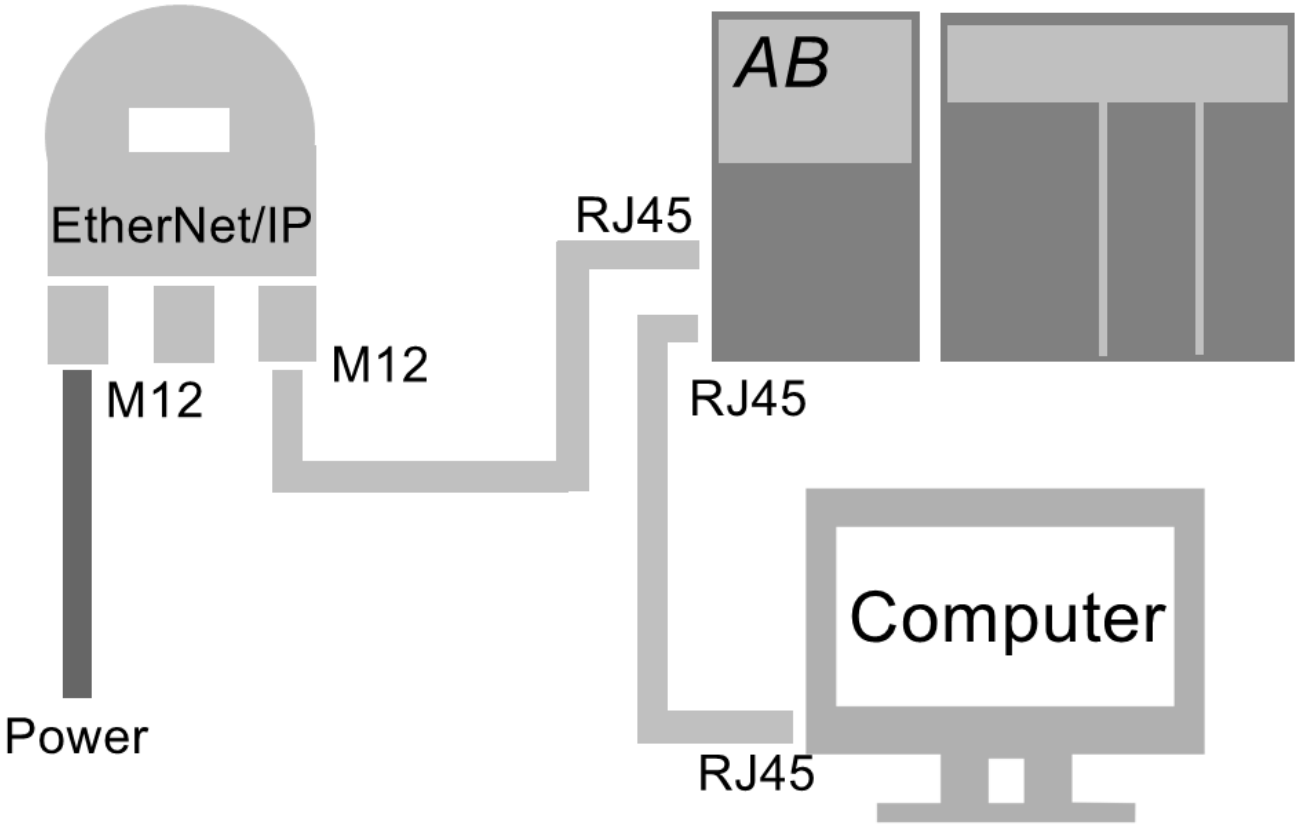
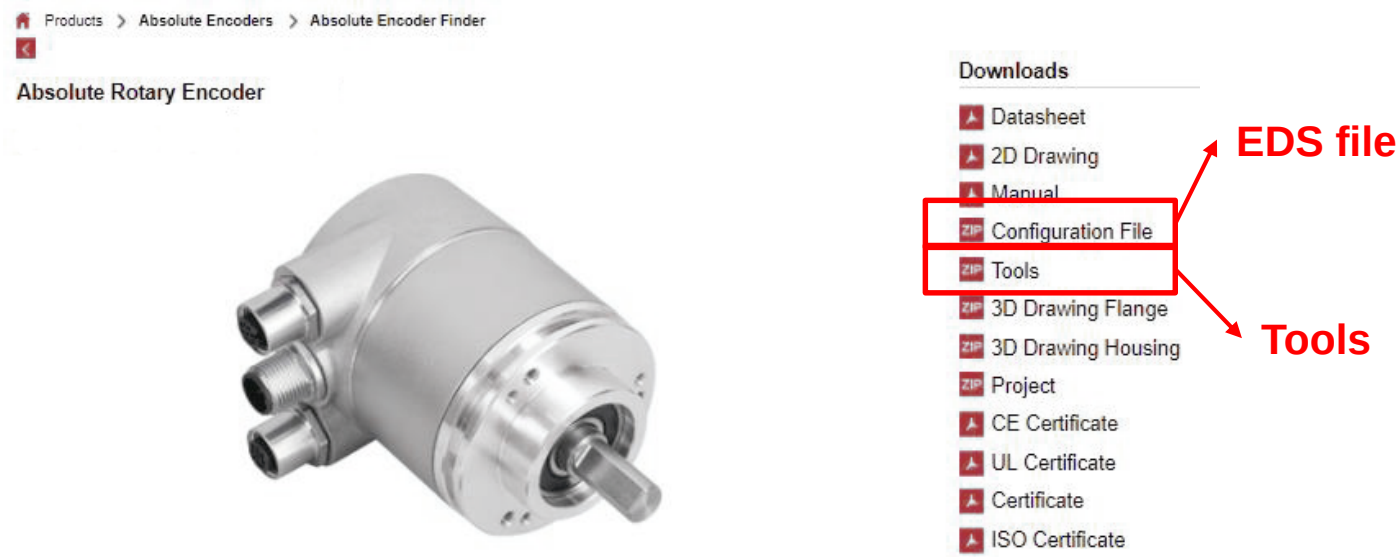
EtherNet/IP Encoder
Quick Start Manual

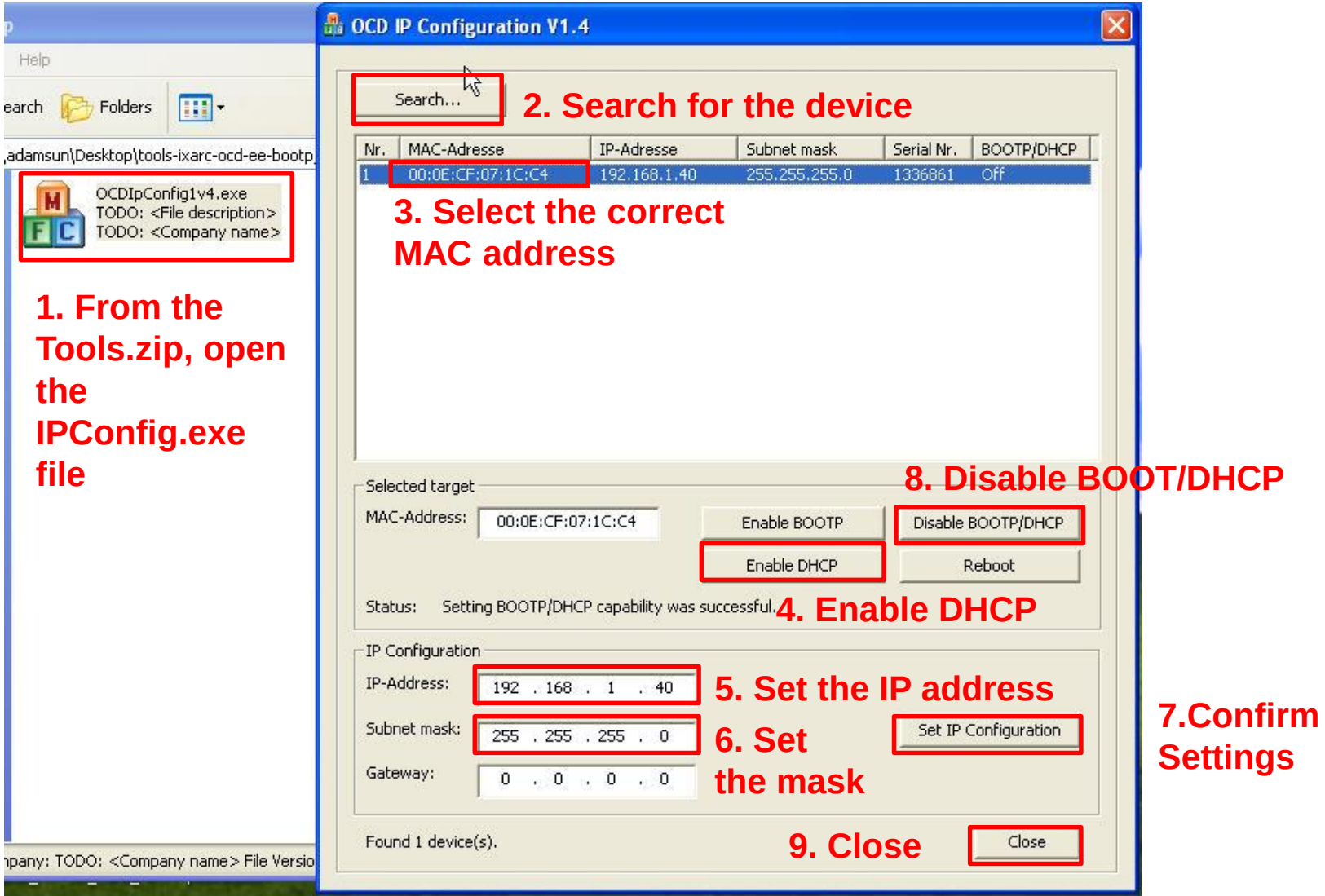
1. Hardware Connection



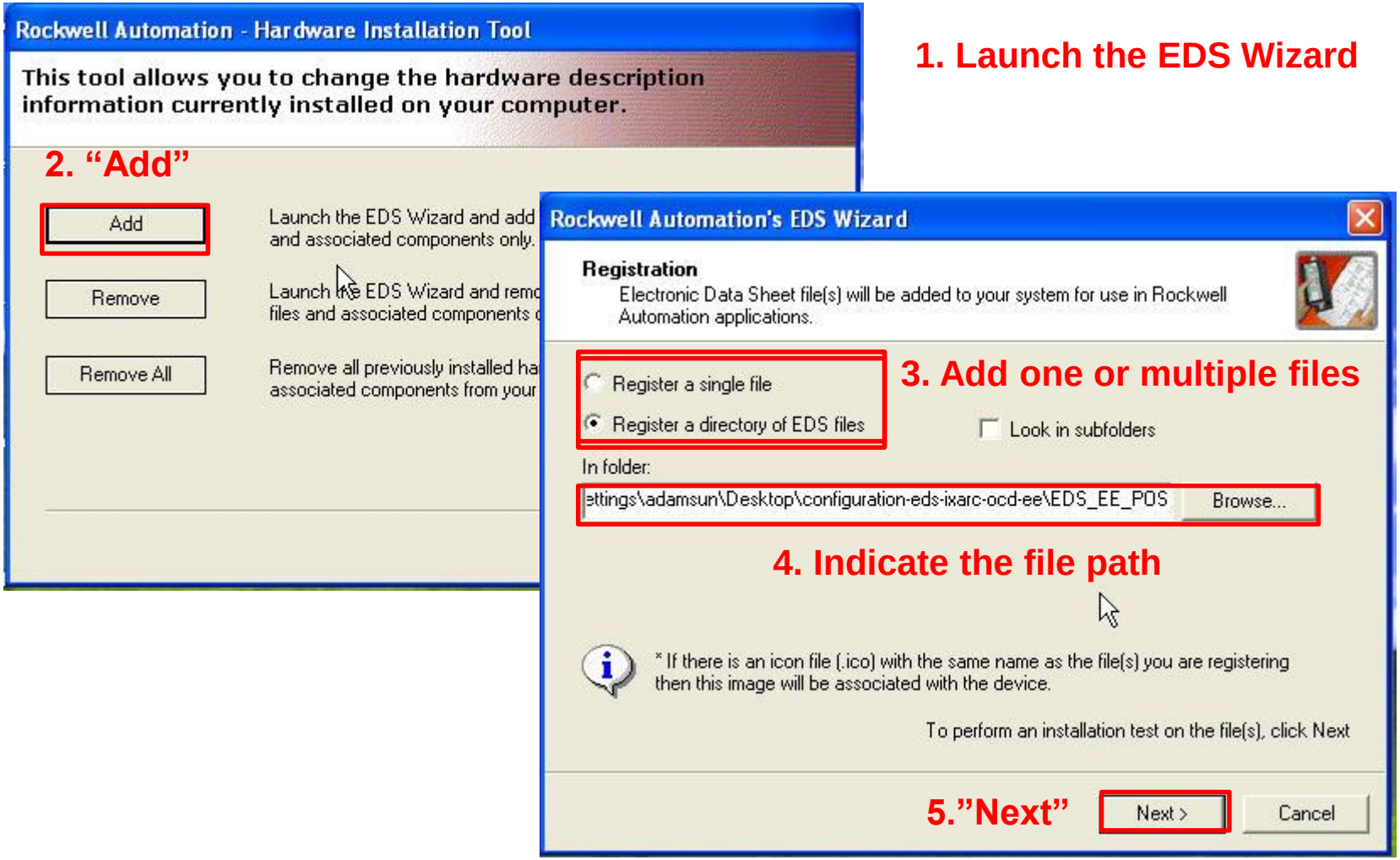
1. Set the power supply (voltage 10~30VDC via the female M12 connector
2. Connect the encoder to the PLC via the male M12 connector
3. Connect the PLC and the computer together via an RJ45 cable
4. Start ControlLogix5563
5. Have EDS Wizard, RSNetWorx, RSLogix 5000 installed on your computer
6. On our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



2. Set the IP address

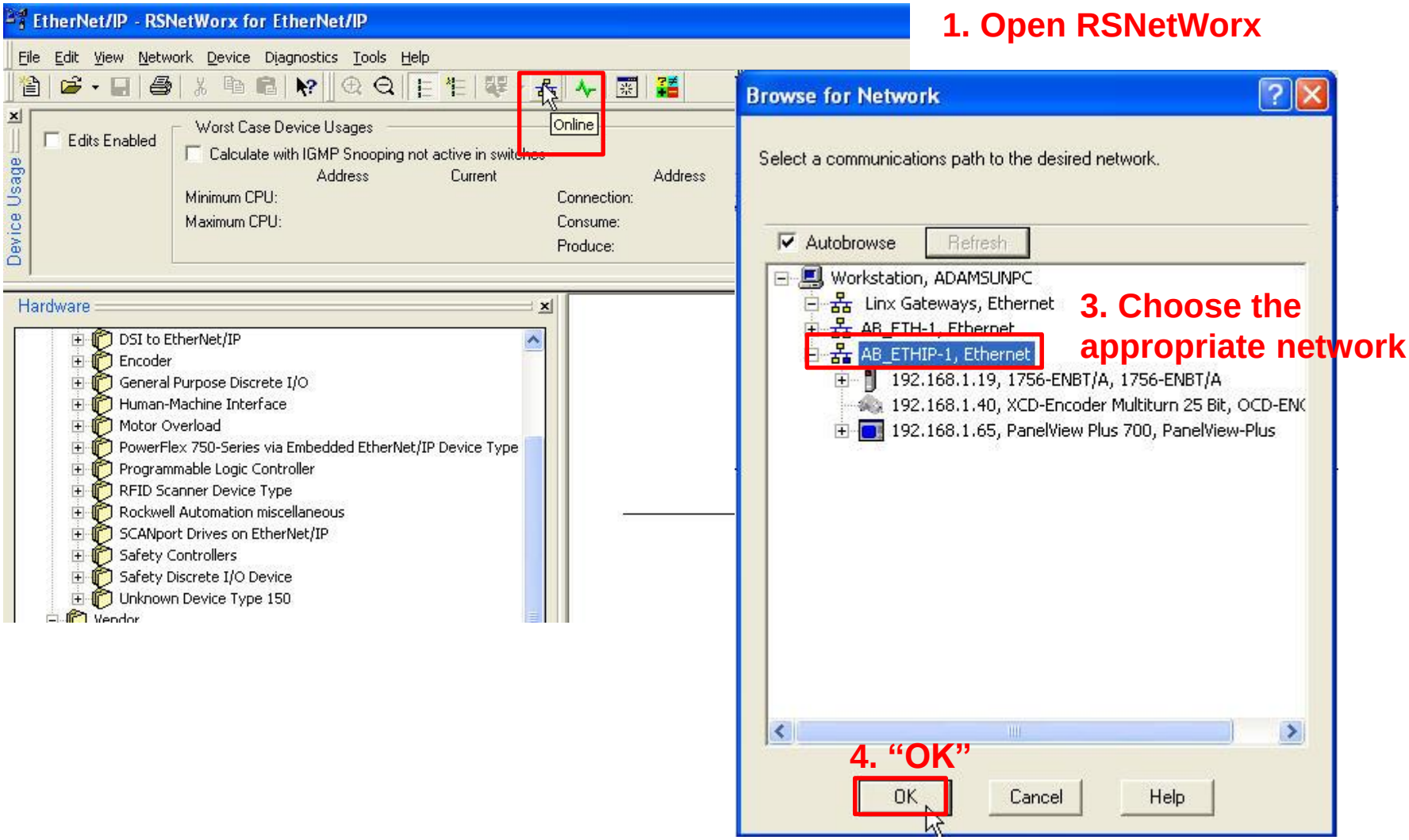


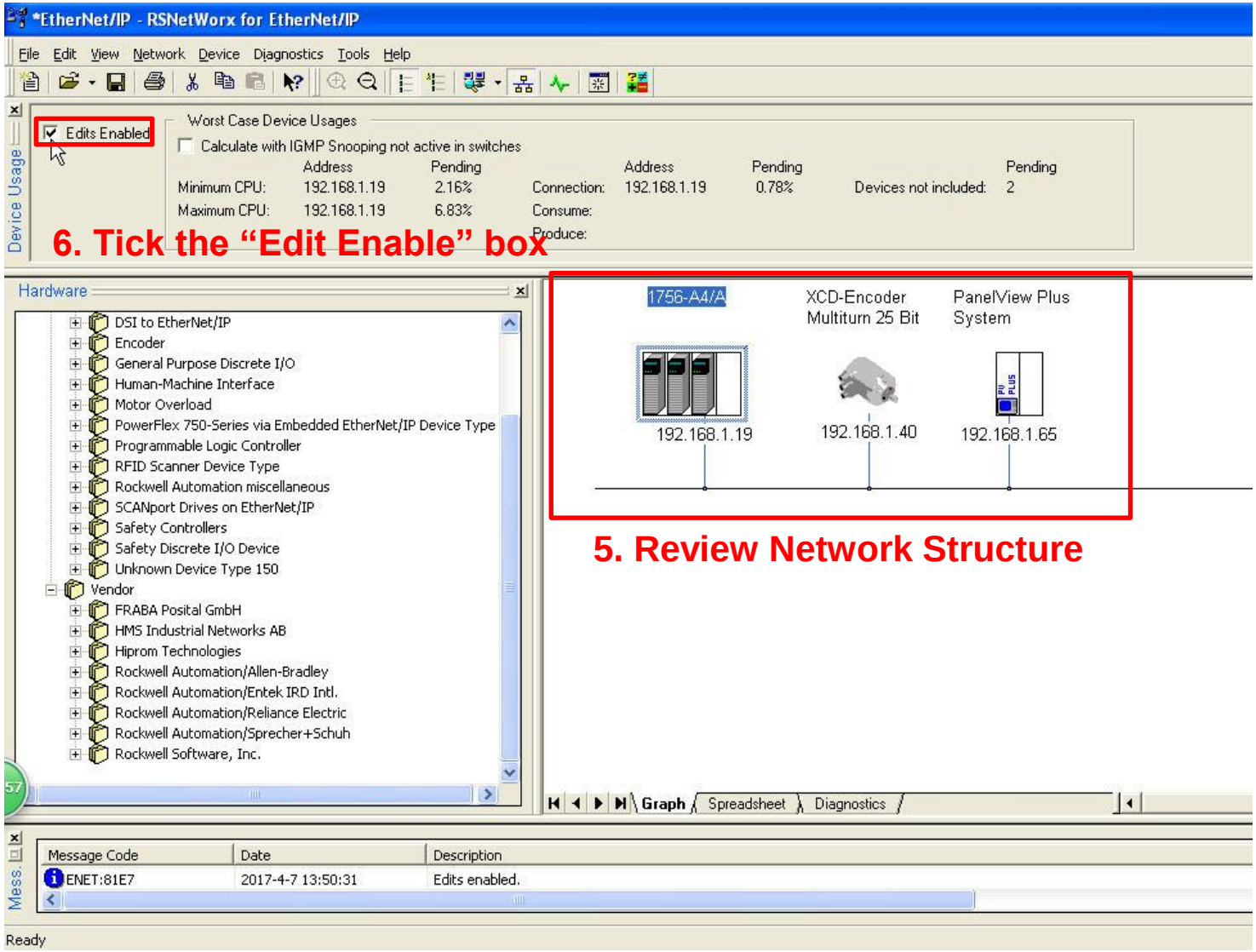
3. Associate an EDS file



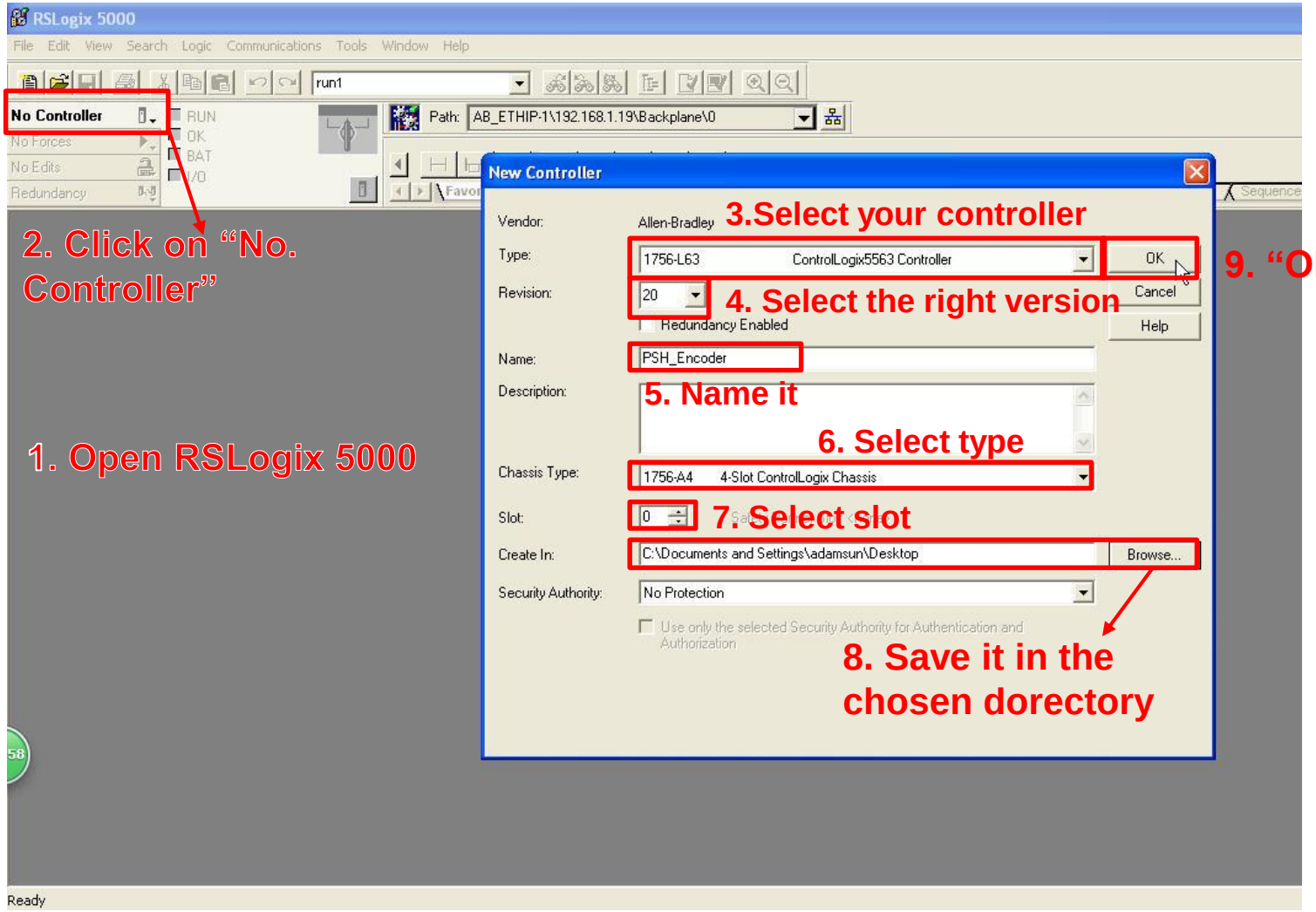
1. Launch the EDS Wizard

4. Create a Network

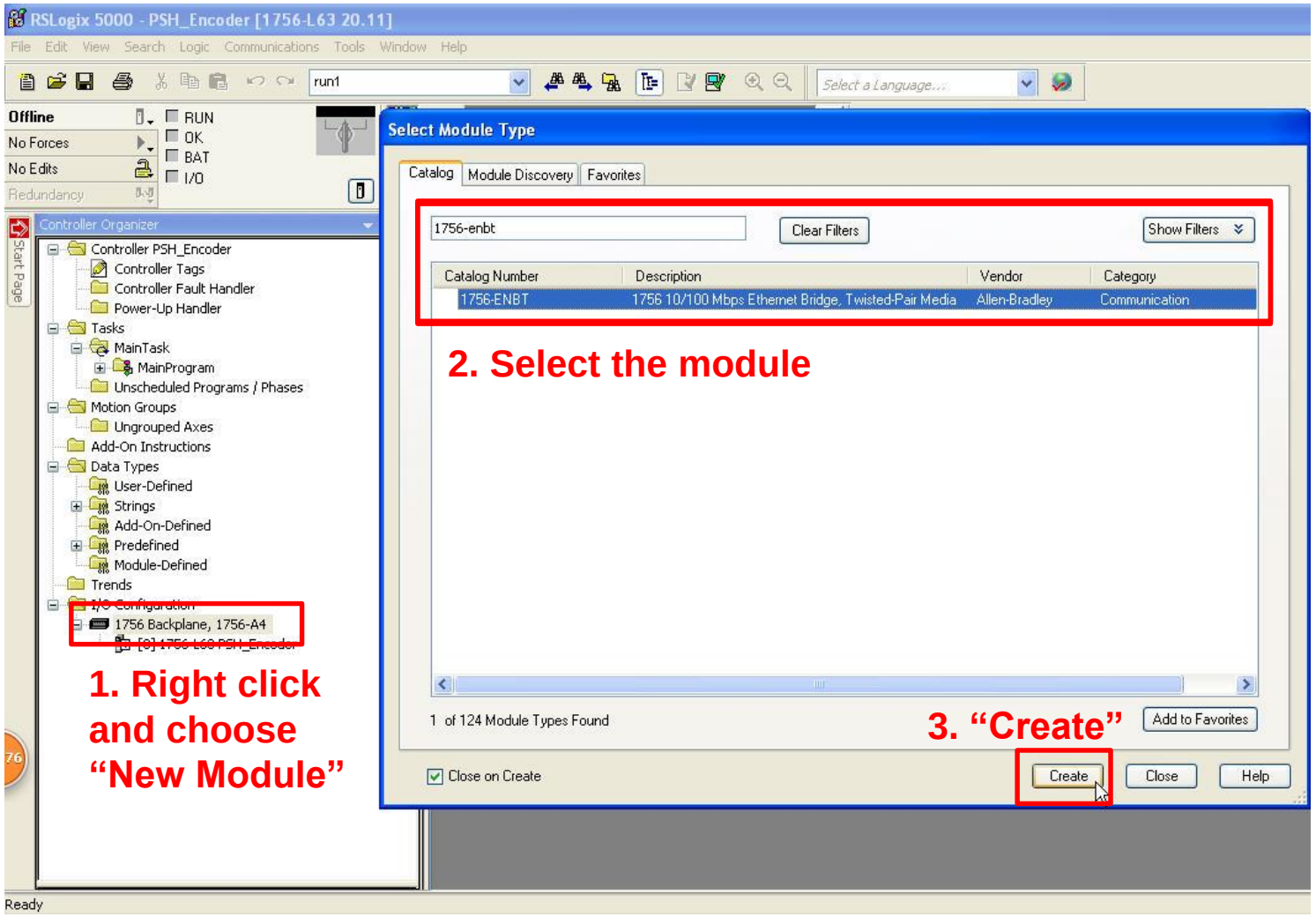


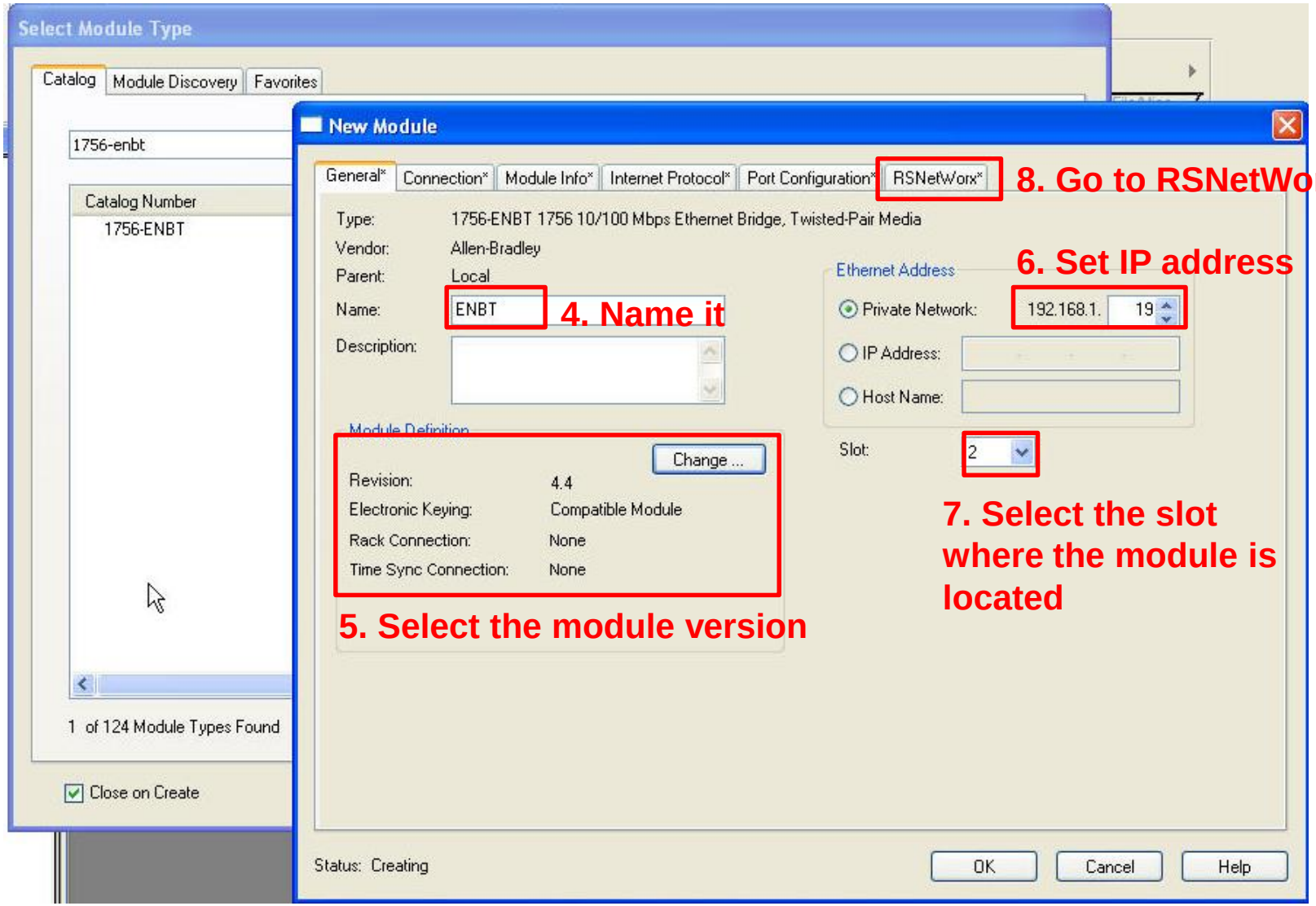

*EtherNet/IP - RSNetWorx for EtherNet/IP
File Edit View Network Device Diagnostics Tools Help
Edits Enabled
Worst Case Device Usages
Calculate with IGMP Snooping not active in switches
Address Pending
Minimum CPU: 192.168.1.19 2.16%
Maximum CPU: 192.168.1.19 6.83%
Connection: 192.168.1.19 0.78%
Consume:
Produce:
Devices not included: 2
Device Usage
6. Tick the "Edit Enable" box
Hardware
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
Vendor
FRABA Posital GmbH
HMS Industrial Networks AB
Hiprom Technologies
Rockwell Automation/Allen-Bradley
Rockwell Automation/Entek IRD Intl.
Rockwell Automation/Reliance Electric
Rockwell Automation/Sprecher+Schuh
Rockwell Software, Inc.
1756-A4/A
XCD-Encoder Multiturn 25 Bit
PanelView Plus System
192.168.1.19
192.168.1.40
192.168.1.65
5. Review Network Structure
Graph Spreadsheet Diagnostics
Message Code Date Description
ENET:81E7 2017-4-7 13:50:31 Edits enabled.
Mess.
Ready

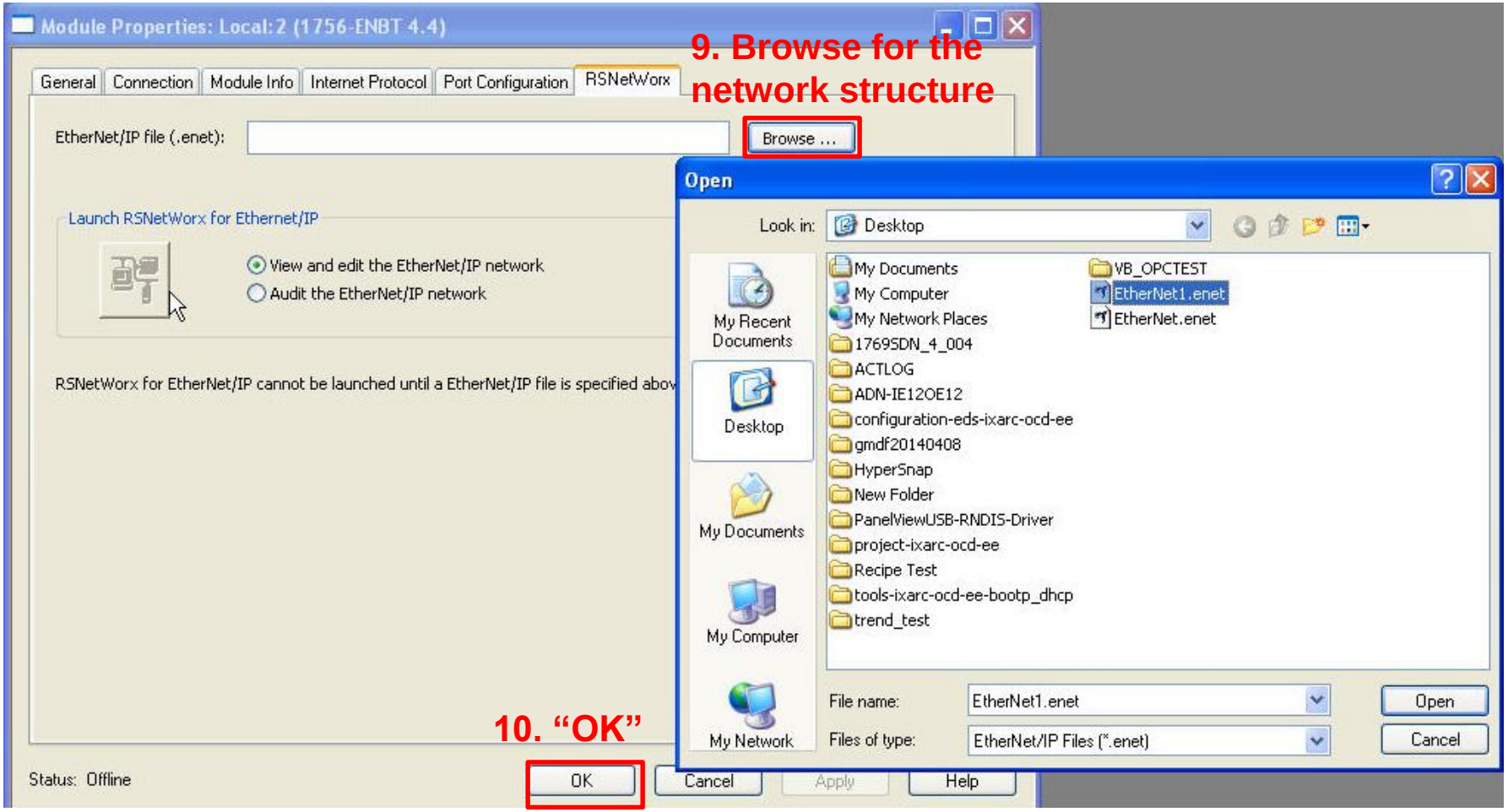
5. Create a new controller



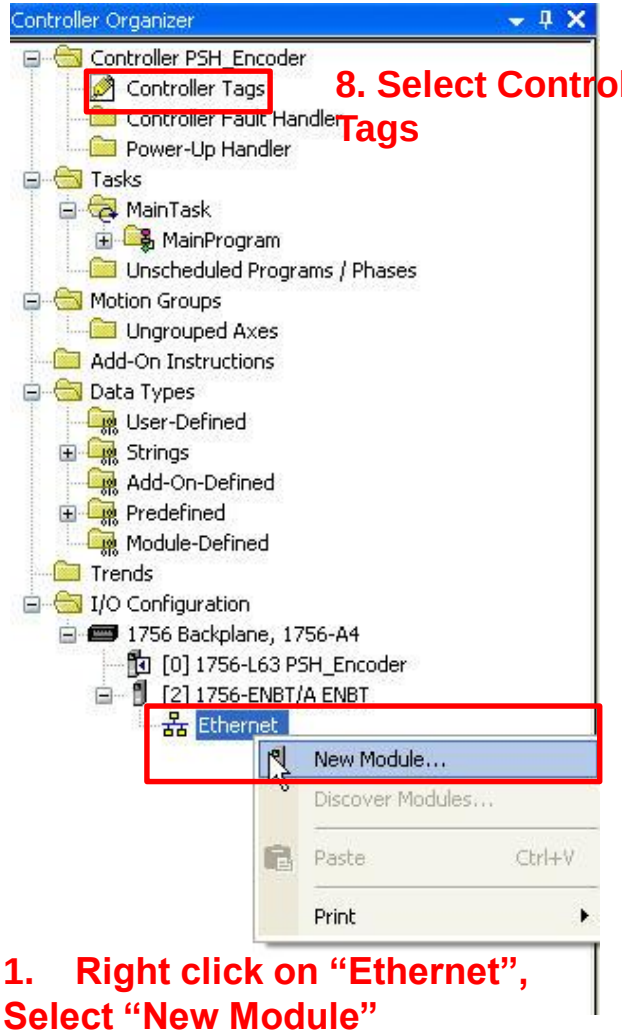
6. Create a new Ethernet Module



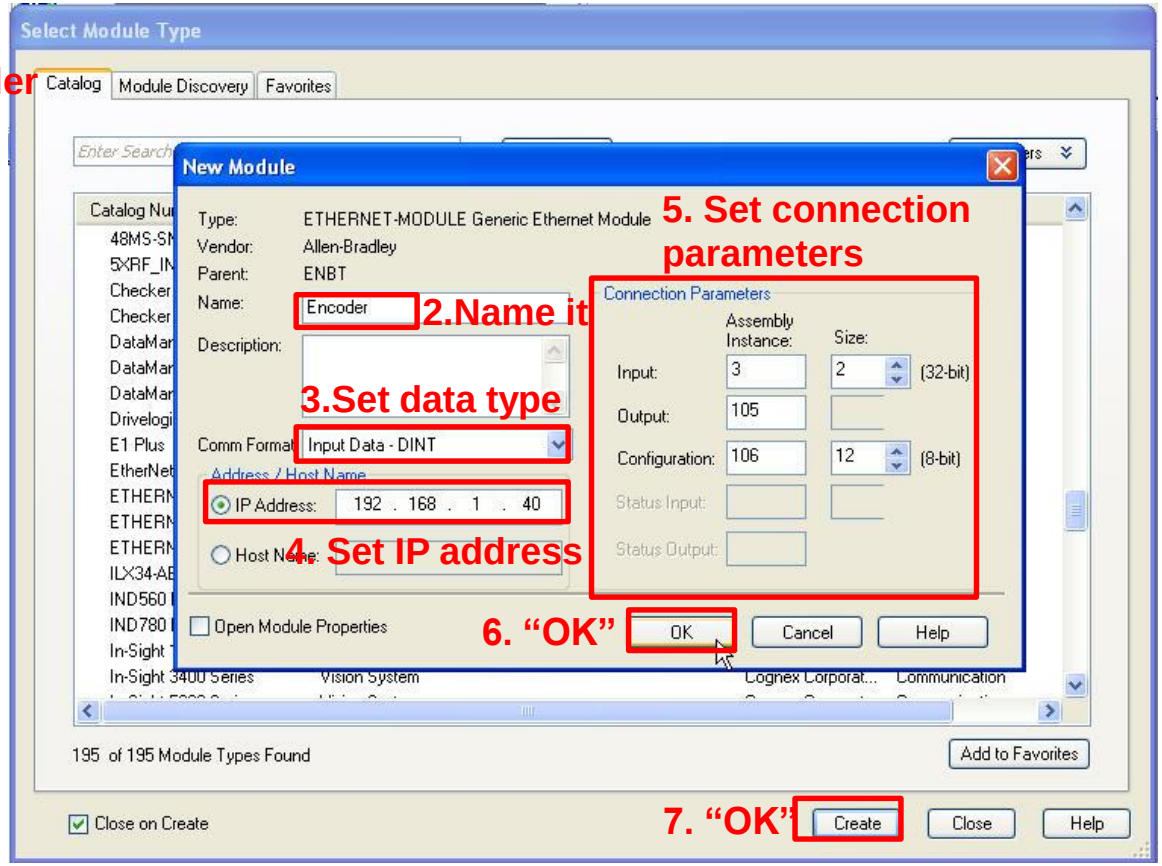

Select Module Type
Catalog
Module Discovery
Favorites
1756-enbt
Catalog Number
1756-ENBT
1 of 124 Module Types Found
Close on Create
New Module
General*
Connection*
Module Info*
Internet Protocol*
Port Configuration*
RSNetWorx*
8. Go to RSNetWorx Tab
Type: 1756-ENBT 1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media
Vendor: Allen-Bradley
Parent: Local
Name: ENBT
4. Name it
Description:
Ethernet Address
6. Set IP address
Private Network: 192.168.1. 19
IP Address:
Host Name:
Slot: 2
7. Select the slot where the module is located
Module Definition
Change ...
Revision: 4.4
Electronic Keying: Compatible Module
Rack Connection: None
Time Sync Connection: None
5. Select the module version
Status: Creating
OK
Cancel
Help


Module Properties: Local:2 (1756-ENBT 4.4)
9. Browse for the network structure
General
Connection
Module Info
Internet Protocol
Port Configuration
RSNetWorx
EtherNet/IP file (.enet):
Browse ...
Launch RSNetWorx for Ethernet/IP
View and edit the EtherNet/IP network
Audit the EtherNet/IP network
RSNetWorx for EtherNet/IP cannot be launched until a EtherNet/IP file is specified abov
Open
Look in:
Desktop
My Recent Documents
Desktop
My Documents
My Computer
My Network
My Documents
My Computer
My Network Places
1769SDN_4_004
ACTLOG
ADN-IE12OE12
configuration-eds-ixarc-ocd-ee
gmdf20140408
HyperSnap
New Folder
PanelViewUSB-RNDIS-Driver
project-ixarc-ocd-ee
Recipe Test
tools-ixarc-ocd-ee-bootp_dhcp
trend_test
VB_OPCTEST
EtherNet1.enet
EtherNet.enet
File name:
EtherNet1.enet
Files of type:
EtherNet/IP Files (*.enet)
Open
Cancel
10. "OK"
Status: Offline
OK
Cancel
Apply
Help

7. Create a new Ethernet encoder module



8. Select Controller Tags



5. Set connection parameters

2.Name it

3.Set data type

4. Set IP address

6. “OK”

7. “OK”

1. Right click on “Ethernet”, Select “New Module”

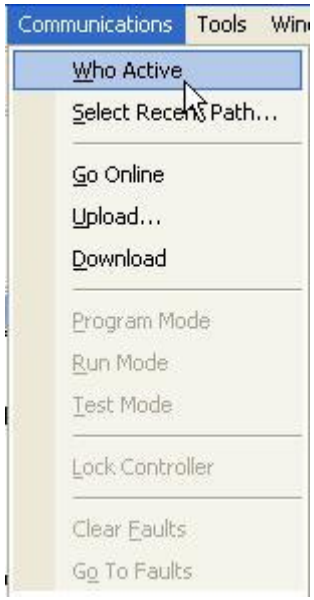
Scope: PSH_Encoder Show: All Tags Enter Name Filter...

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 Toogle
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	

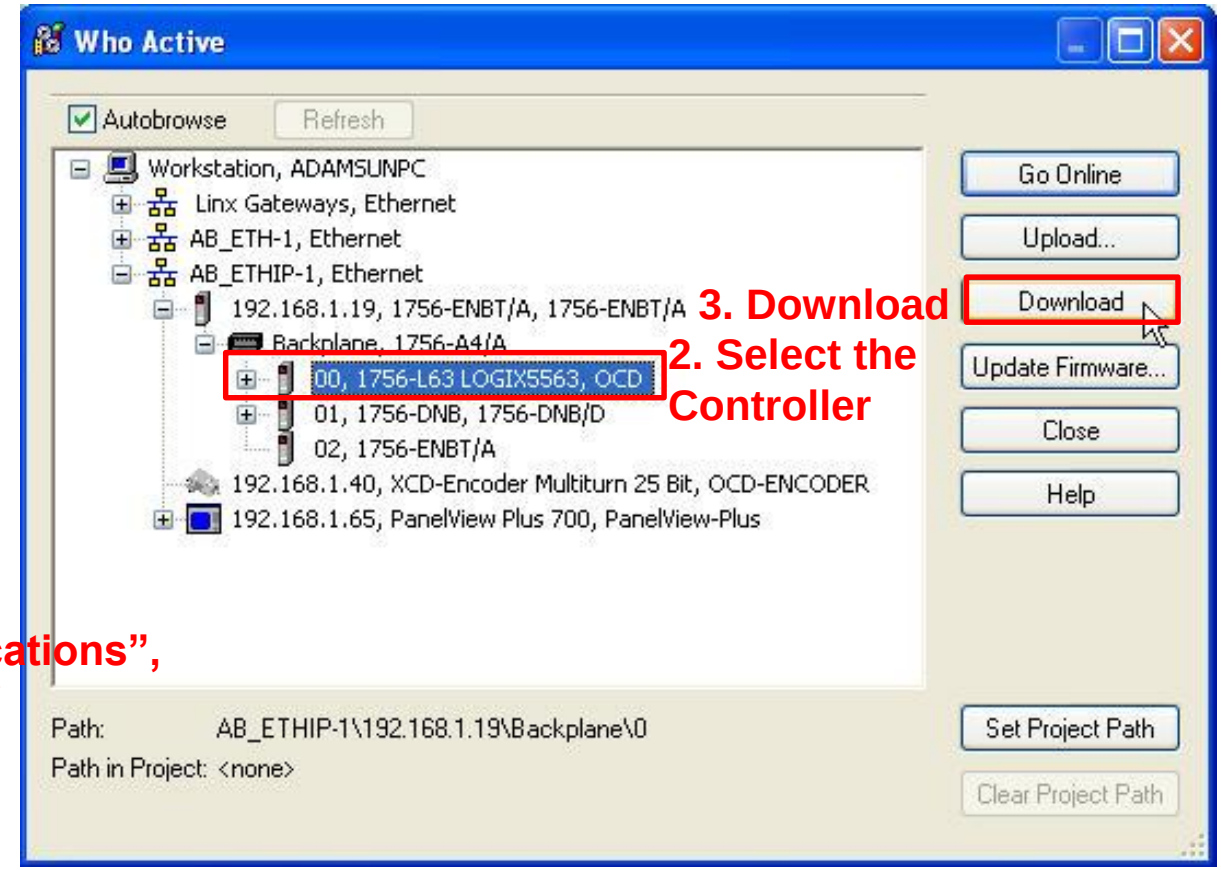
Monitor Tags / Edit Tags

9. Control Tags and their definitions

8. Download Configuration



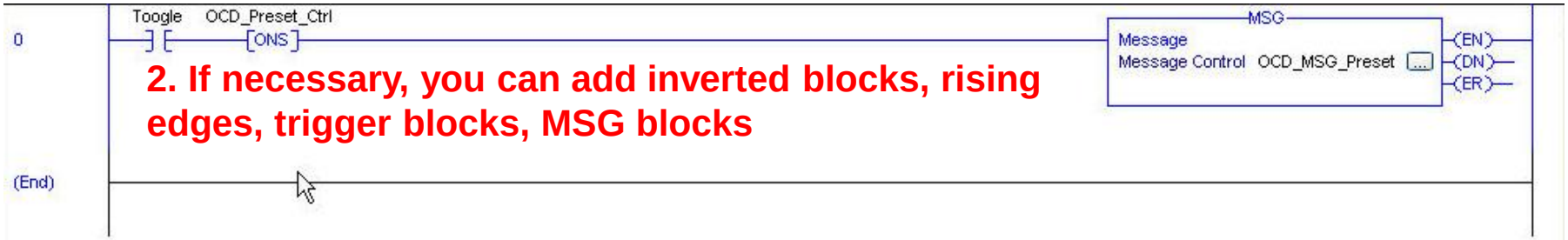
1. Under "Communications", Select "Who Active"



3. Download

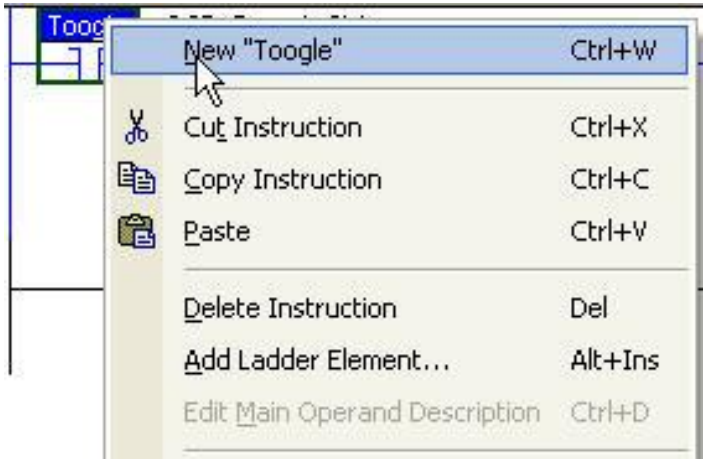
2. Select the Controller

9. Read position and preset function

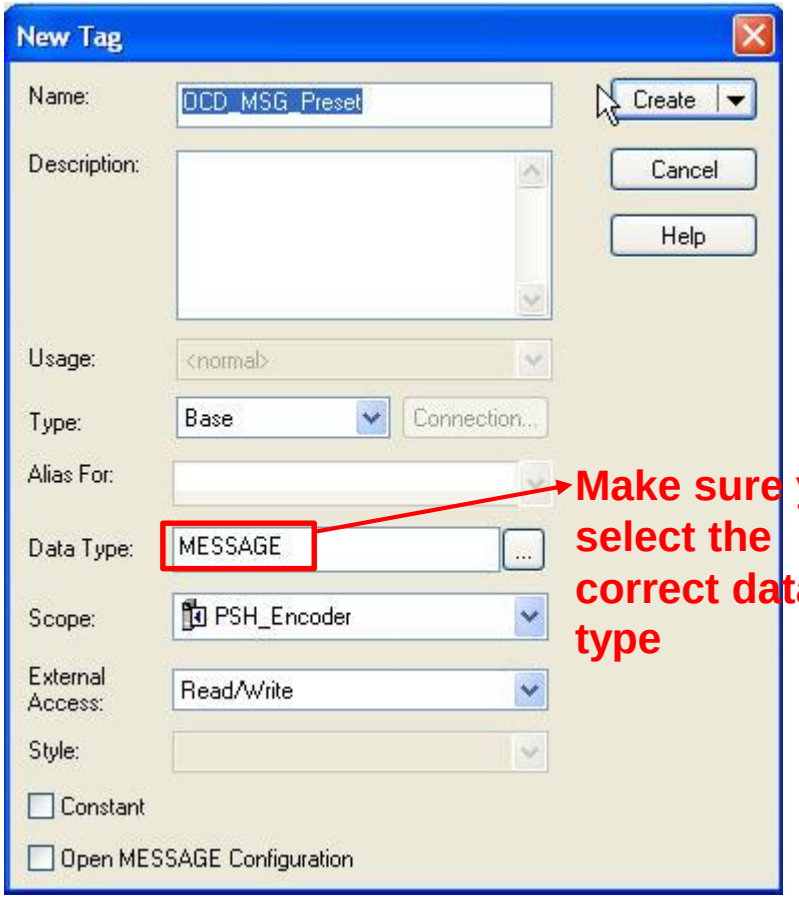


2. If necessary, you can add inverted blocks, rising edges, trigger blocks, MSG blocks

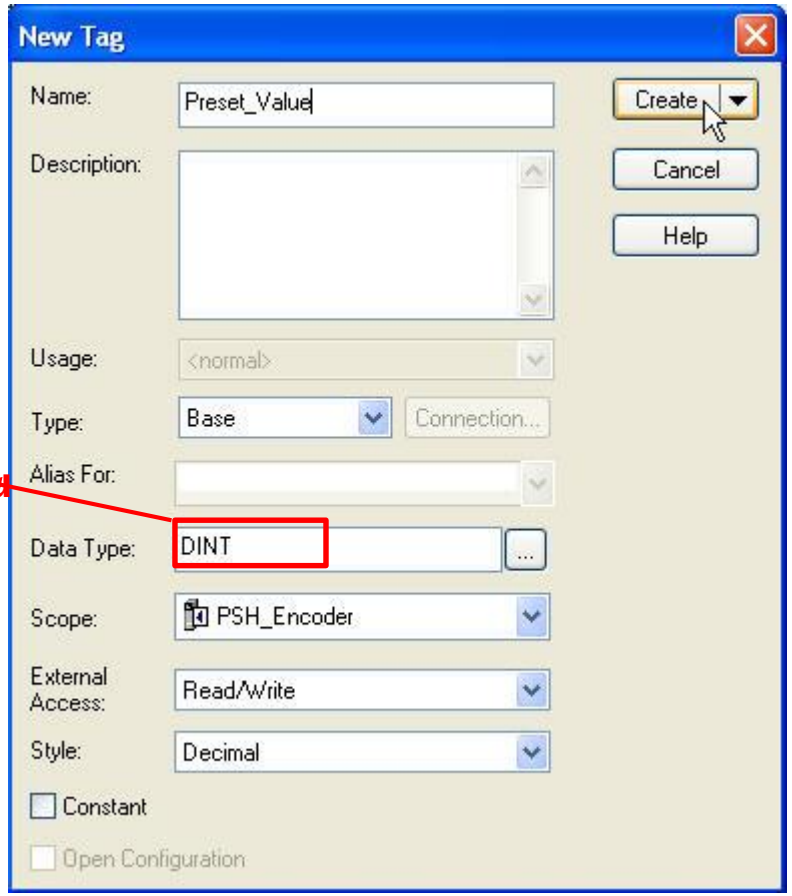
1. Click on "Main Routine"



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



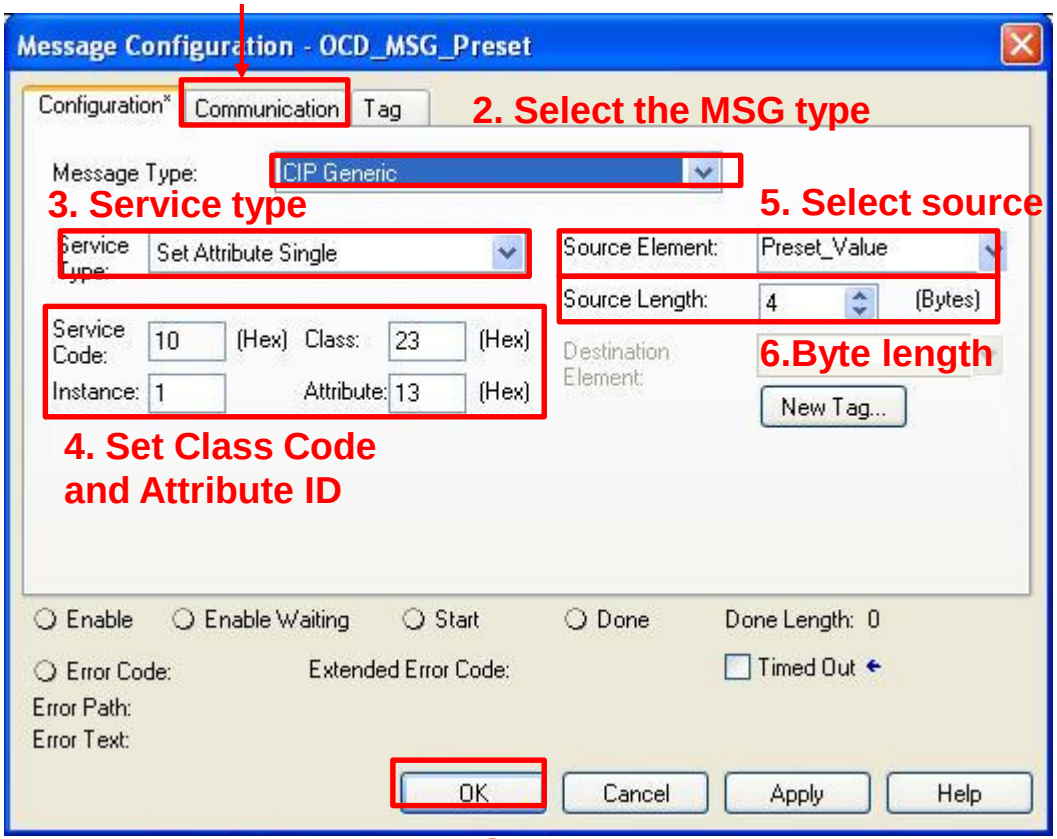
Make sure you select the correct data type

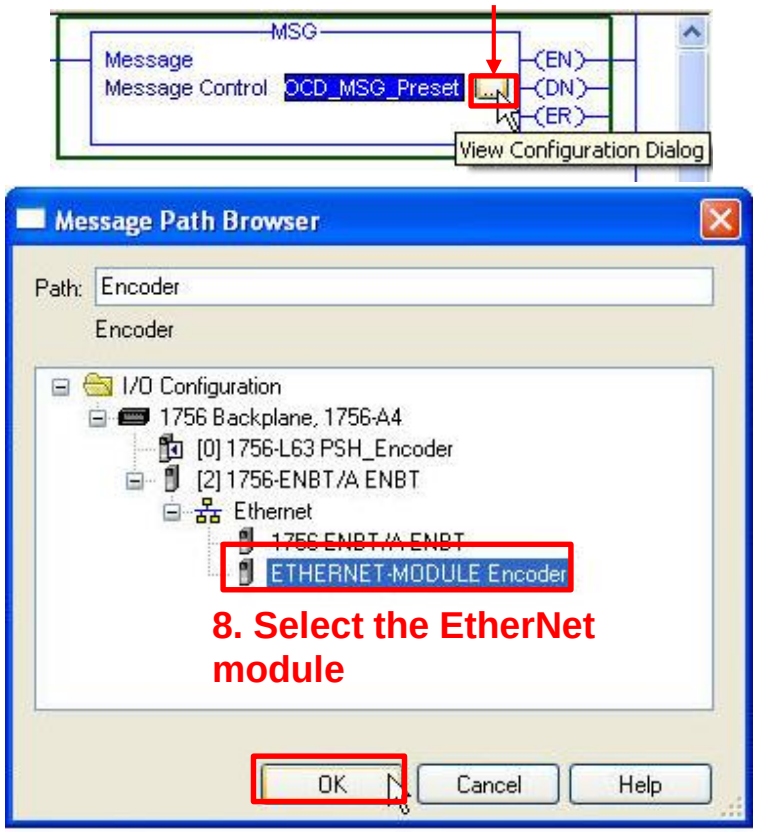


4. Create the OCD_MSG_Preset

5. Create a Preset_Value Tag

6. Configure the OCD_MSG_Preset Tag





7. 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

8. 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

Appendix

1. Target Location addresses

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 sta-tus
$2A_{hex}$	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 calcu-lated 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

2. Data Definition

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	Measuring units per Revolution (high byte)							
6	Total Measuring Range in measuring units (low byte)							
7								
8								
9	Total Measuring Range in measuring units (high byte)							
10	Velocity Format (low byte)							
11	Velocity (high byte)							

3. Velocity units

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