



QUICK START MANUAL

EtherNet/IP Encoder



> E.g.: OCD-EEA1B-1213-C100-PRM

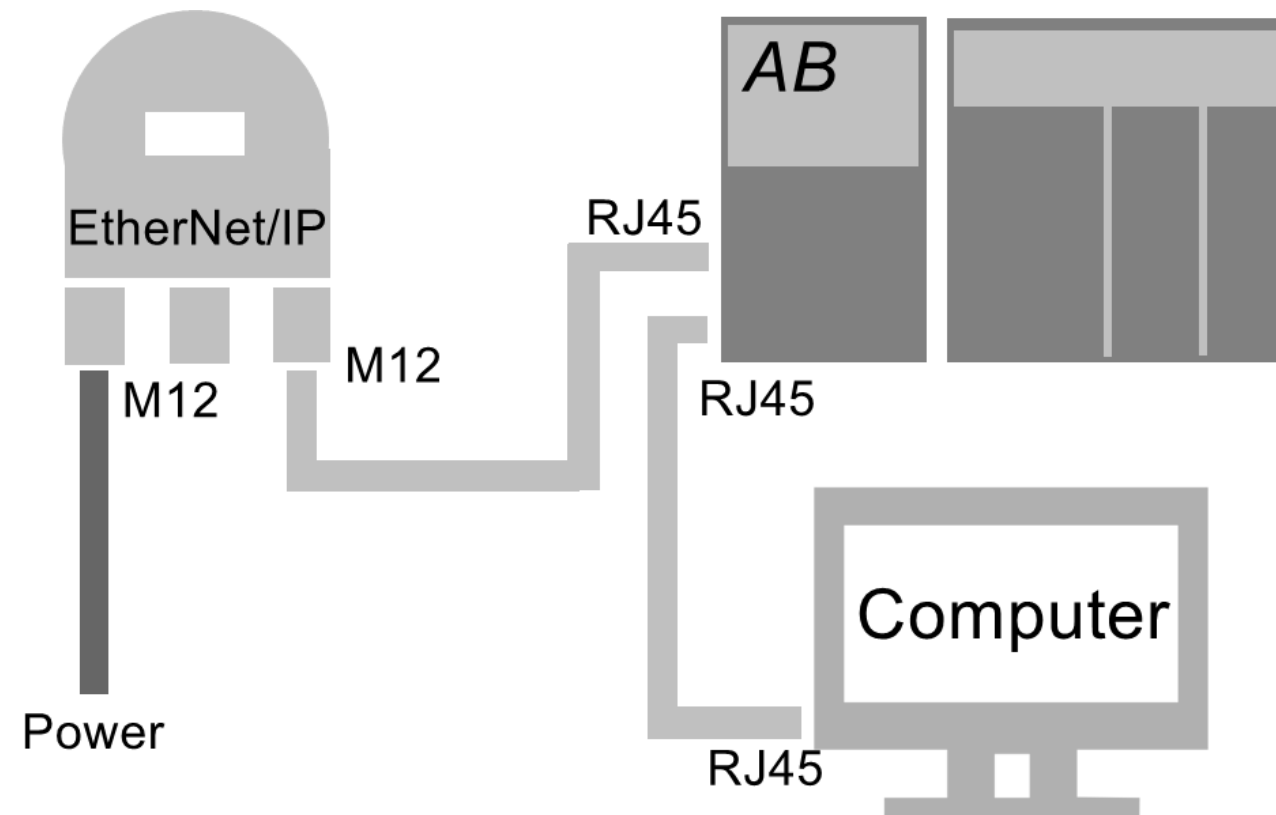
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ETHERNET/IP ENCODER QUICK START MANUAL

1. Hardware Connection





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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

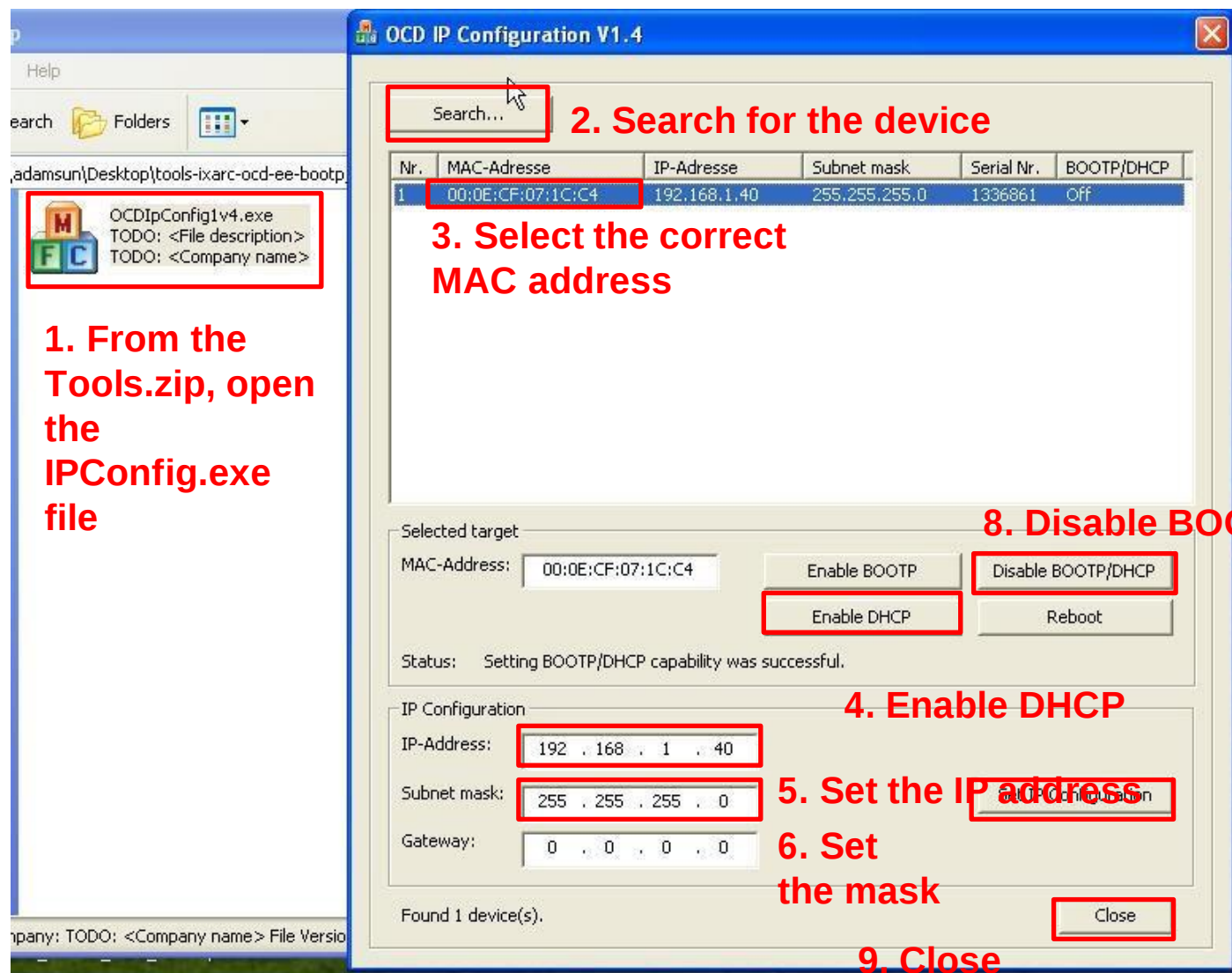
EDS file

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

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2. Set the IP address



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

2. Search for the device

3. Select the correct MAC address

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

4. Enable DHCP

5. Set the IP address

6. Set the mask

7. Confirm Settings

8. Disable BOOTP/DHCP

9. Close

NOTE:

Direct LAN cable connection PC – Encoder requires a set IP address for PC LAN adapter to be able to search for the Encoder.

NOTE:

To deactivate BOOTP:

- Firewall must not block Port 67 and 68.
- Deactivate WLAN and all other network cards.



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3. Associate an EDS file

1. Launch the EDS Wizard

2. "Add"

3. Add one or multiple files

4. Indicate the file path

5. "Next"

Rockwell Automation - Hardware Installation Tool

This tool allows you to change the hardware description information currently installed on your computer.

Add Launch the EDS Wizard and add files and associated components only.

Remove Launch the EDS Wizard and remove files and associated components only.

Remove All Remove all previously installed hardware and associated components from your system.

Rockwell Automation's EDS Wizard

Registration

Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.

☐ Register a single file

☒ Register a directory of EDS files

☐ Look in subfolders

In folder: Settings\adamsun\Desktop\configuration-eds-ixarc-ocd-ee\EDS_EE_POS Browse...

* If there is an icon file (.ico) with the same name as the file(s) you are registering then this image will be associated with the device.

To perform an installation test on the file(s), click Next

Next > Cancel

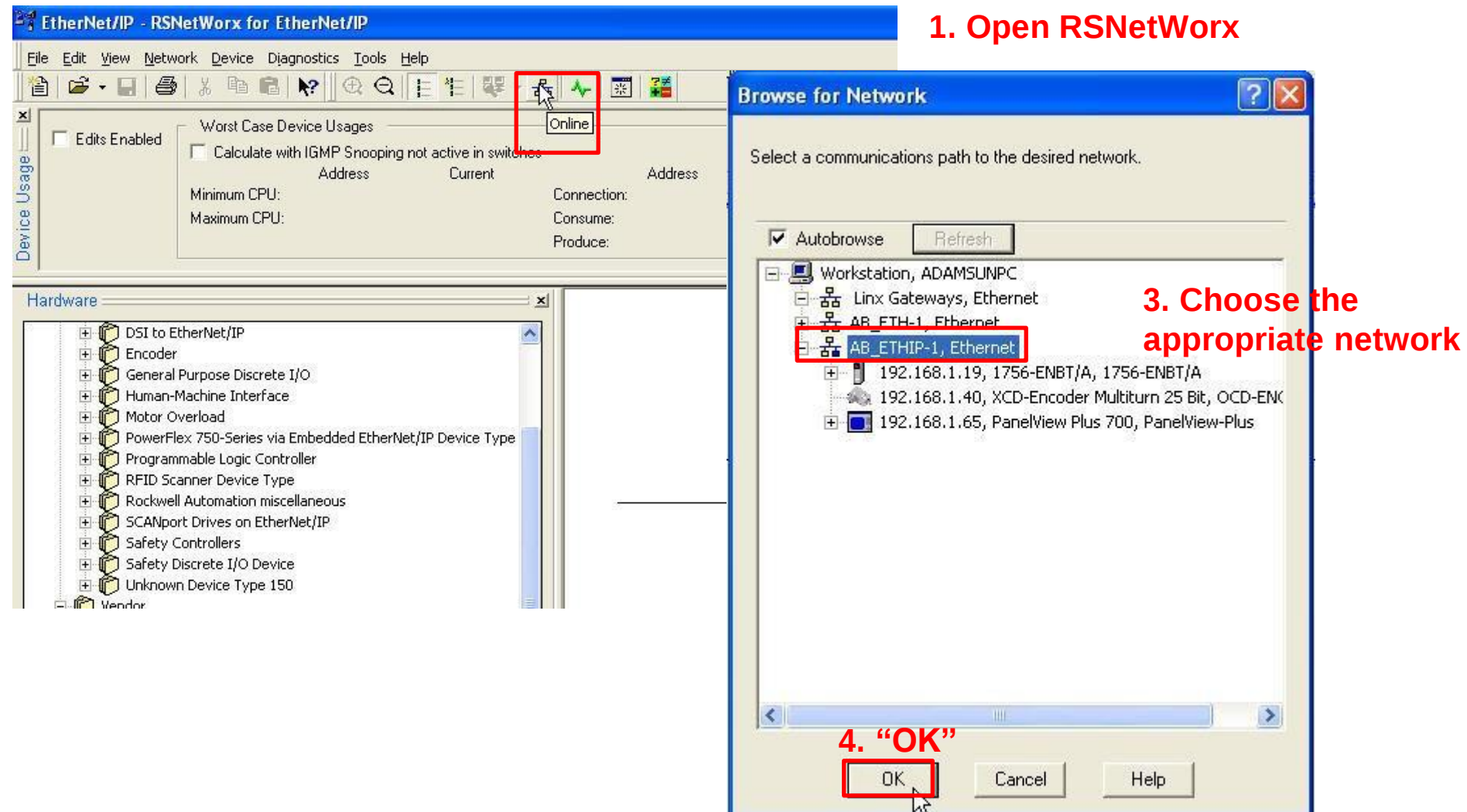


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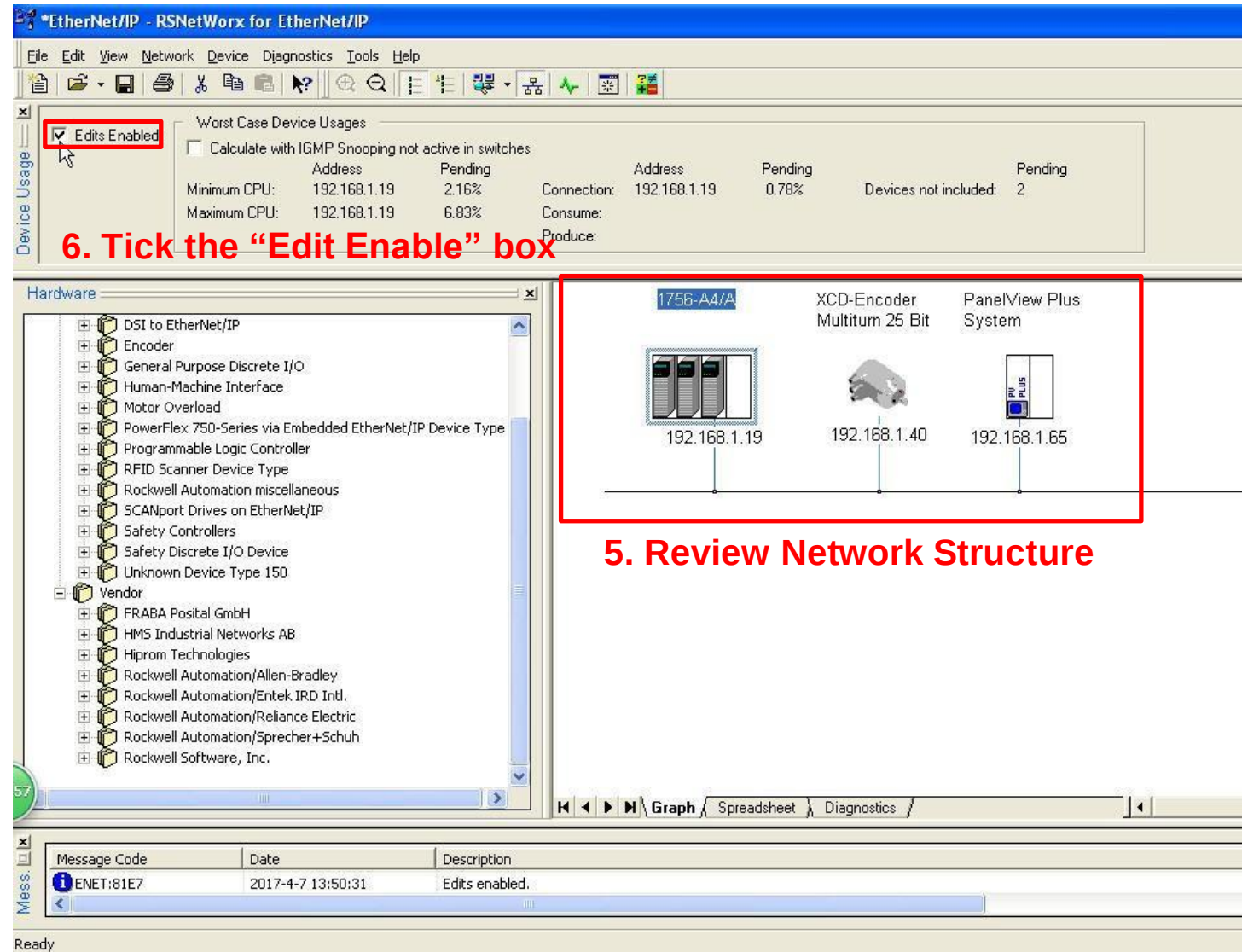
4. Create a Network

2. Click on “Online”

1. Open RSNetWorx



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The screenshot shows the RSNetWorx for EtherNet/IP software interface. The 'Device Usage' tab is active, displaying a table of device usage statistics. A red box highlights the 'Edits Enabled' checkbox, which is checked. Below this, a red box highlights the 'Hardware' tab, which shows a network diagram with three devices connected to a central bus. The devices are labeled with their IP addresses: 192.168.1.19, 192.168.1.40, and 192.168.1.65. The diagram is titled '1756-A4/A' and 'XCD-Encoder Multiturn 25 Bit'. The 'PanelView Plus System' is also shown. The bottom status bar indicates 'Ready'.

6. Tick the “Edit Enable” box

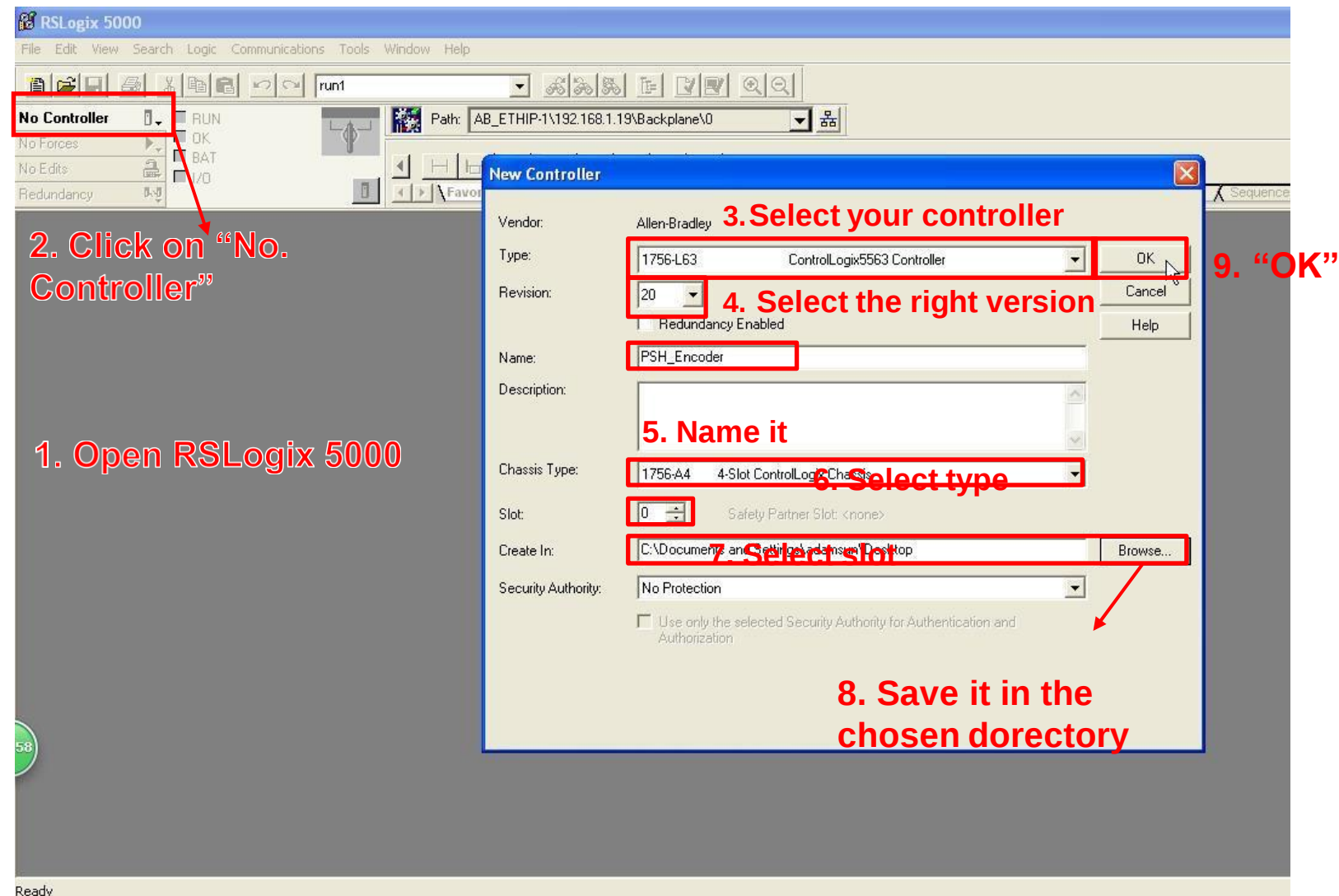
5. Review Network Structure

Message Code	Date	Description
ENET:81E7	2017-4-7 13:50:31	Edits enabled.



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5. Create a New Controller





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6. Create a New Ethernet Module

1. Right click and choose "New Module"

2. Select the module

3. "Create"

RSLogix 5000 - PSH_Encoder [1756-L63 20.11]

File Edit View Search Logic Communications Tools Window Help

run1

Offline

No Forces

No Edits

Redundancy

Controller Organizer

Start Page

Controller PSH_Encoder

Controller Tags

Controller Fault Handler

Power-Up Handler

Tasks

MainTask

MainProgram

Unscheduled Programs / Phases

Motion Groups

Ungrouped Axes

Add-On Instructions

Data Types

User-Defined

Strings

Add-On-Defined

Predefined

Module-Defined

Trends

I/O Configuration

1756 Backplane, 1756-A4

[e] 1756-L63 PSH_Encoder

Select Module Type

Catalog Module Discovery Favorites

1756-enbt

Clear Filters

Show Filters

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

Close on Create

Create Close Help



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4. Name it

5. Select the module version

6. Set IP address

7. Select the slot where the module is located

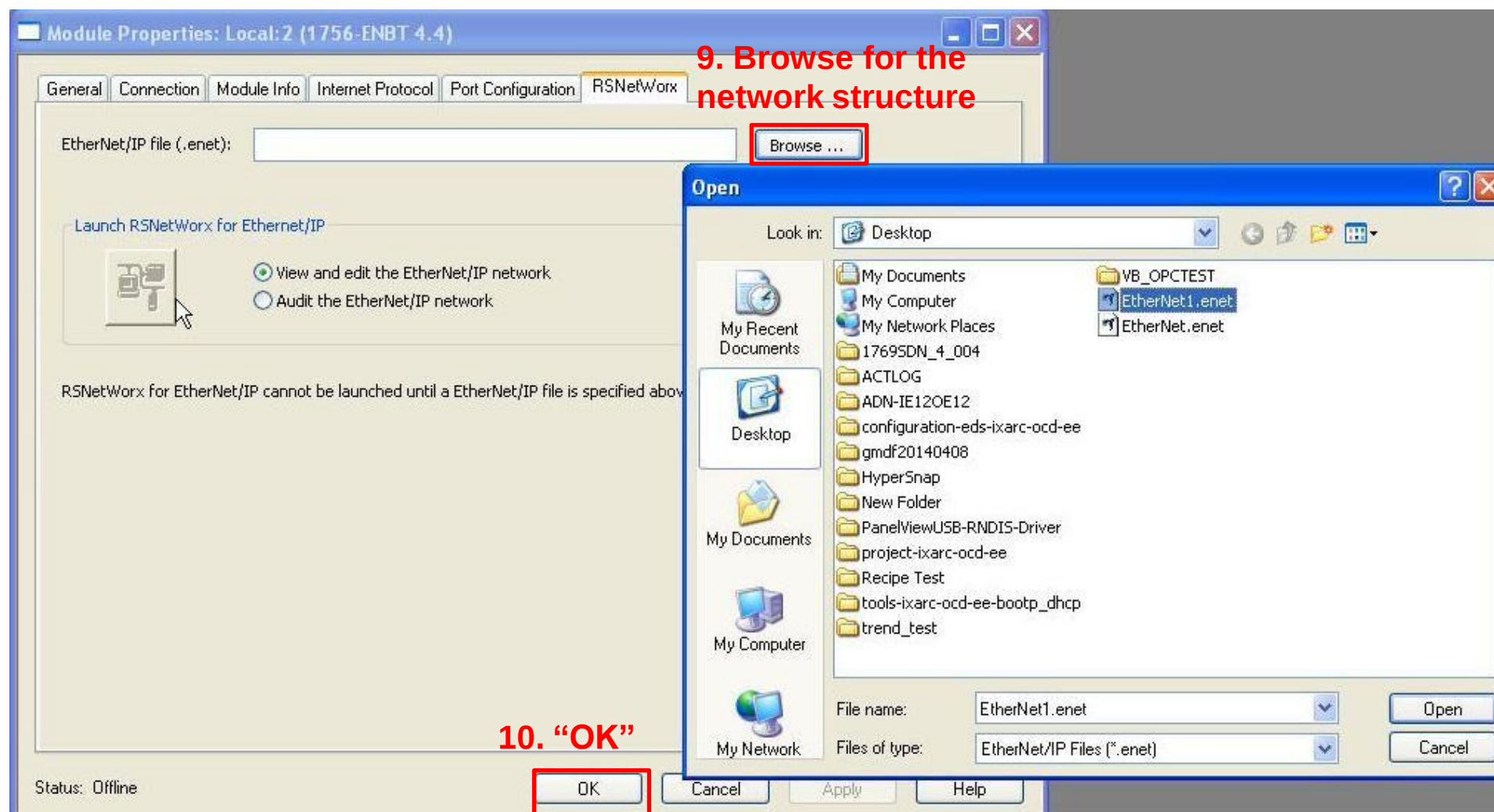
8. Go to RSNetWorx Tab

Status: Creating

OK Cancel Help

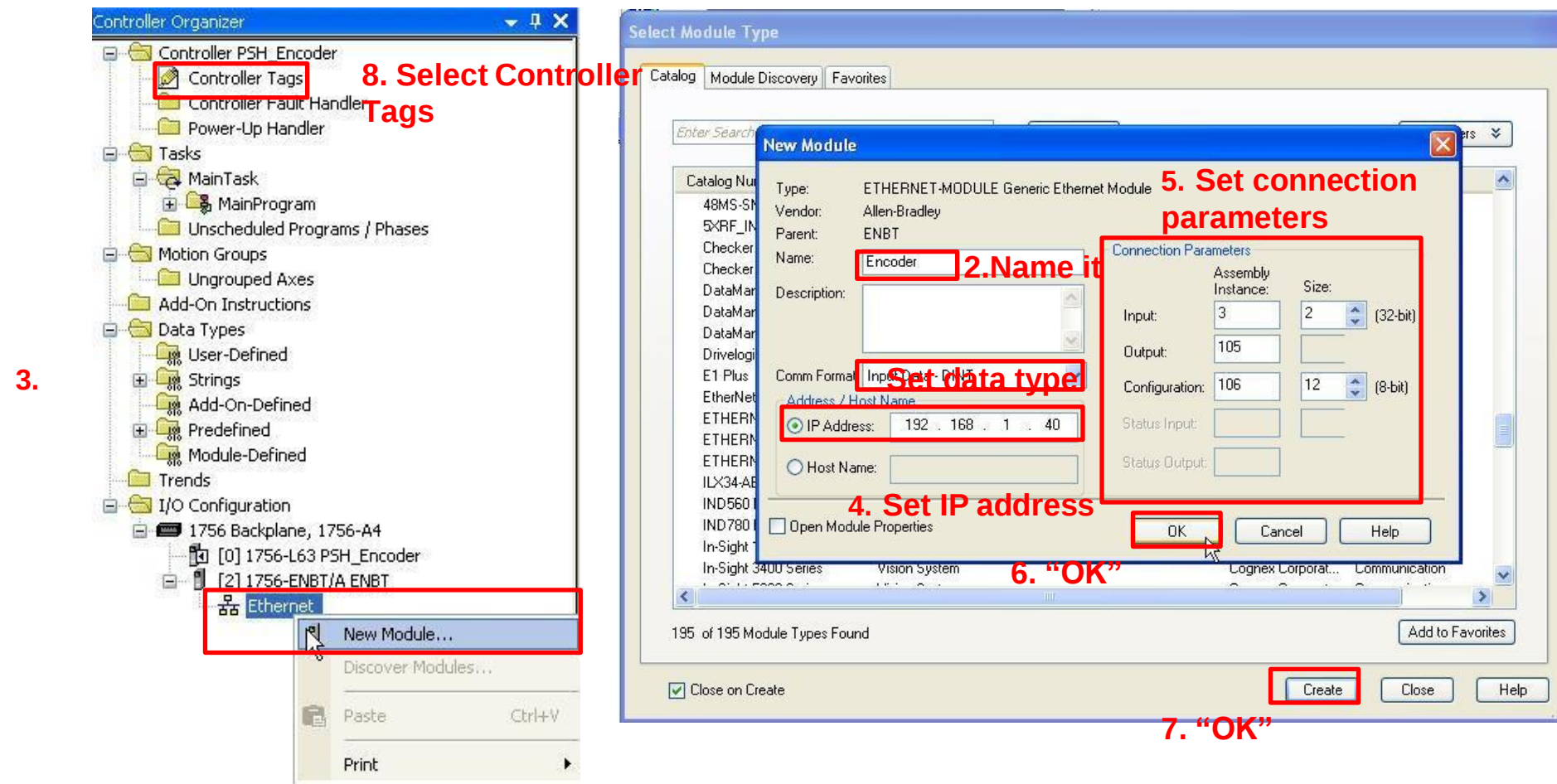


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7. Create a New Ethernet Encoder Module



The image shows two screenshots from the Rockwell Automation software. The left screenshot shows the 'Controller Organizer' tree with the 'Ethernet' module selected under 'I/O Configuration'. A right-click context menu is open, and 'New Module...' is highlighted. The right screenshot shows the 'Select Module Type' dialog box with the 'New Module' sub-dialog open. The 'New Module' dialog has the following settings: Type: ETHERNET-MODULE Generic Ethernet Module, Vendor: Allen-Bradley, Parent: ENBT, Name: Encoder, Description: (empty), Comm Format: IP Address: 192.168.1.40, Input: 3, Output: 105, Configuration: 106, Size: 12 (8-bit). The 'Connection Parameters' sub-dialog is also open, showing the same settings. The 'OK' button is highlighted in the 'New Module' dialog, and the 'Create' button is highlighted in the 'Select Module Type' dialog.

3. Right click on "Ethernet", Select "New Module"

8. Select Controller Tags

2. Name it

5. Set connection parameters

Set data type

4. Set IP address

6. "OK"

7. "OK"

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



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Scope: PSH_Encoder Show: All Tags Enter Name Filter...

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	

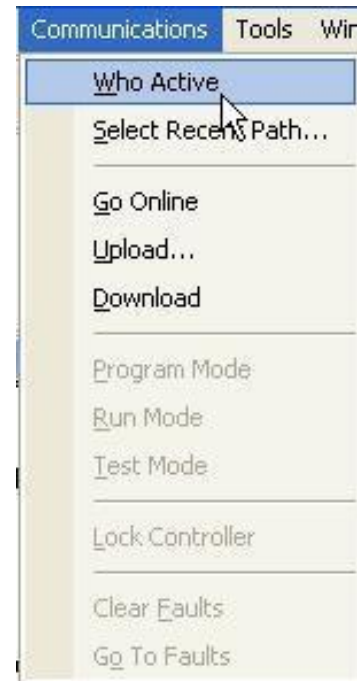
Monitor Tags / Edit Tags

9. Control Tags and their definitions

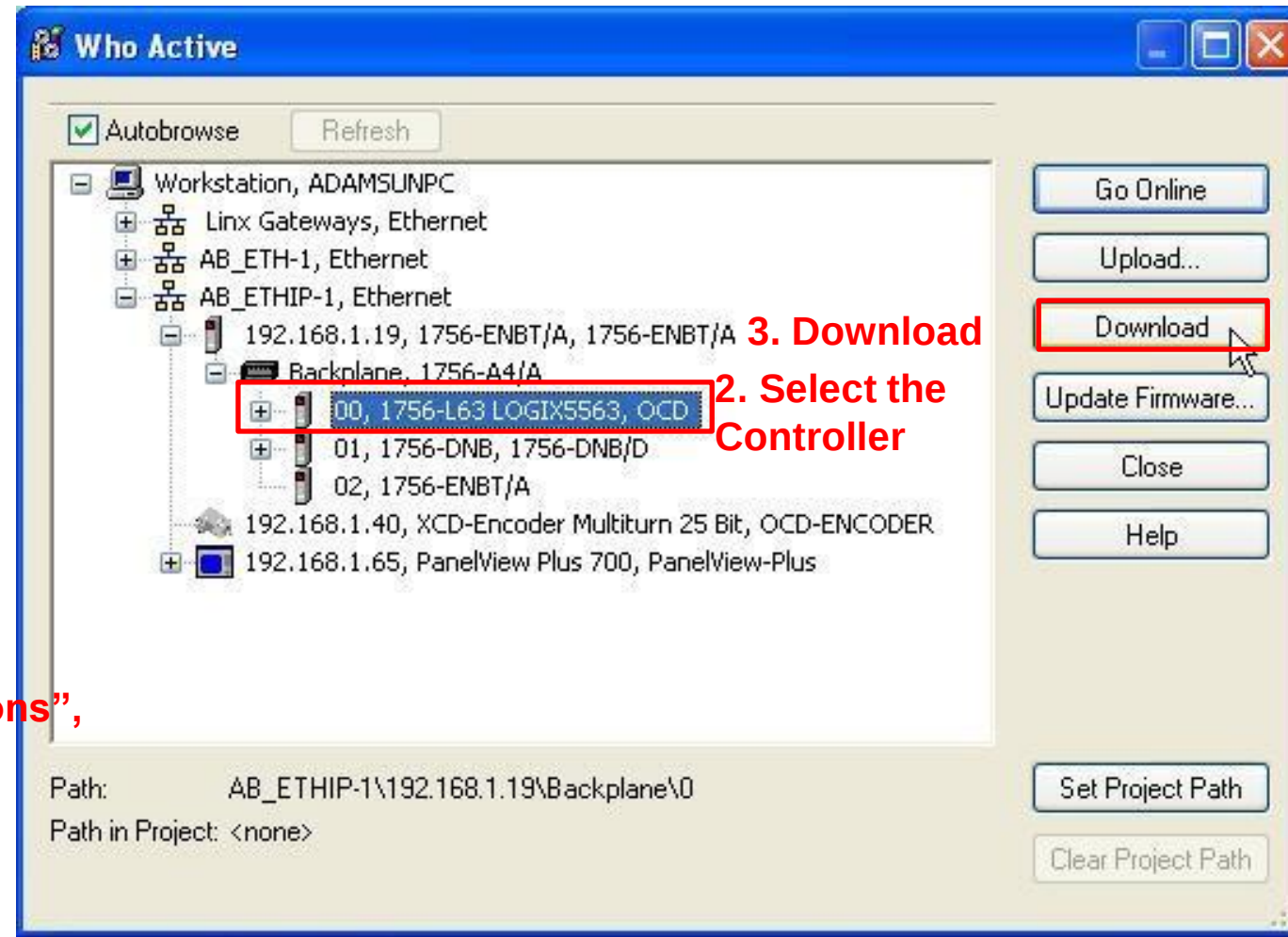


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8. Download Configuration

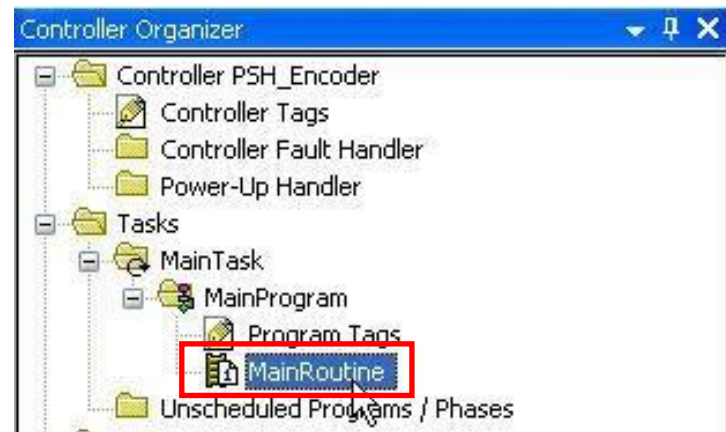
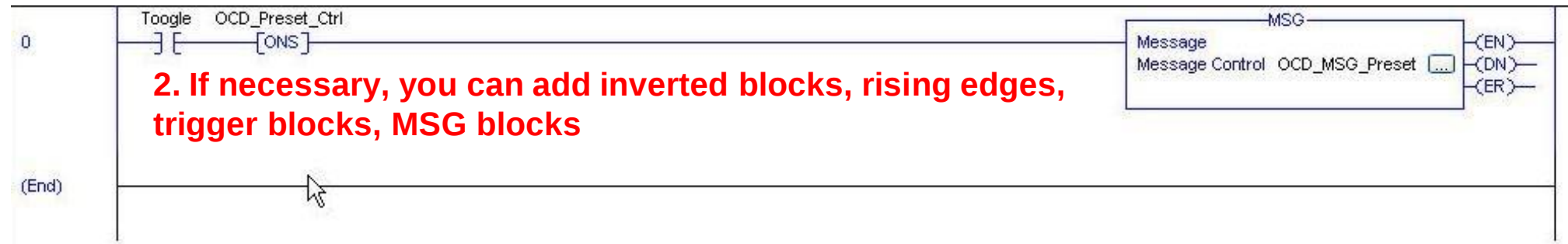


1. Under “Communications”,
Select “Who Active”

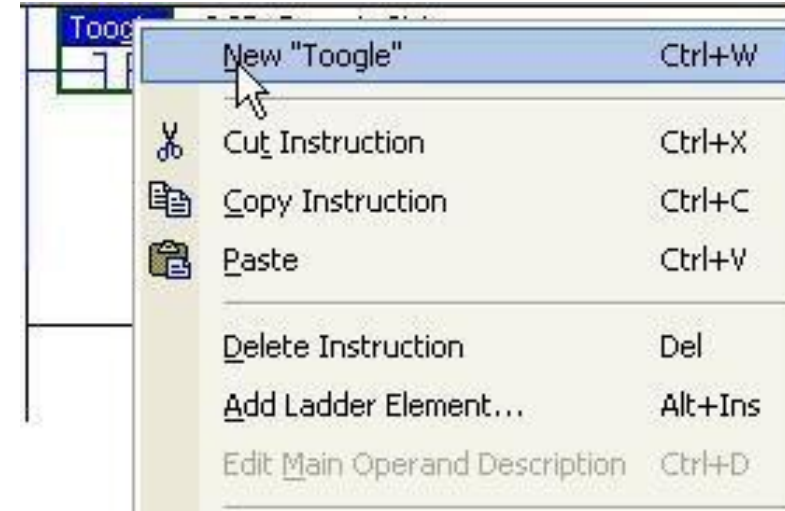


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9. Read Out Position and Preset Function



1. Click on “Main Routine”



3. In “Toogle”, add a “New Toogle”



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The 'New Tag' dialog box is shown with the following settings:

- 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

Buttons: `Create`, `Cancel`, `Help`.

4. Create the OCD_MSG_Preset

The 'New Tag' dialog box is shown with the following settings:

- 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

Buttons: `Create`, `Cancel`, `Help`.

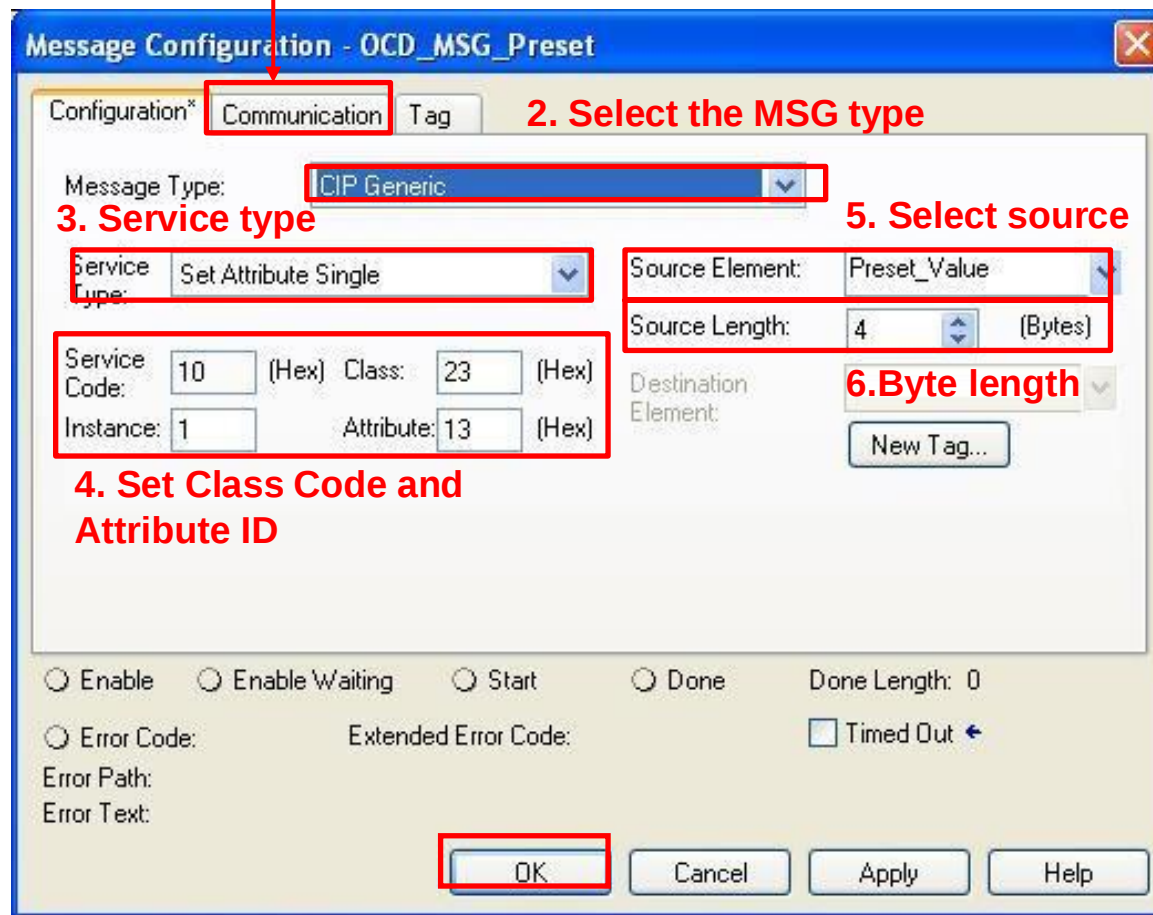
5. Create a Preset_Value Tag

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

Configuration* **Communication** Tag

Message Type: **CIP Generic**

3. Service type

Service Type: **Set Attribute Single**

4. Set Class Code and Attribute ID

Service Code: **10** (Hex) Class: **23** (Hex)
 Instance: **1** Attribute: **13** (Hex)

5. Select source

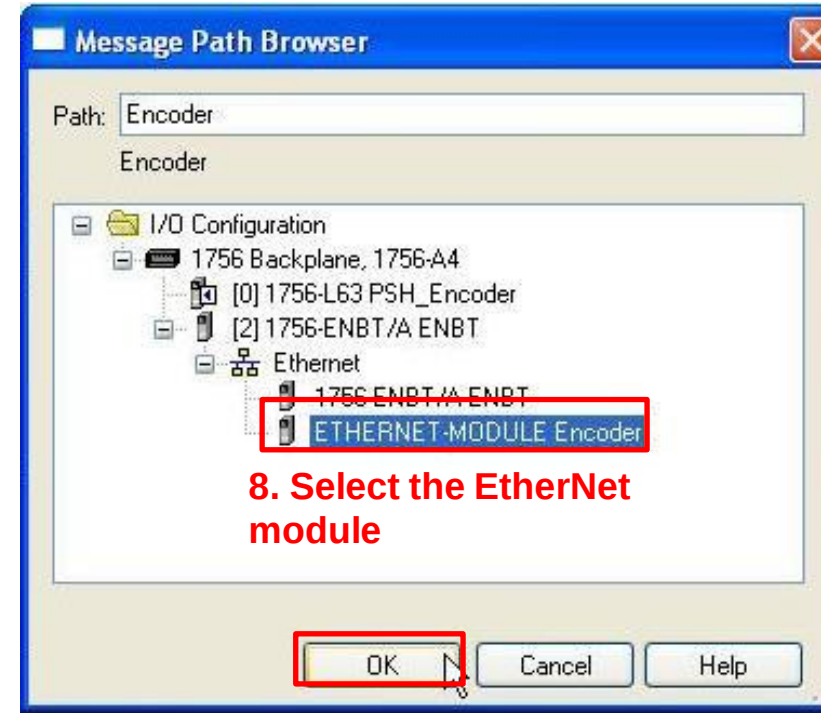
Source Element: **Preset_Value**

6. Byte length

Source Length: **4** (Bytes)

Destination Element: **New Tag...**

10. "OK"

8. Select the EtherNet module

Path: Encoder

Encoder

I/O Configuration

- 1756 Backplane, 1756-A4
 - [0] 1756-L63 PSH_Encoder
 - [2] 1756-ENBT/A ENBT
 - Ethernet
 - 1756-ENBT/A ENBT
 - ETHERNET-MODULE Encoder**

9. "OK"



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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

1. Position Value

2. Velocity Value

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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



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Appendix

2.2.2 Position Sensor Objects

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

Class Code: 23_{hex}

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

1. Target Location Addresses



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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								
8								
9								
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 _{hex}	1F04 _{hex}	1F04 _{hex}	Steps per second
		1F05 _{hex}	Steps per millisecond
		1F06 _{hex}	Steps per microsecond
		1F07 _{hex}	Steps per minute
		1F0F _{hex}	RPM

3. Velocity Units



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