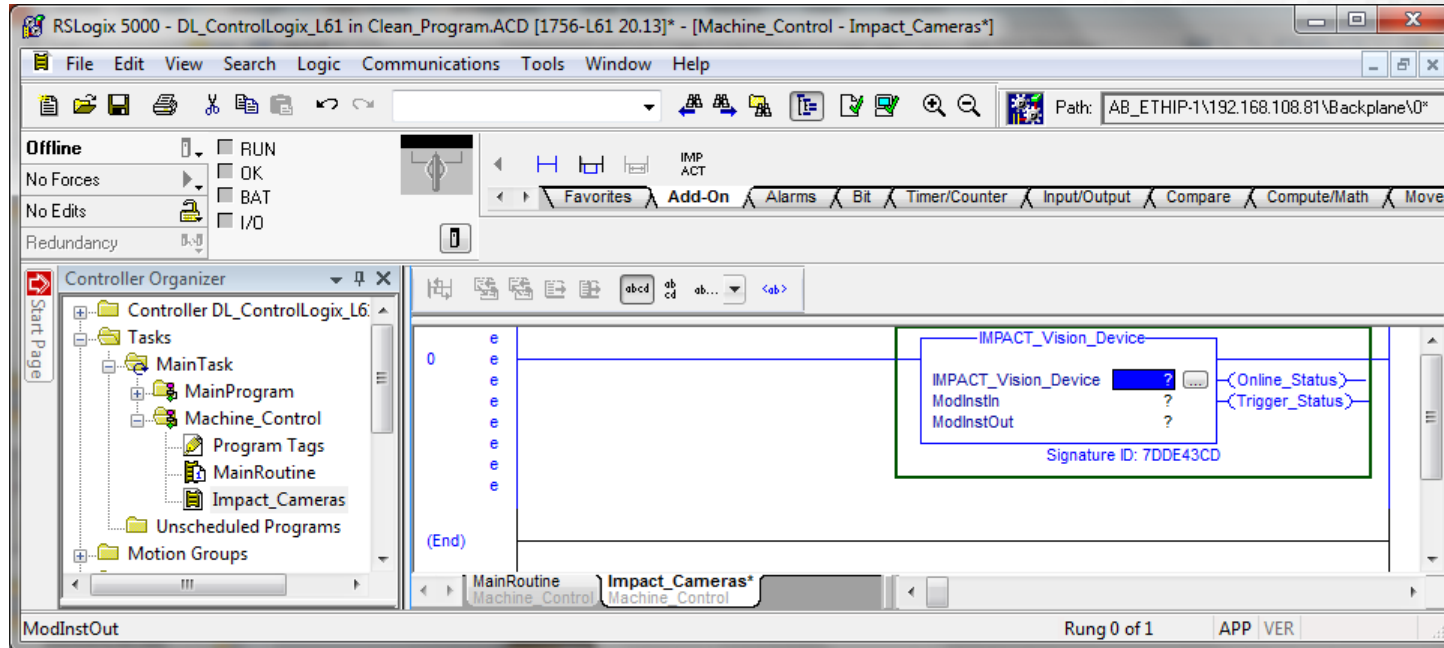
Create a new rung in the routine you created to house the AOI and associated logic.

Instantiating the AOI – Step 2



Select the IMPACT Add-On Instruction from the instruction palette.

Instantiating the AOI – Step 3

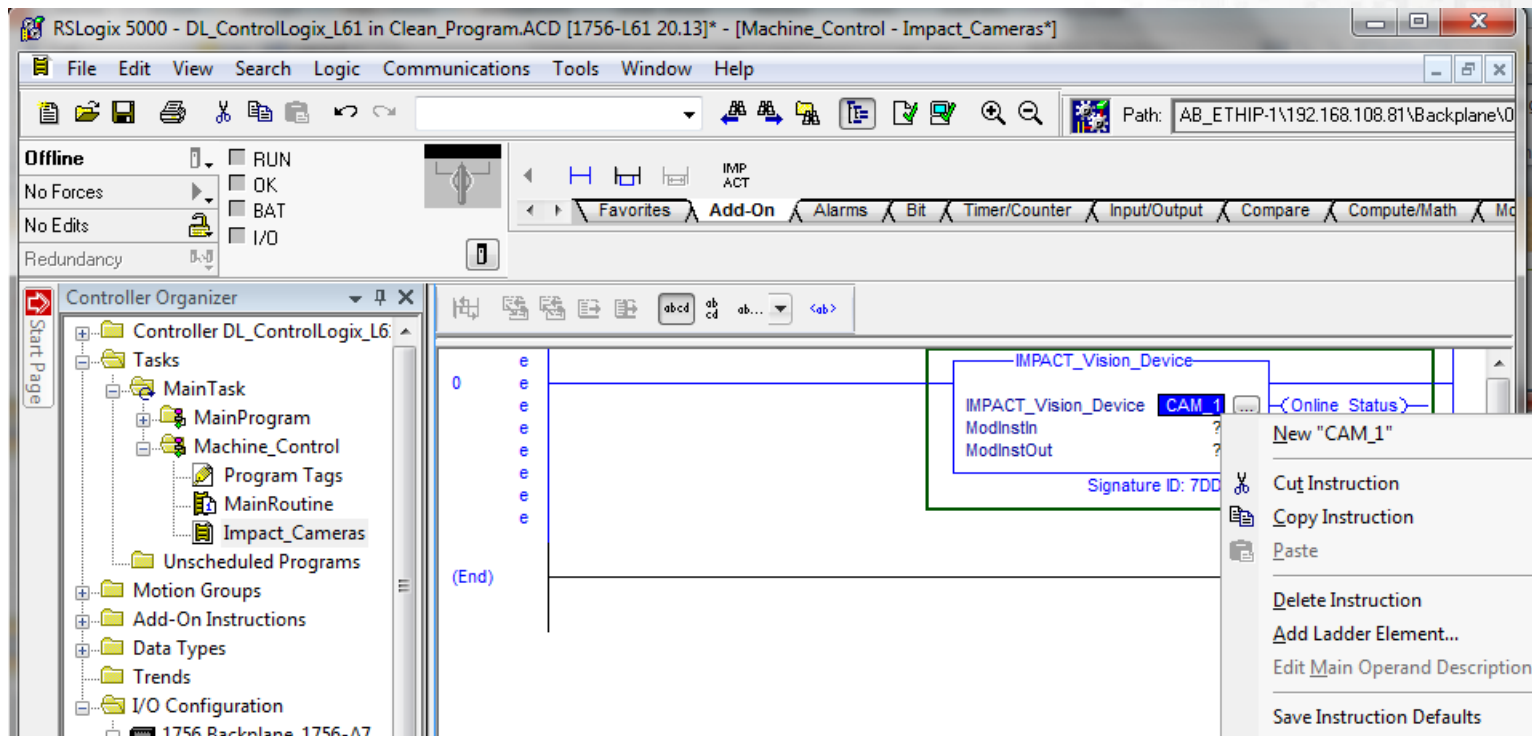


The Controller Level tags created with the module, Camera_1, took the name of the IMPACT Device.

Creating a new program for the IMPACT Device allows the instantiation of the instruction using the same tag name, because the tag will be program scoped, avoiding conflict with the controller scoped tags created by the module.

Creating a separate routine for every Device aids in troubleshooting efforts, while encapsulating the programming for efficient replication.

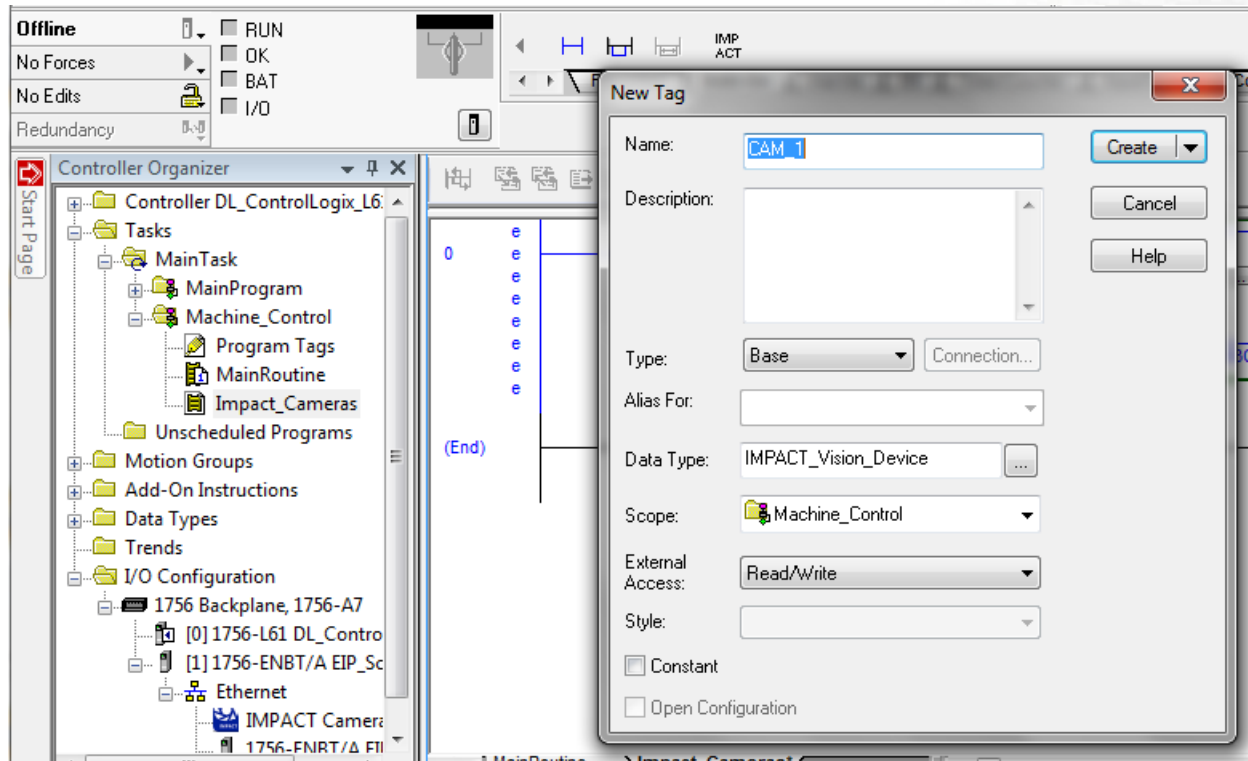
Instantiating the AOI – Step 4



In the parameter field labeled IMPACT_VISION_DEVICE, enter CAM_1.

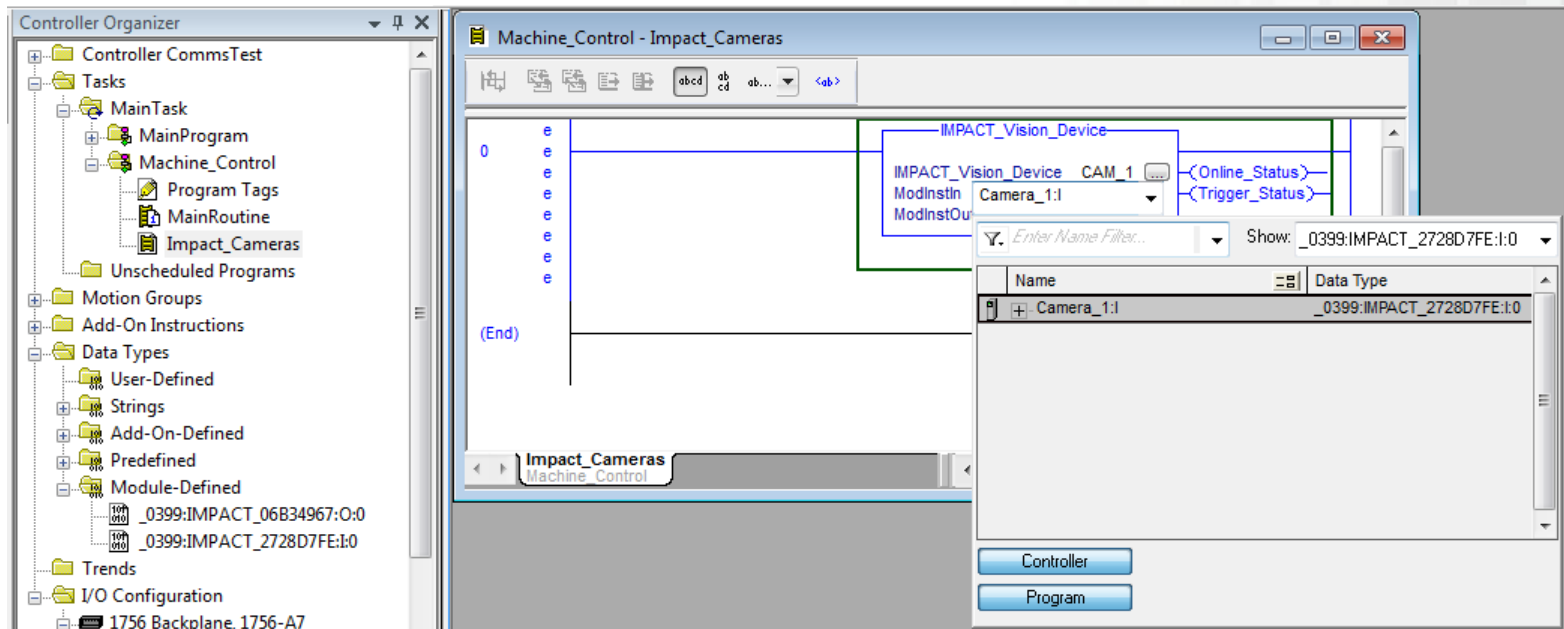
Right click on the CAM_1 text and select the New "CAM_1" menu option.

Instantiating the AOI – Step 5



The CAM_1 tag we are creating is scoped to the program, not to the controller.
Select Create.

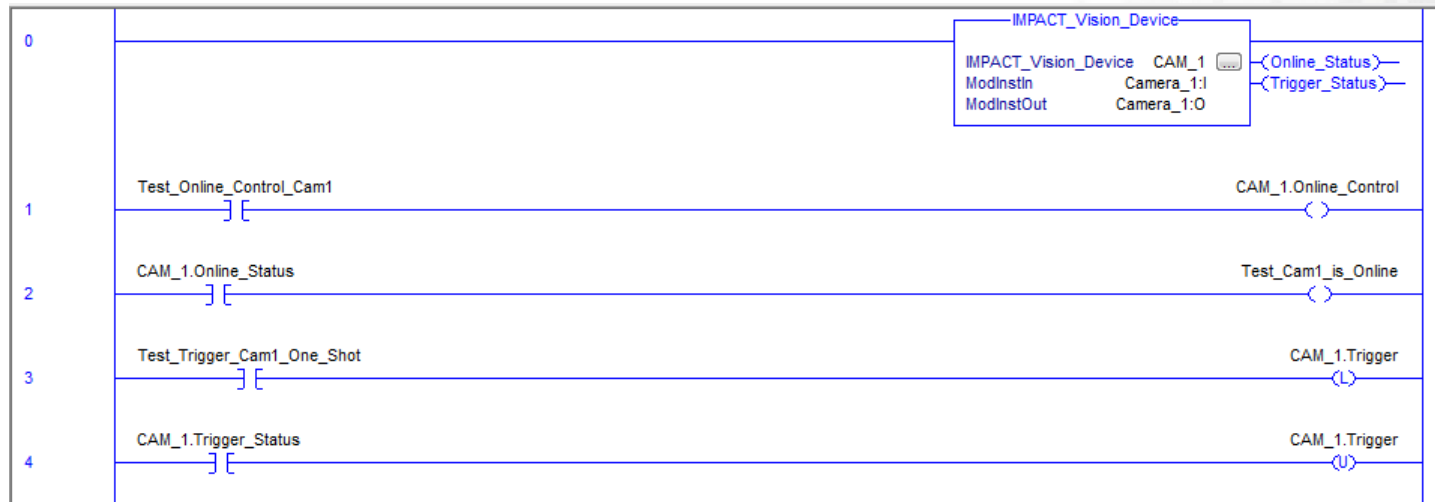
Instantiating the AOI – Step 6



For the ModInstIn and ModInstOut (Module Instance In/Out) use the controller-level (scoped) tags created with the module. (In to In – Out to Out).

In this Example Camera_1:I and Camera_1:O.

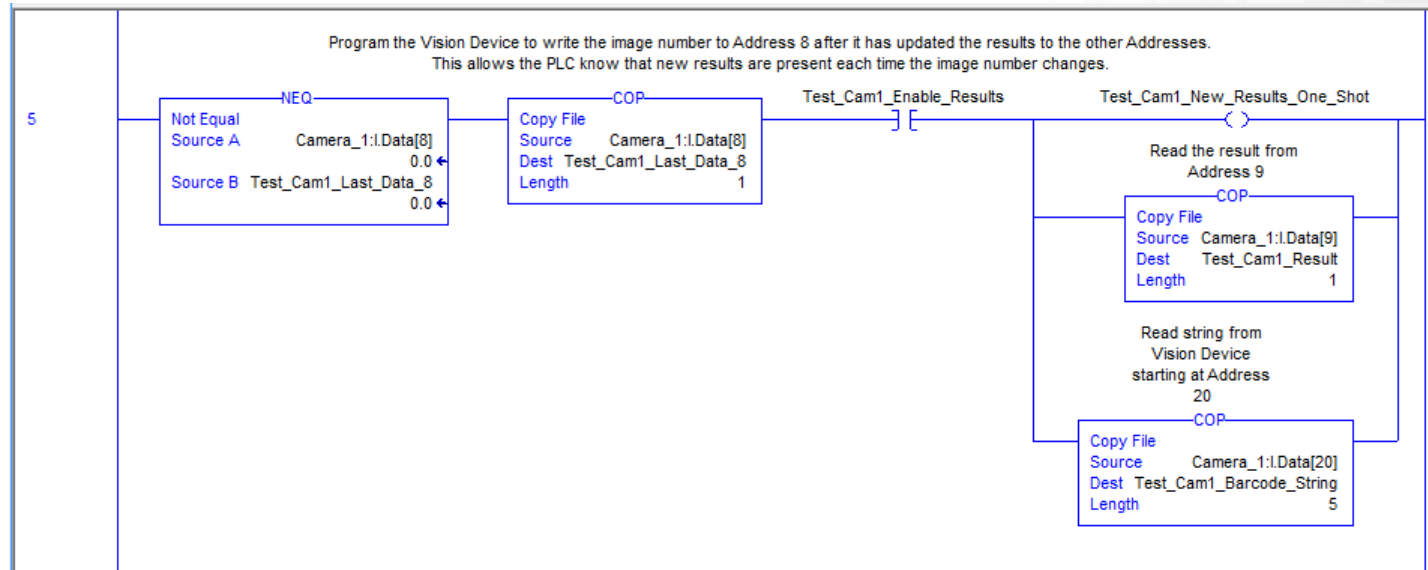
Instantiating the AOI – Example Programming



Simple programming example for manipulating the Online and Trigger commands to the IMPACT Device.

Note that the Online_Status and Trigger_Status outputs are also available programmatically. Program Tags are available for all reserved data communication to the Impact Device.

Instantiating the AOI – Example Programming



Programming example monitoring results from the IMPACT Device.
Note that the user data is directly mapped to the Ethernet Device I/O Controller Tags.

Instantiating the AOI – User Data Registers

| Name | Value | Force Mas | Style | Data Type |
|------------------------------|-------|-----------|---------|---------------------------|
| Camera_1:I | {...} | {...} | | _0399:IMPACT_2728D7FE:I:0 |
| Camera_1:I.ConnectionFaulted | 0 | | Decimal | BOOL |
| Camera_1:I.Data | {...} | {...} | Float | REAL[48] |
| Camera_1:I.Data[0] | 0.0 | | Float | REAL |
| Camera_1:I.Data[1] | 0.0 | | Float | REAL |
| Camera_1:I.Data[2] | 0.0 | | Float | REAL |
| Camera_1:I.Data[3] | 0.0 | | Float | REAL |
| Camera_1:I.Data[4] | 0.0 | | Float | REAL |
| Camera_1:I.Data[5] | 0.0 | | Float | REAL |
| Camera_1:I.Data[6] | 0.0 | | Float | REAL |
| Camera_1:I.Data[7] | 0.0 | | Float | REAL |
| Camera_1:I.Data[8] | 0.0 | | Float | REAL |
| Camera_1:I.Data[9] | 0.0 | | Float | REAL |
| Camera_1:I.Data[10] | 0.0 | | Float | REAL |
| Camera_1:I.Data[11] | 0.0 | | Float | REAL |
| Camera_1:I.Data[12] | 0.0 | | Float | REAL |

| Name | Value | Force Mas | Style | Data Type |
|---------------------|-------|-----------|-------|---------------------------|
| Camera_1:O | {...} | {...} | | _0399:IMPACT_06B34967:O:0 |
| Camera_1:O.Data | {...} | {...} | Float | REAL[48] |
| Camera_1:O.Data[0] | 0.0 | | Float | REAL |
| Camera_1:O.Data[1] | 0.0 | | Float | REAL |
| Camera_1:O.Data[2] | 0.0 | | Float | REAL |
| Camera_1:O.Data[3] | 0.0 | | Float | REAL |
| Camera_1:O.Data[4] | 0.0 | | Float | REAL |
| Camera_1:O.Data[5] | 0.0 | | Float | REAL |
| Camera_1:O.Data[6] | 0.0 | | Float | REAL |
| Camera_1:O.Data[7] | 0.0 | | Float | REAL |
| Camera_1:O.Data[8] | 0.0 | | Float | REAL |
| Camera_1:O.Data[9] | 0.0 | | Float | REAL |
| Camera_1:O.Data[10] | 0.0 | | Float | REAL |
| Camera_1:O.Data[11] | 0.0 | | Float | REAL |
| Camera_1:O.Data[12] | 0.0 | | Float | REAL |

In Data is received from the IMPACT Device.
Out Data is sent to the IMPACT Device.

Data[0] through Data[7] are reserved for IMPACT Device control and are only accessed via the tags created by the instantiation of the Add-On Instruction.

Starting at Data[8], there are 40 UserDataIn and 40 UserDataOut Controller Tags available for each Ethernet IMPACT Device. These tags are available for the PLC programmer to employ in sending User Data to and from the IMPACT Device.

There are no reservations or limits placed on the usage. Though they are defined as REAL, you may copy an INT or a STRING (uses multiple registers) to the User Data Controller Tags. The data type must match on the IMPACT Device.

To access these Controller Tags programmatically, simply invoke them in ladder logic.

Congratulations!

You have completed the registration, installation, and instantiation of the IMPACT Vision Device AOI.

Additional installations of the same revision will not require the EDS file to be registered again, nor the AOI to be imported.

Simply create the module, add the routine, and instantiate the device!

Thank You for choosing DATALOGIC!

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