



QUICK START MANUAL

**EtherNet/IP Encoder**

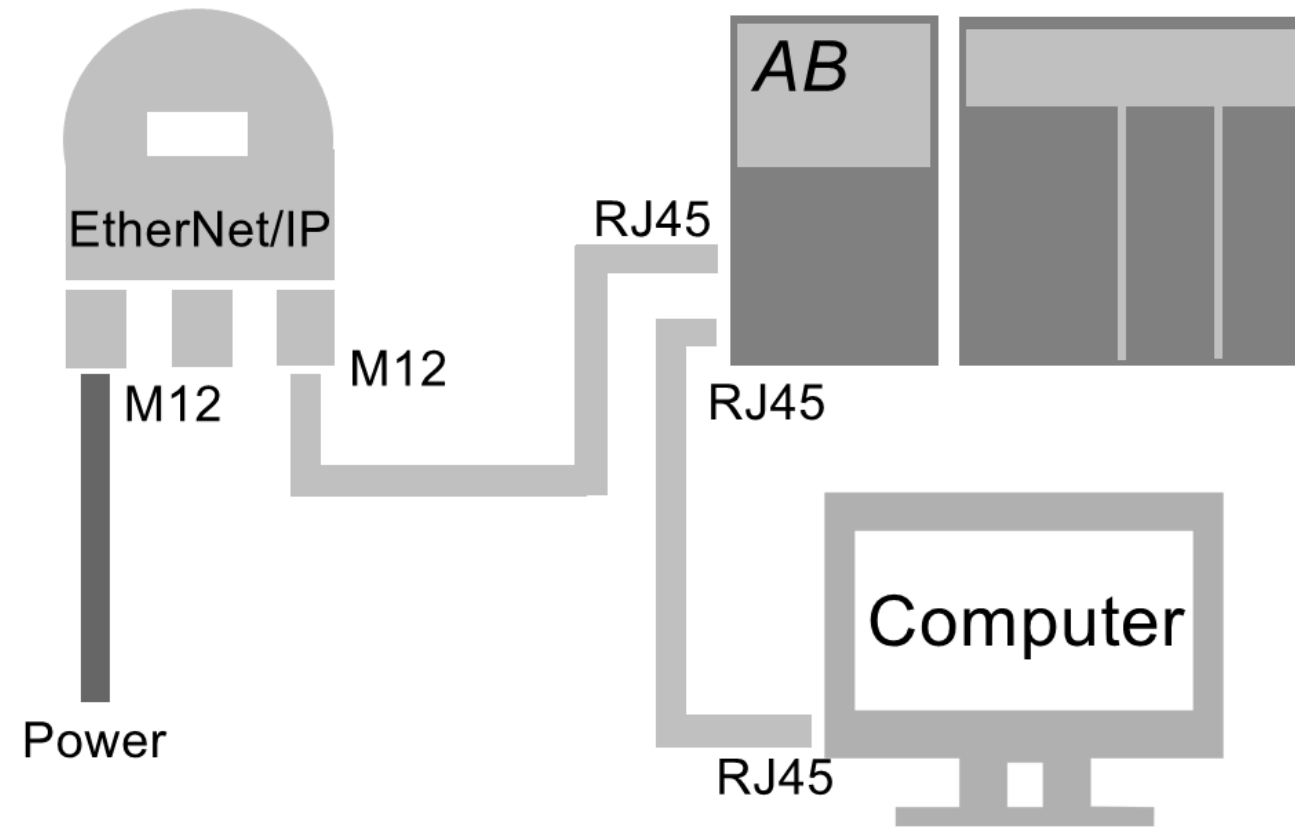


➤ E.g.: OCD-EEA1B-1213-C100-PRM

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## ETHERNET/IP ENCODER QUICK START MANUAL

**1. Hardware Connection**

## ETHERNET/IP ENCODER QUICK START MANUAL

Products > Absolute Encoders > Absolute Encoder Finder















IXARC Absolute Rotary Encoder

OCD-EEA1B-1213-C100-PRM



### Downloads

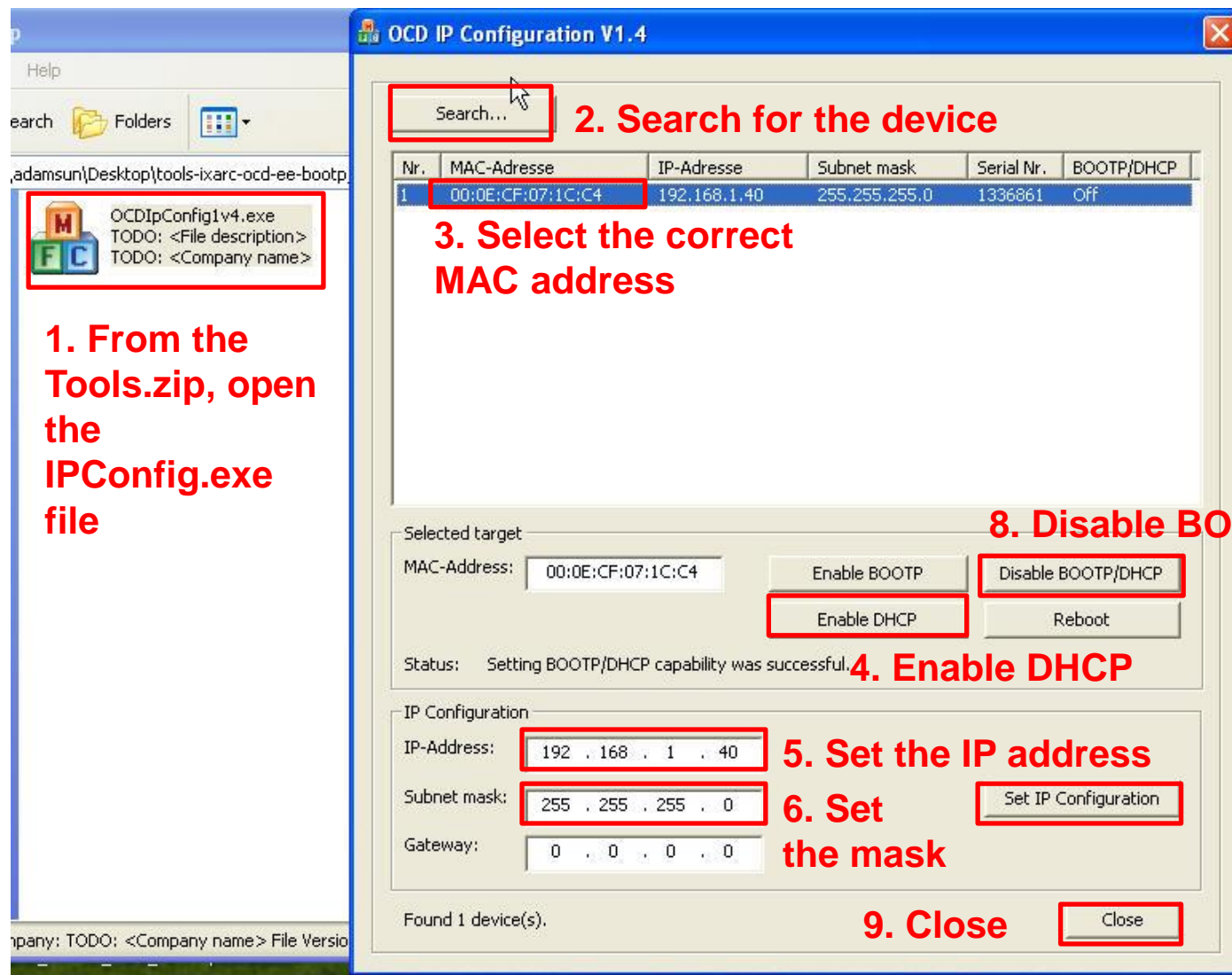
-  Datasheet
-  2D Drawing
-  Manual
-  Configuration File
-  Tools
-  3D Drawing Flange
-  3D Drawing Housing
-  Project
-  CE Certificate
-  UL Certificate
-  Certificate
-  ISO Certificate

EDS file

Tools

1. Set the power supply (voltage 10~30VDC via the female M12 connector)
2. Connect the encoder to the PLC via the male M12 connector
3. Connect the PLC and the computer together via an RJ45 cable
4. Start ControlLogix5563
5. Have EDS Wizard, RSNetWorx, RSLogix 5000 installed on your computer
6. On our website, download the EDS file and the Configuration Tools

## ETHERNET/IP ENCODER QUICK START MANUAL

**2. Set the IP address**

**1. From the Tools.zip, open the IPConfig.exe file**

**2. Search for the device**

Nr.	MAC-Adresse	IP-Adresse	Subnet mask	Serial Nr.	BOOTP/DHCP
1	00:0E:CF:07:1C:C4	192.168.1.40	255.255.255.0	1336861	Off

**3. Select the correct MAC address**

**4. Enable DHCP**

**5. Set the IP address**

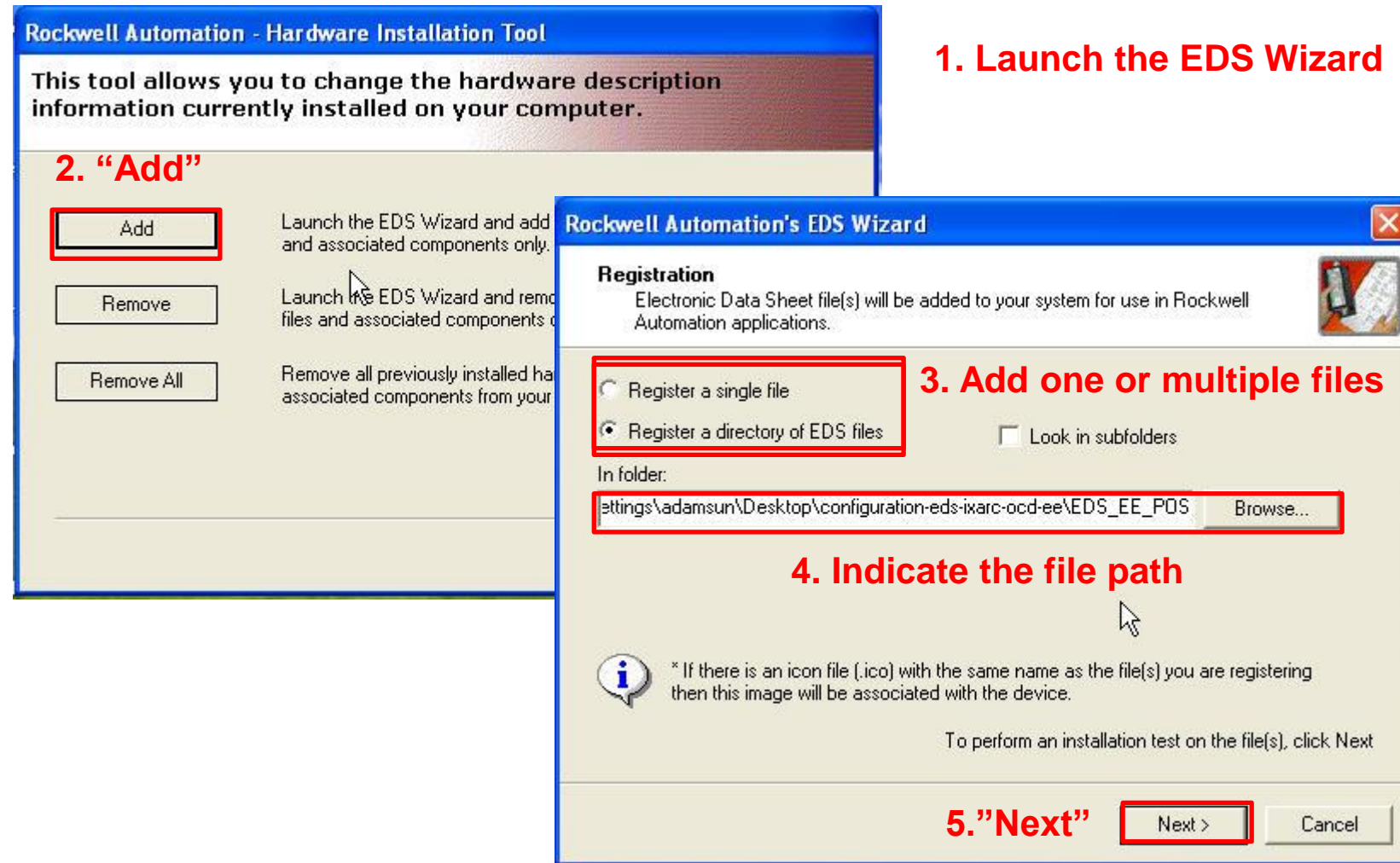
**6. Set the mask**

**7. Confirm Settings**

**8. Disable BOOTP/DHCP**

**9. Close**

## ETHERNET/IP ENCODER QUICK START MANUAL

**3. Associate an EDS file**

The image shows two overlapping windows from the Rockwell Automation software. The background window is the 'Hardware Installation Tool' with a blue title bar and a grey header. It contains three buttons: 'Add', 'Remove', and 'Remove All'. The 'Add' button is highlighted with a red box. The foreground window is 'Rockwell Automation's EDS Wizard', also with a blue title bar. It has a 'Registration' section with two radio buttons: 'Register a single file' and 'Register a directory of EDS files'. The second option is selected and highlighted with a red box. Below this is a text field for the file path, containing 'ettings\adamsun\Desktop\configuration-eds-ixarc-ocd-ee\EDS\_EE\_POS', which is also highlighted with a red box. At the bottom, the 'Next >' button is highlighted with a red box. Red text annotations are placed over the image to indicate the steps: '1. Launch the EDS Wizard' points to the 'Add' button; '2. "Add"' is above the 'Add' button; '3. Add one or multiple files' is above the selected radio button; '4. Indicate the file path' is above the text field; and '5. "Next"' is above the 'Next >' button.

**1. Launch the EDS Wizard**

**2. "Add"**

**3. Add one or multiple files**

**4. Indicate the file path**

**5. "Next"**

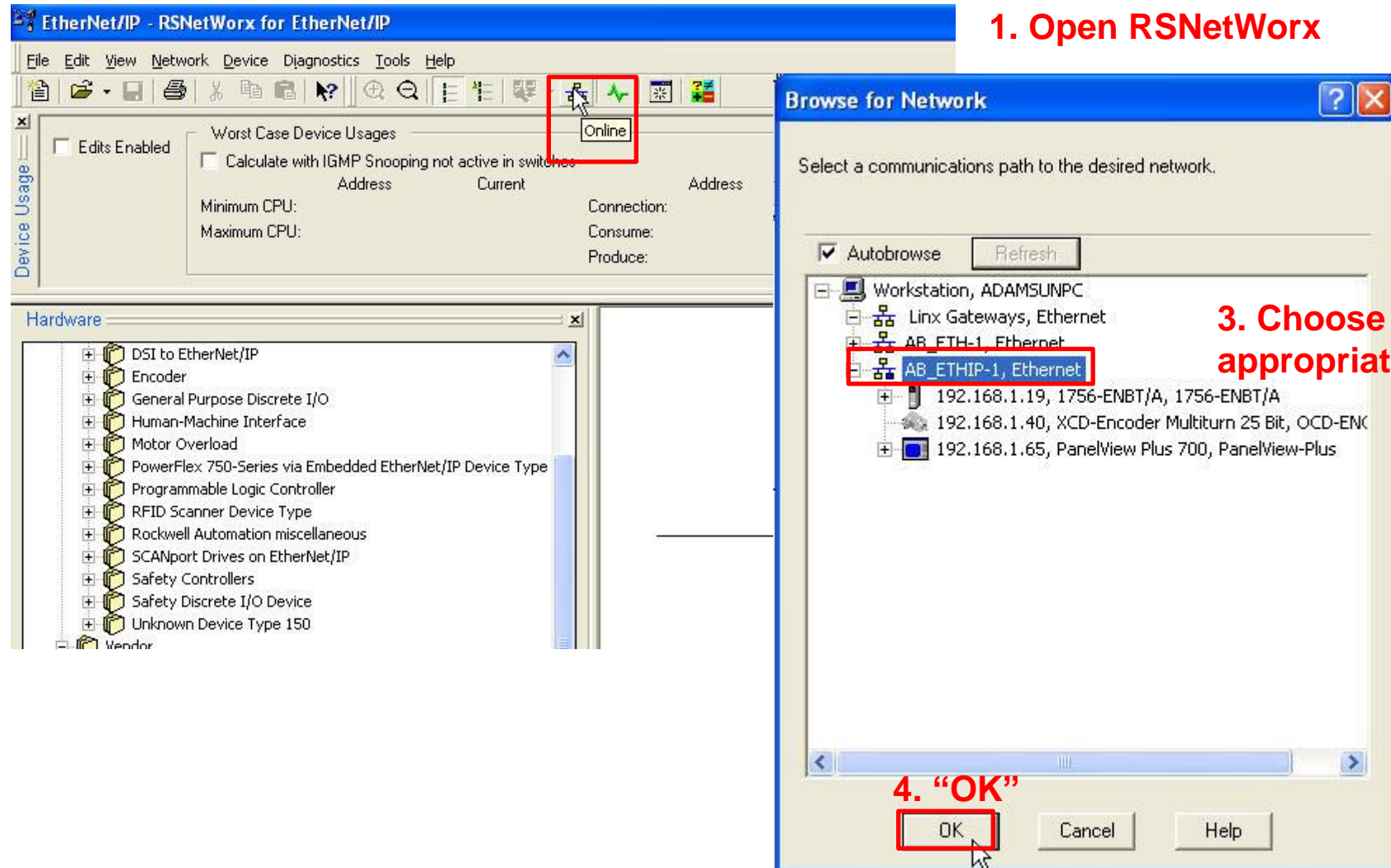


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## 4. Create a Network

2. Click on "Online"

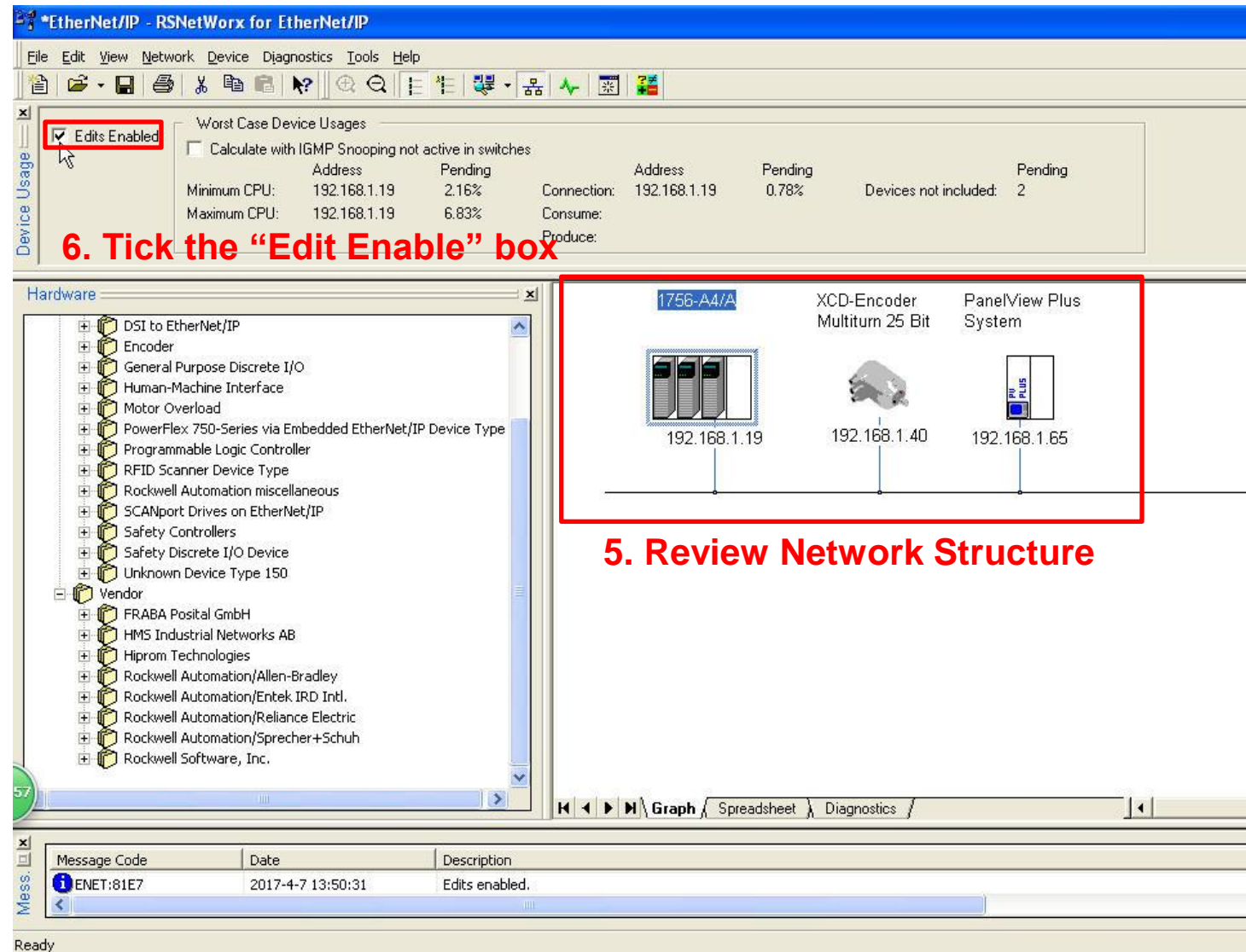
1. Open RSNetWorx



3. Choose the appropriate network

4. "OK"

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The screenshot shows the RSNetWorx for EtherNet/IP software interface. At the top, the title bar reads "EtherNet/IP - RSNetWorx for EtherNet/IP". The menu bar includes File, Edit, View, Network, Device, Diagnostics, Tools, and Help. Below the menu bar is a toolbar with various icons. The main workspace is divided into several panes:

- Device Usage:** A pane on the left side containing a checkbox labeled "Edits Enabled" which is checked and highlighted with a red box. Below it, there is a section for "Worst Case Device Usages" with a table of data.
- Hardware:** A tree view on the left side listing various device types such as "DSI to EtherNet/IP", "Encoder", "General Purpose Discrete I/O", "Human-Machine Interface", "Motor Overload", "PowerFlex 750-Series via Embedded EtherNet/IP Device Type", "Programmable Logic Controller", "RFID Scanner Device Type", "Rockwell Automation miscellaneous", "SCANport Drives on EtherNet/IP", "Safety Controllers", "Safety Discrete I/O Device", "Unknown Device Type 150", and "Vendor".
- Network Structure:** A central pane showing a network diagram with three devices connected to a horizontal bus. The devices are:
  - 1756-A4/A (IP: 192.168.1.19)
  - XCD-Encoder Multitum 25 Bit (IP: 192.168.1.40)
  - PanelView Plus System (IP: 192.168.1.65)
 This entire network structure is enclosed in a red rectangular box.
- Message Log:** A pane at the bottom showing a message with code "ENET:81E7", date "2017-4-7 13:50:31", and description "Edits enabled.".

At the bottom of the interface, there are navigation buttons for "Graph", "Spreadsheet", and "Diagnostics". The status bar at the very bottom indicates "Ready".

6. Tick the "Edit Enable" box

5. Review Network Structure



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### 5. Create a New Controller

The screenshot shows the RSLogix 5000 software interface. A 'New Controller' dialog box is open, and several elements are highlighted with red boxes and numbered steps:

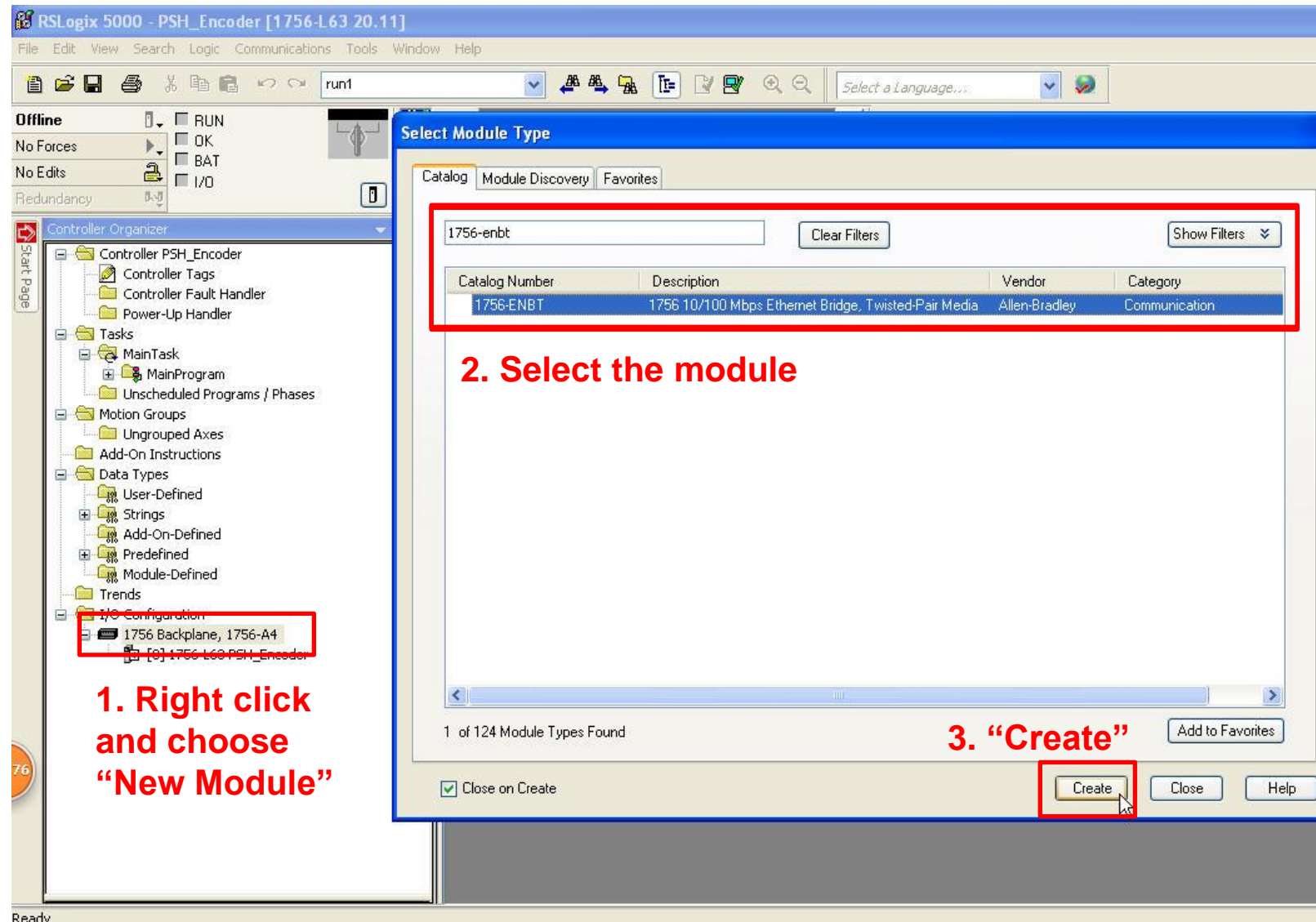
1. Open RSLogix 5000
2. Click on "No. Controller"
3. Select your controller
4. Select the right version
5. Name it
6. Select type
7. Select slot
8. Save it in the chosen directory
9. "OK"

The dialog box fields are as follows:

- Vendor: Allen-Bradley
- Type: 1756-L63 ControlLogix5563 Controller
- Revision: 20
- Name: PSH\_Encoder
- Chassis Type: 1756-A4 4-Slot ControlLogix Chassis
- Slot: 0
- Create In: C:\Documents and Settings\adamsun\Desktop
- Security Authority: No Protection



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**6. Create a New Ethernet Module**

1. Right click and choose "New Module"

2. Select the module

3. "Create"

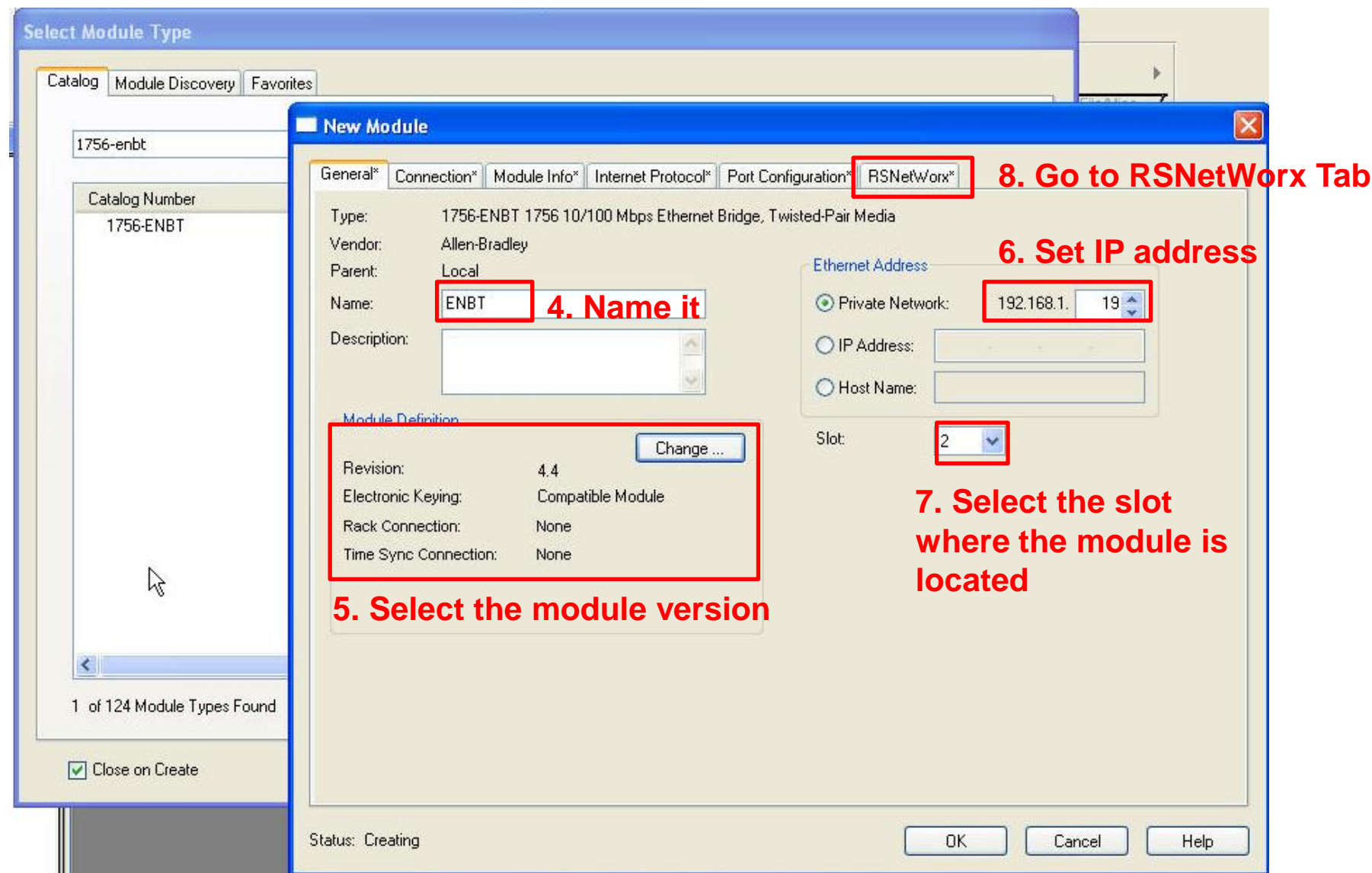
1756-enbt

Catalog Number	Description	Vendor	Category
1756-ENBT	1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media	Allen-Bradley	Communication

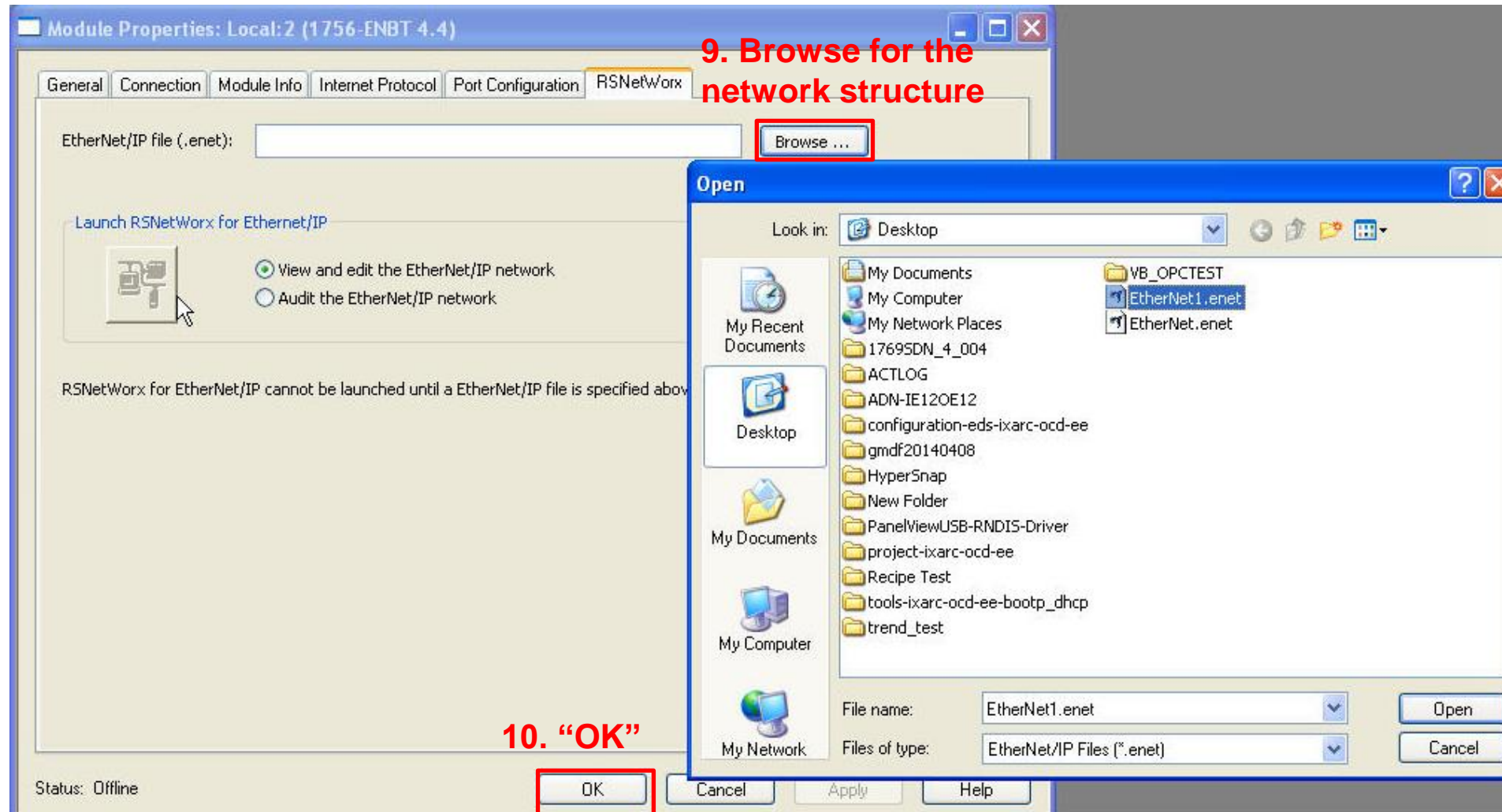
1 of 124 Module Types Found

Create Close Help

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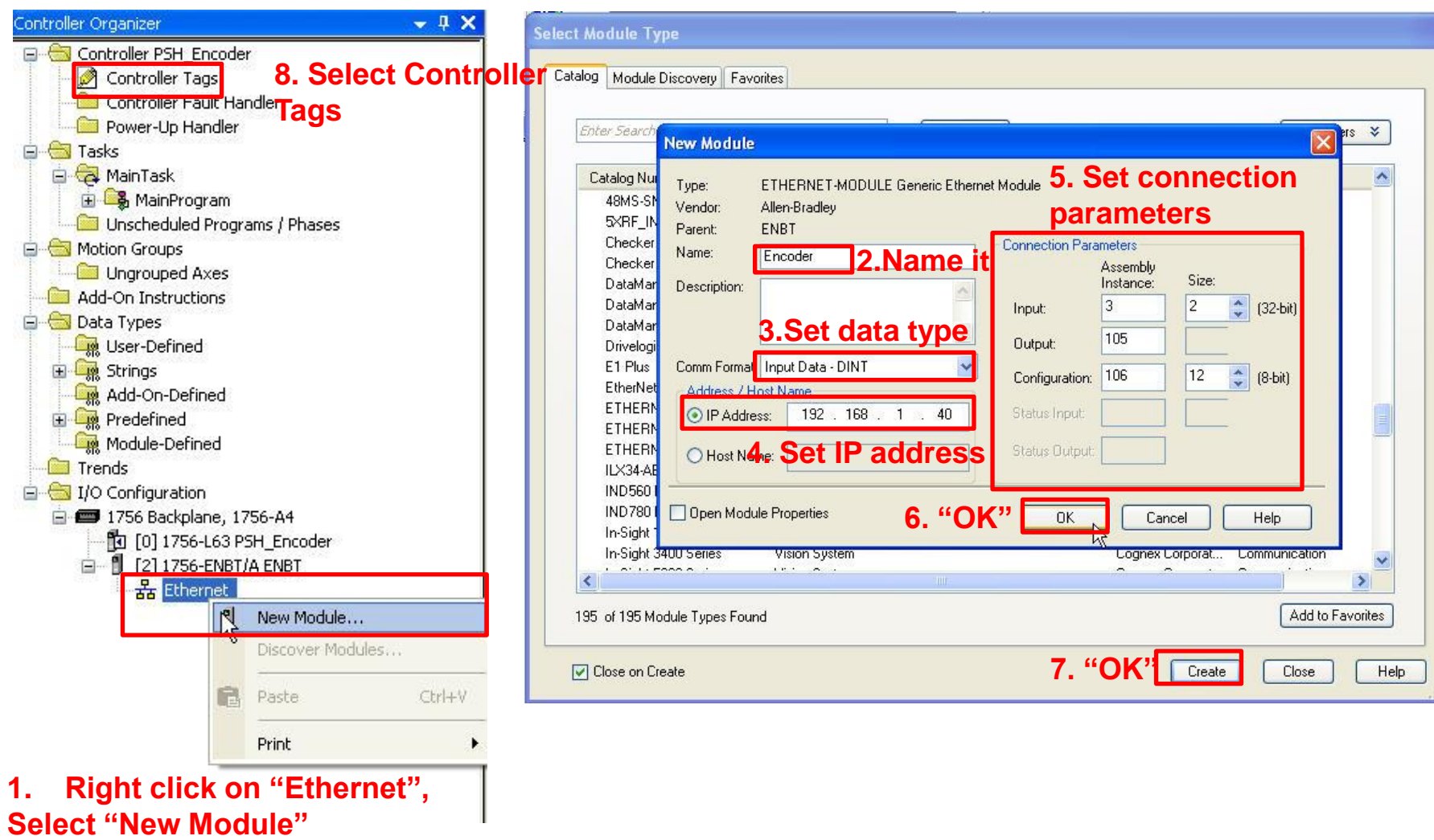


## ETHERNET/IP ENCODER QUICK START MANUAL



## ETHERNET/IP ENCODER QUICK START MANUAL

### 7. Create a New Ethernet Encoder Module



**1. Right click on "Ethernet", Select "New Module"**

**2. Name it**

**3. Set data type**

**4. Set IP address**

**5. Set connection parameters**

**6. "OK"**

**7. "OK" Create**

**8. Select Controller Tags**

The screenshot shows the 'Controller Organizer' on the left with the 'Ethernet' folder selected. A context menu is open over it, with 'New Module...' highlighted. The 'New Module' dialog is open, showing the following settings:

- Type: ETHERNET-MODULE Generic Ethernet Module
- Vendor: Allen-Bradley
- Parent: ENBT
- Name: Encoder
- Description: (empty)
- Comm Format: Input Data - DINT
- IP Address: 192 . 168 . 1 . 40
- Connection Parameters:
 

Input	Assembly Instance	Size
3	2	(32-bit)
Output: 105		
Configuration: 106	12	(8-bit)
Status Input:		
Status Output:		



## ETHERNET/IP ENCODER QUICK START MANUAL

Scope: PSH\_Encoder Show: All Tags

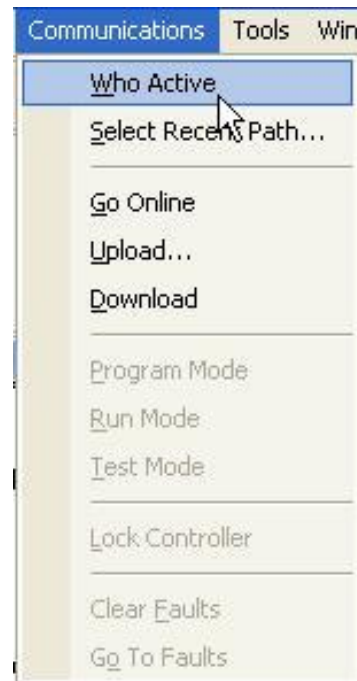
Name	Value	Force Mask	Style	Data Type	Description
Encoder:C	{...}	{...}		AB:ETHERNET_MODULE:C:0	
Encoder:C.Data	{...}	{...}	Hex	SINT[400]	
Encoder:C.Data[0]	16#00		Hex	SINT	Direction Counting Toggle
Encoder:C.Data[1]	16#00		Hex	SINT	Scaling Function Control
Encoder:C.Data[2]	16#00		Hex	SINT	Measuring Units per Span byte 0 (LSB)
Encoder:C.Data[3]	16#00		Hex	SINT	Measuring Units per Span byte 1
Encoder:C.Data[4]	16#00		Hex	SINT	Measuring Units per Span byte 2
Encoder:C.Data[5]	16#00		Hex	SINT	Measuring Units per Span byte 3 (MSB)
Encoder:C.Data[6]	16#00		Hex	SINT	Total Measuring byte 0 (LSB)
Encoder:C.Data[7]	16#00		Hex	SINT	Total Measuring byte 1
Encoder:C.Data[8]	16#00		Hex	SINT	Total Measuring byte 2
Encoder:C.Data[9]	16#00		Hex	SINT	Total Measuring byte 3
Encoder:C.Data[10]	16#00		Hex	SINT	Velocity 0 (LSB)
Encoder:C.Data[11]	16#00		Hex	SINT	Velocity 1 (MSB)
Encoder:C.Data[12]	16#00		Hex	SINT	
Encoder:C.Data[13]	16#00		Hex	SINT	
Encoder:C.Data[14]	16#00		Hex	SINT	
Encoder:C.Data[15]	16#00		Hex	SINT	
Encoder:C.Data[16]	16#00		Hex	SINT	
Encoder:C.Data[17]	16#00		Hex	SINT	
Encoder:C.Data[18]	16#00		Hex	SINT	
Encoder:C.Data[19]	16#00		Hex	SINT	
Encoder:C.Data[20]	16#00		Hex	SINT	
Encoder:C.Data[21]	16#00		Hex	SINT	
Encoder:C.Data[22]	16#00		Hex	SINT	

Monitor Tags / Edit Tags

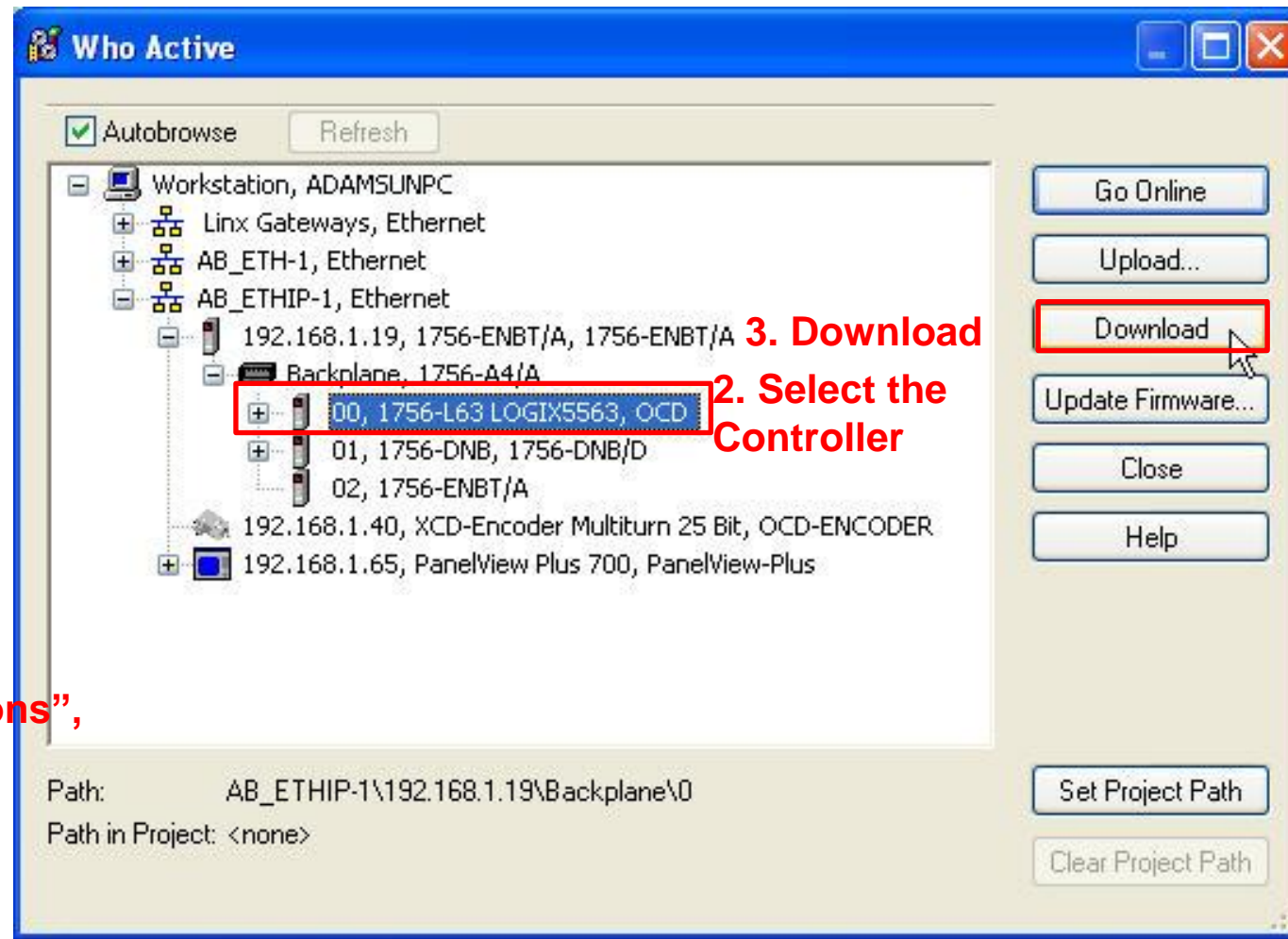
### 9. Control Tags and their definitions

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### 8. Download Configuration

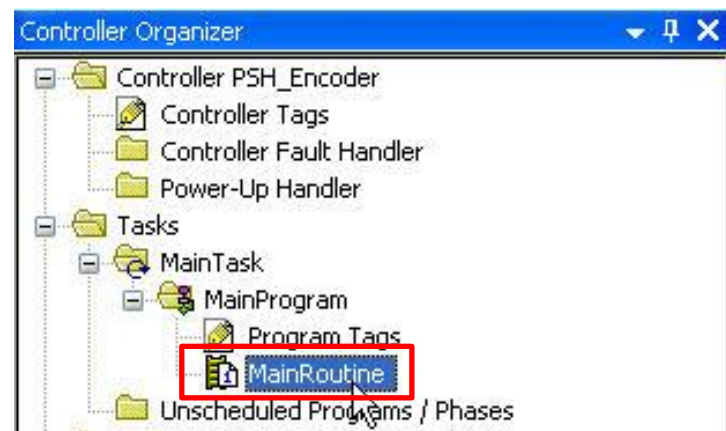


**1. Under “Communications”,  
Select “Who Active”**

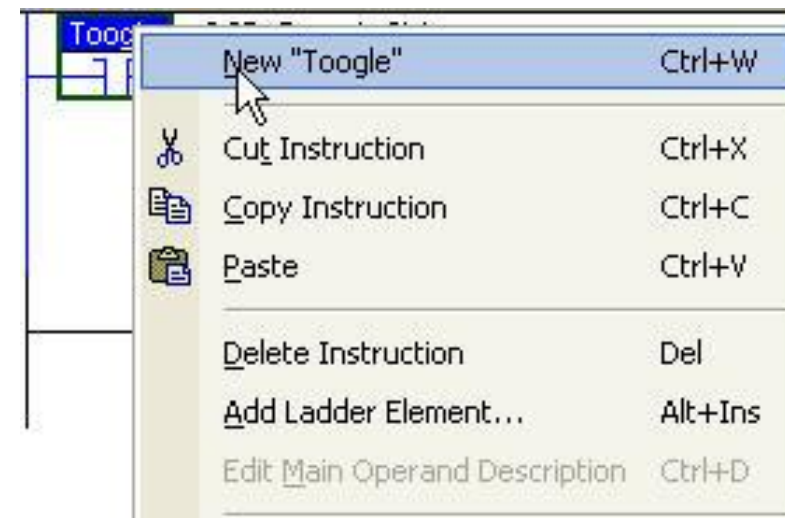


## ETHERNET/IP ENCODER QUICK START MANUAL

### 9. Read Out Position and Preset Function

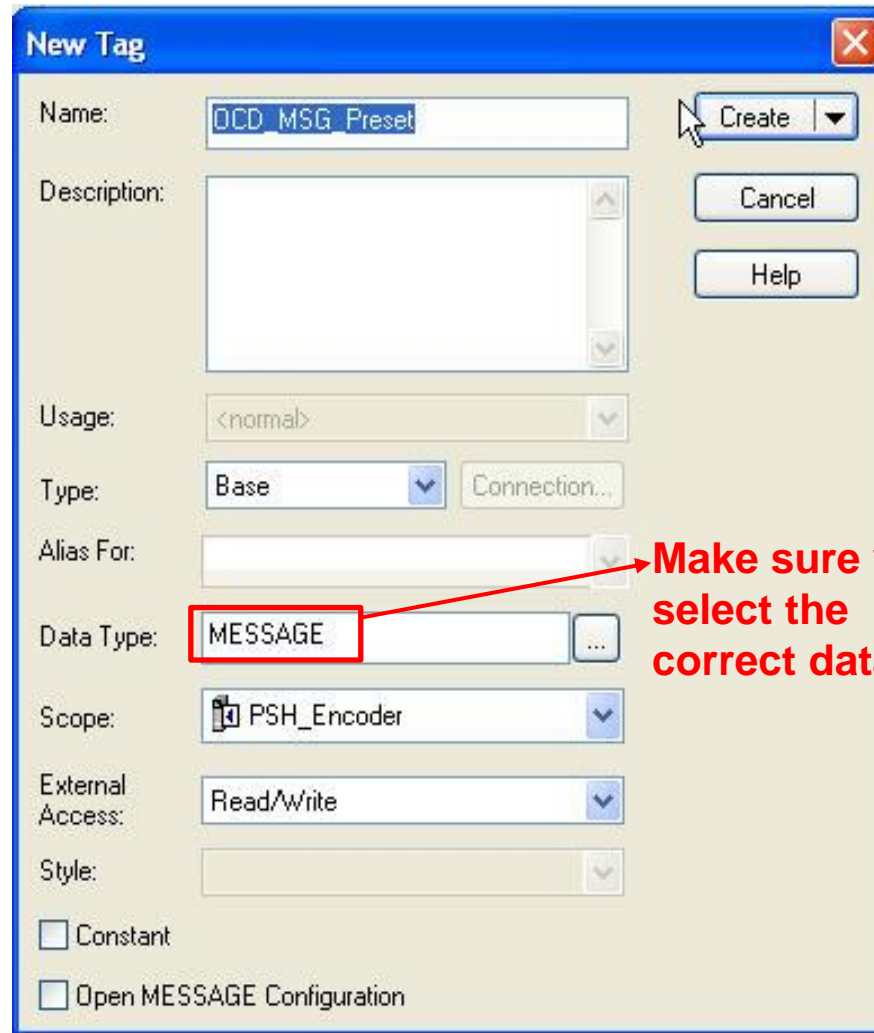


**1. Click on "Main Routine"**



**3. In "Toogle", add a "New Toogle"**

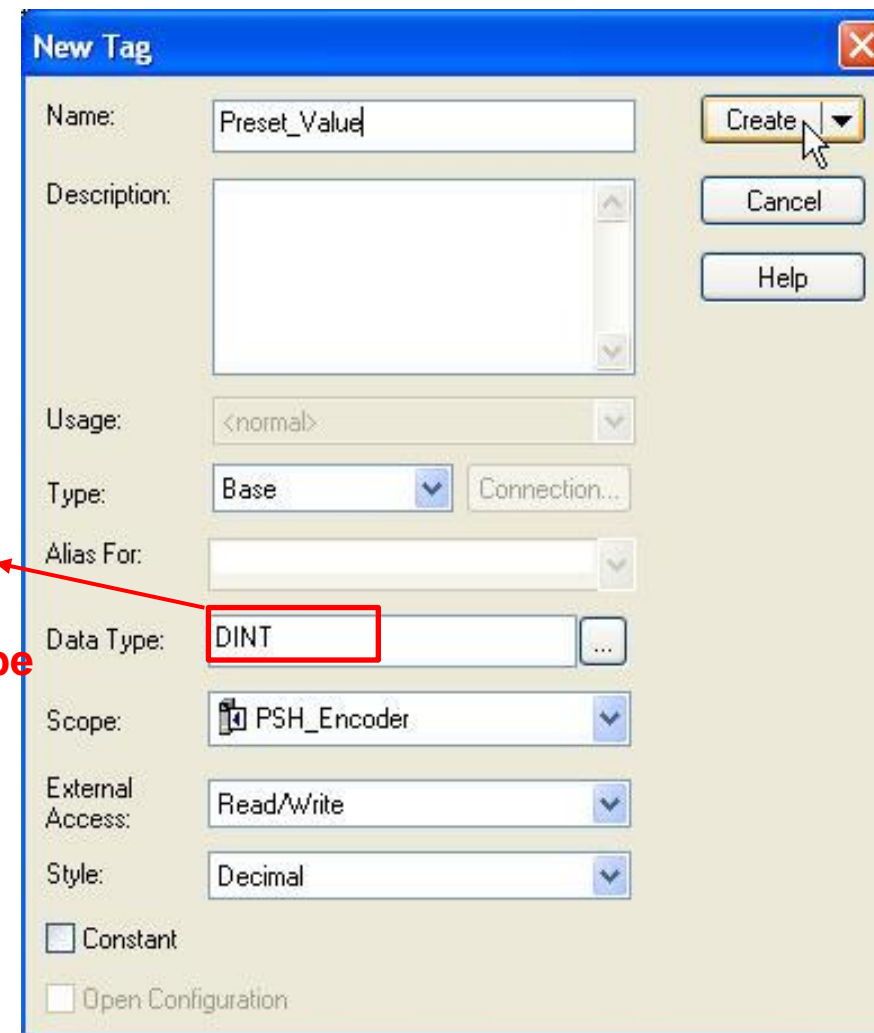
## ETHERNET/IP ENCODER QUICK START MANUAL



The 'New Tag' dialog box shows the following configuration for the 'OCD\_MSG\_Preset' tag:

- Name: `OCD_MSG_Preset`
- Description: (empty)
- Usage: `<normal>`
- Type: `Base`
- Alias For: (empty)
- Data Type: `MESSAGE` (highlighted with a red box)
- Scope: `PSH_Encoder`
- External Access: `Read/Write`
- Style: (empty)
- Constant
- Open MESSAGE Configuration

**4. Create the OCD\_MSG\_Preset**



The 'New Tag' dialog box shows the following configuration for the 'Preset\_Value' tag:

- Name: `Preset_Value`
- Description: (empty)
- Usage: `<normal>`
- Type: `Base`
- Alias For: (empty)
- Data Type: `DINT` (highlighted with a red box)
- Scope: `PSH_Encoder`
- External Access: `Read/Write`
- Style: `Decimal`
- Constant
- Open Configuration

**5. Create a Preset\_Value Tag**

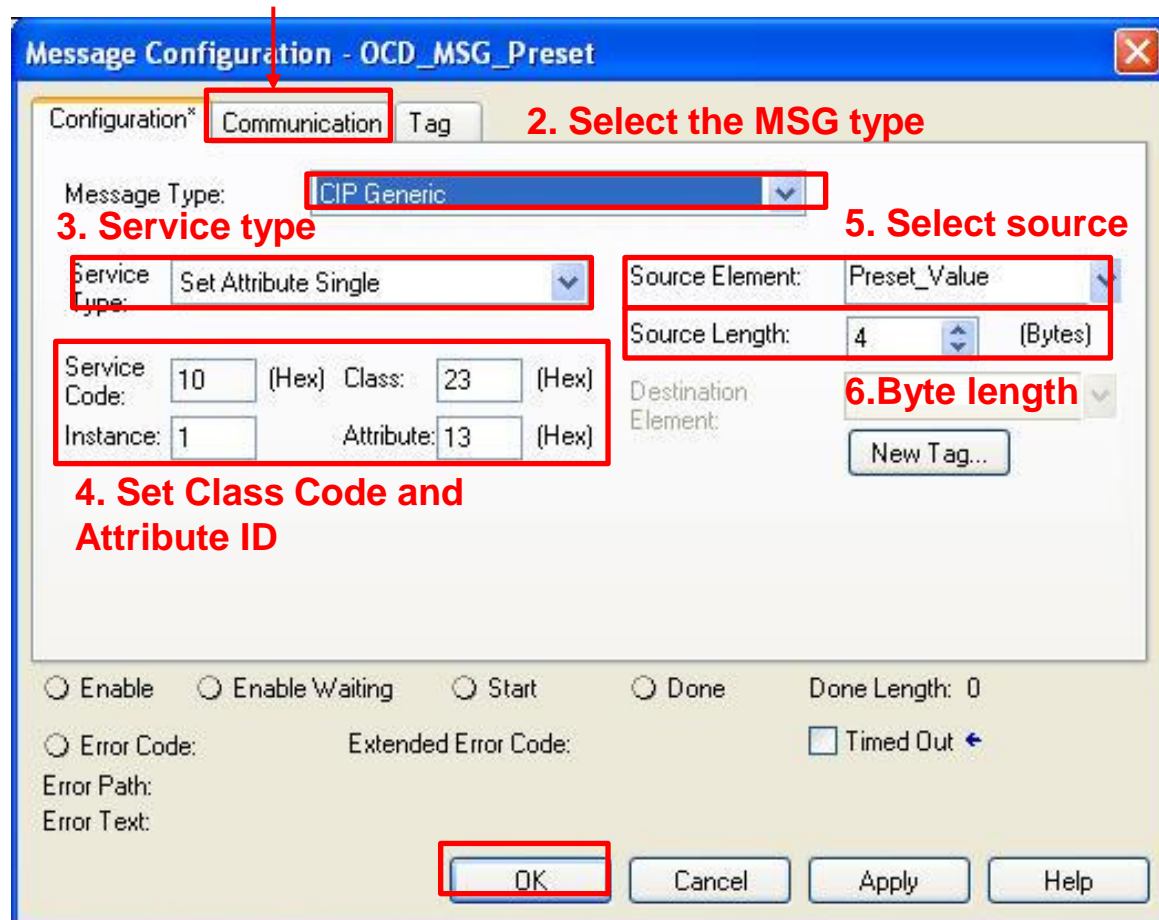
**Make sure you select the correct data type**



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### 10. Configure the OCD\_MSG\_Preset Tag

7. Go to the Communication tab



2. Select the MSG type

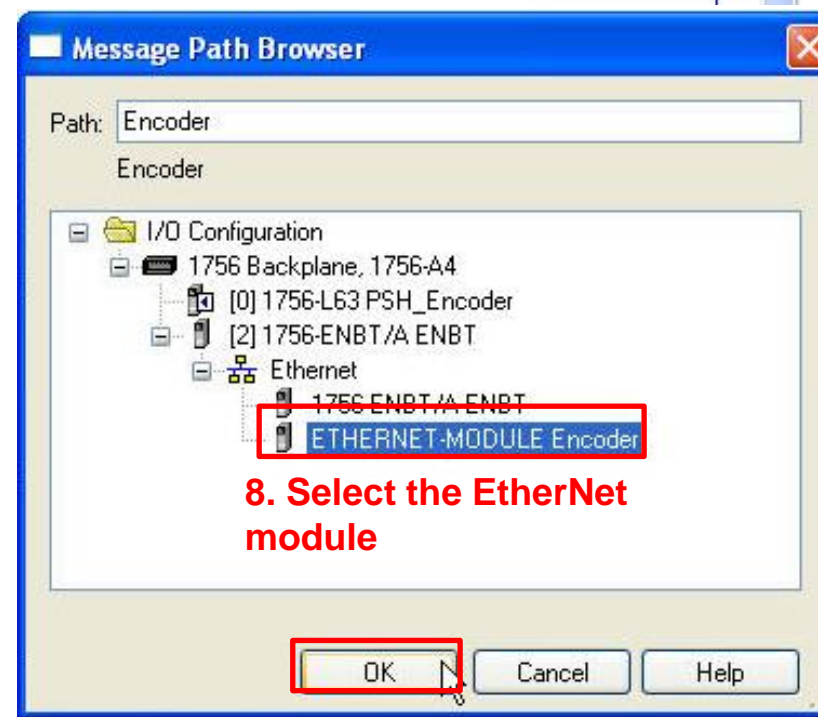
3. Service type

4. Set Class Code and Attribute ID

5. Select source

6. Byte length

10. "OK"

8. Select the EtherNet module

9. "OK"



## ETHERNET/IP ENCODER QUICK START MANUAL

### 11. Read the Position Value

Name	Value	Force Mask	Style	Data Type
Encoder:C	{...}	{...}		AB:ETHERNET_MODULE:C:0
Encoder:C.Data	{...}	{...}	Hex	SINT[400]
Encoder:I	{...}	{...}		AB:ETHERNET_MODULE_DIN...
Encoder:I.Data	{...}	{...}	Decimal	DINT[2]
Encoder:I.Data[0]	43302		Decimal	DINT
Encoder:I.Data[1]	0		Decimal	DINT
Toogle	0		Decimal	BOOL
OCD_Preset_Ctrl	0		Decimal	BOOL
OCD_MSG_Preset	{...}	{...}		MESSAGE
Preset_Value	0		Decimal	DINT

ETHERNET/IP ENCODER QUICK START MANUAL

**12. Preset function**

**3. The position value changes to the preset value**

**2. Set trigger as high**

Name	Value	Force Mask	Style	Data Type
Encoder:C	{...}	{...}		AB:ETHERNET_MODULE:C:0
Encoder:C.Data	{...}	{...}	Hex	SINT[400]
Encoder:I	{...}	{...}		AB:ETHERNET_MODULE_DIN...
Encoder:I.Data	{...}	{...}	Decimal	DINT[2]
Encoder:I.Data[0]	1000		Decimal	DINT
Encoder:I.Data[1]	0		Decimal	DINT
Toogle	1		Decimal	BOOL
OCD_Preset_Ctrl	1		Decimal	BOOL
OCD_MSG_Preset	{...}	{...}		MESSAGE
Preset_Value	1000		Decimal	DINT

**1. Set the desired Preset position value**



## ETHERNET/IP ENCODER QUICK START MANUAL

### Appendix

#### 2.2.2 Position Sensor Objects

Instance Attributes (Get: read, Set: write + read)

Class Code: 23<sub>hex</sub>

Attrib. ID	Access	Name	Data Type	Description
01 <sub>hex</sub>	Get	Number of Attributes	USINT	Number of supported Attributes
02 <sub>hex</sub>	Get	Attribute List	Array of USINT	List of supported Attribute
0A <sub>hex</sub>	Get	Position Value Signed	DINT	Current position signed
0B <sub>hex</sub>	Get	Position Sensor Type	UINT	Specifies the device type
0C <sub>hex</sub>	Set	Direction Counting Toggle	Boolean	Controls the code sequence clockwise or counterclockwise
0E <sub>hex</sub>	Set	Scaling Function Control	Boolean	Scaling function on/off
10 <sub>hex</sub>	Set	Measuring units per Span	UDINT	Resolution for one revolution
11 <sub>hex</sub>	Set	Total Measuring Range in Measuring Units	UDINT	Total resolution
13 <sub>hex</sub>	Set	Preset Value	DINT	Setting a defined position value
18 <sub>hex</sub>	Get	Velocity Value	DINT	Current speed in format of attribute 19 <sub>hex</sub> and 2A <sub>hex</sub>
19 <sub>hex</sub>	Set	Velocity Format	ENGUINT	Format of the velocity attributes
29 <sub>hex</sub>	Get	Operating Status	BYTE	Encoder diagnostic operating status
2A <sub>hex</sub>	Get	Physical Resolution Span	UDINT	Resolution for one revolution
2B <sub>hex</sub>	Get	Number of Spans	UINT	Number of revolutions
33 <sub>hex</sub>	Get	Offset Value	DINT	Shift position value with the calculated value
64 <sub>hex</sub>	Set	Device Type	DINT	Encoder device = 22 <sub>hex</sub> Generic device = 0 (default)
65 <sub>hex</sub>	Set	Endless Shaft	DINT	Off = 0, On = 1, Auto = 2
66 <sub>hex</sub>	Set	Velocity Filter	DINT	Fine = 0, Middle = 1, Raw = 2

### 1. Target Location Addresses



## ETHERNET/IP ENCODER QUICK START MANUAL

### 2.1.3.1 Data Offset

Byte Offset	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Direction Counting Toggle							
1	Scaling Function Control							
2	Measuring units per Revolution (low byte)							
3								
4								
5								
6	Total Measuring Range in measuring units (low byte)							
7	Total Measuring Range in measuring units (high byte)							
8								
9	Total Measuring Range in measuring units (high byte)							
10	Velocity Format (low byte)							
11	Velocity (high byte)							

## 2. Data Definition

### 4.1.6 Velocity Format

Default value for Velocity Format is steps per second. This parameter can be set with Configuration Assembly and Explicit Messaging.

Attribute ID	Default value	Value range	Data length
19 <sub>hex</sub>	1F04 <sub>hex</sub>	1F04 <sub>hex</sub>	Steps per second
		1F05 <sub>hex</sub>	Steps per millisecond
		1F06 <sub>hex</sub>	Steps per microsecond
		1F07 <sub>hex</sub>	Steps per minute
		1F0F <sub>hex</sub>	RPM

## 3. Velocity Units



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