

OMRON Europe B.V.

Configure Omron NX-EIC202 EtherNet/IP Coupler for Use with Rockwell Automation PLCs

Quick Start Guide

August 25th, 2014

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1 Introduction

This document shows the basic steps for configuration of a Rockwell Automation PLC to connect to the OMRON NX-EIC202 EtherNet/IP coupler. The guide will assume the hardware installation has already been completed following [1].

This document has been made using the Allen-Bradley 1769-L23E-QB1 Controller, but will apply to other Rockwell based controllers as well.

The following is required:

1. OMRON NX-EIC202 EDS file.
2. Rockwell Automation RSLogix5000 tool.
3. OMRON Sysmac Studio NX-I/O edition.

Please be sure to read the related manuals to use the NX-EIC202 Unit safely and properly.

Reference	Name	Cat. No.
[1]	NX-Series EtherNet/IP Coupler Unit User's Manual	W536

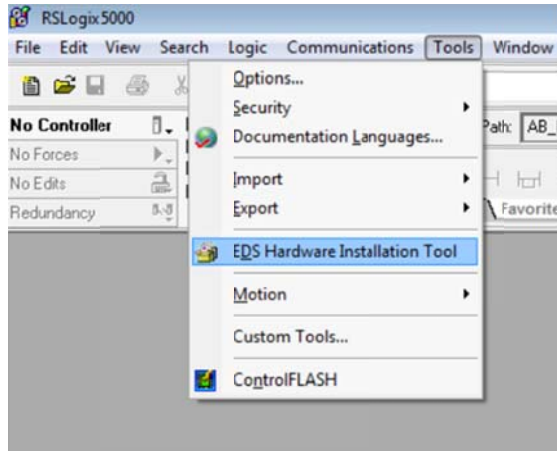
2 NX-EIC202 Configuration

Use the following procedure to prepare the Unit for use. Refer to the reference sections for details on the indicated steps.

Step	Item	Section
1	Installation: Install the EDS file in Logix5000	2.1
2	Set IP address using rotary switches	2.2
3	Configure the NX-EIC202 with NX Configuration using Sysmac Studio	2.3
4	[Optional] Set software IP address / Set NTP server	Appendix A
5	Configure EIP connection	2.4
6	Use NX-EIC202 IO data in PLC program	3

2.1 [RSLogix] Install EDS file

Follow the steps below to install (a new version of) an EDS file within RSLogix5000. Both installation and de-installation of the EDS file is done by the EDS Hardware Installation Tool (Tools menu).



1. To delete the old EDS file, select the Unregister a device option.



2. To Install the new EDS file, select the Register an EDS file(s).



2.2 Setting NX-EIC202 IP address

Perform the following steps to change the IP address of the Unit in the Rockwell default range (192.168.1.x).

1. Set the DIP Switch 4 to On.
2. Set the two rotary switches to the desired IP address (last octet 01 to FE for 192.168.1.1 to 192.168.1.254).

After a power toggle, the new IP address will be active in the Unit.

Please find additional information about setting IP address in [1], section 9-4.

2.3 [Sysmac Studio] Setting up the Slave Terminal

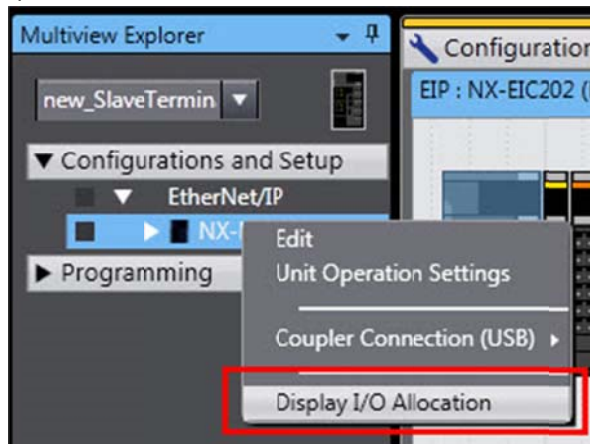
The NX-EIC202 Operation Manual (see [1]) describes the procedure to configure the Slave Terminal (NX-EIC202 and the individual NX Units).

Connect Sysmac Studio using USB connection then set the NX configuration with the information in the following two sections of the original manual:

- Section 9-2 Setting Slave Terminal Parameters
- Section 9-3 Transferring and Comparing Settings

After the NX Configuration is finished, please use the following steps to check the resulting I/O Allocation size of the Coupler.

1. In the Multiview Explorer view, right-click the EtherNet/IP Coupler and select Display I/O Allocation from the menu.



- The I/O allocation indicates the input and output data sizes (in bytes) for the present configuration.

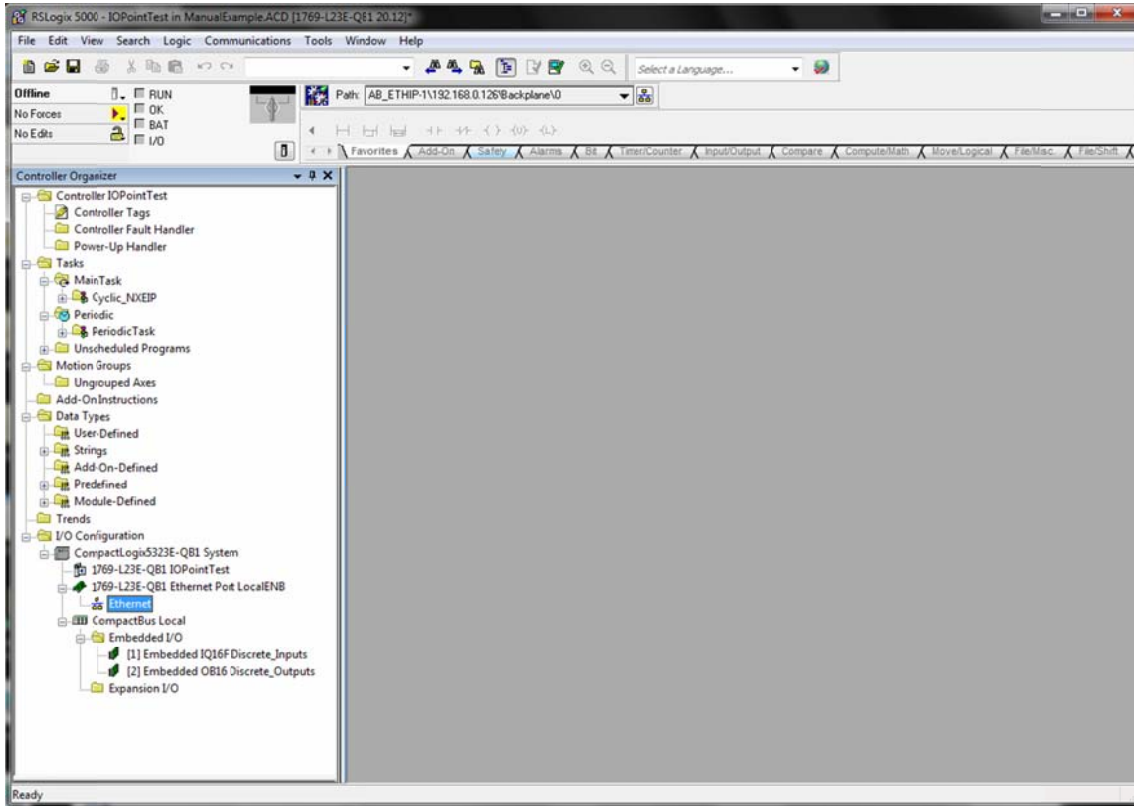
Position	Port	Bit Offset	Size
Unit0	▼NX-EIC202		
	▼Slave Terminal Status	0	16
	Slave Terminal Observation	4	1
	Slave Terminal Minor Fault	5	1
	Slave Terminal Partial Fault	6	1
	Slave Terminal Major Fault	7	1
	Error Detection flag	14	1
	I/O refresh flag	15	1
	NX Unit Registration Status 15	0	16
Unit2	▼NX-ID3417		
	Input Bit 00	32	1
	Input Bit 01	33	1
	Input Bit 02	34	1
	Input Bit 03	35	1
	Padding	36	12

I/O data size: Input 6/504 [bytes] Output 2/504 [bytes]

The input and output tag sizes are necessary to configure the EtherNet/IP connection in RSLogix.

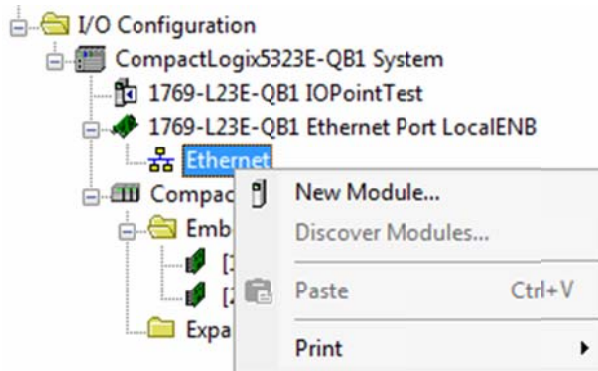
2.4 [RSLogix] Configure EIP connection

The main view of the RSLogix 5000 software provides the way to add the NX-EIC202 to the PLC's network. Please see below an example of the main view of the tool.

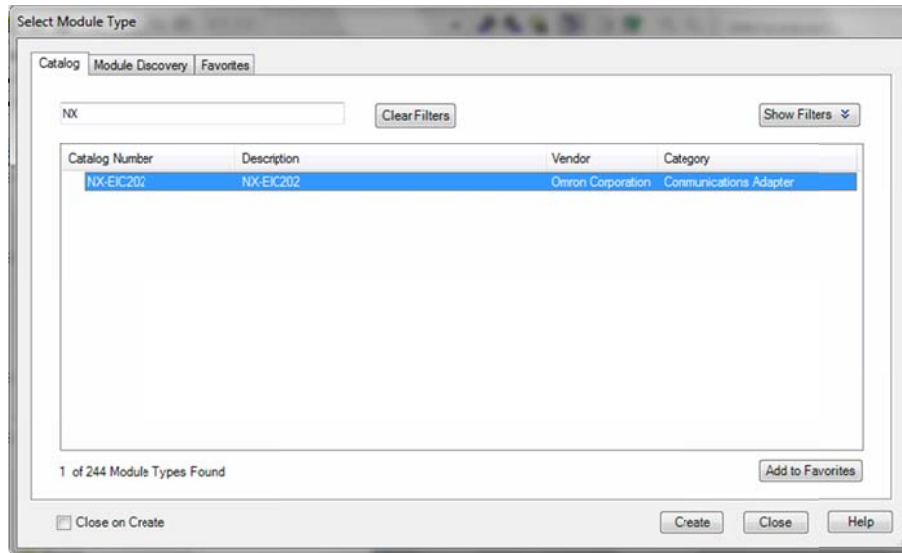


Perform the following steps to add the NX-EIC202 to the network.

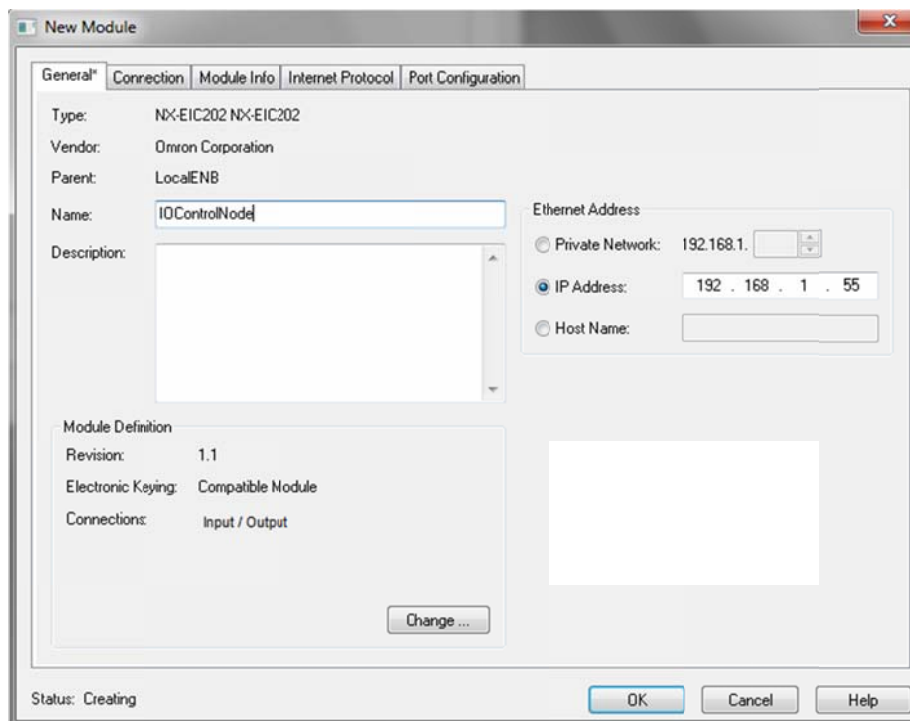
1. Select the New Module... function of the Ethernet item's context menu.



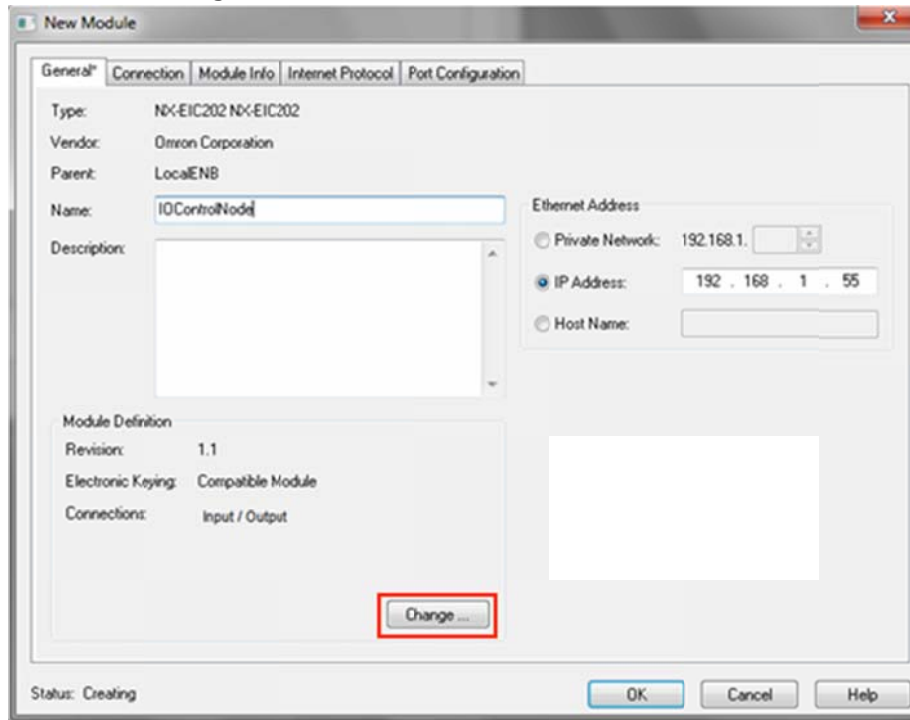
2. Select the NX-EIC202 from the list and click Create.



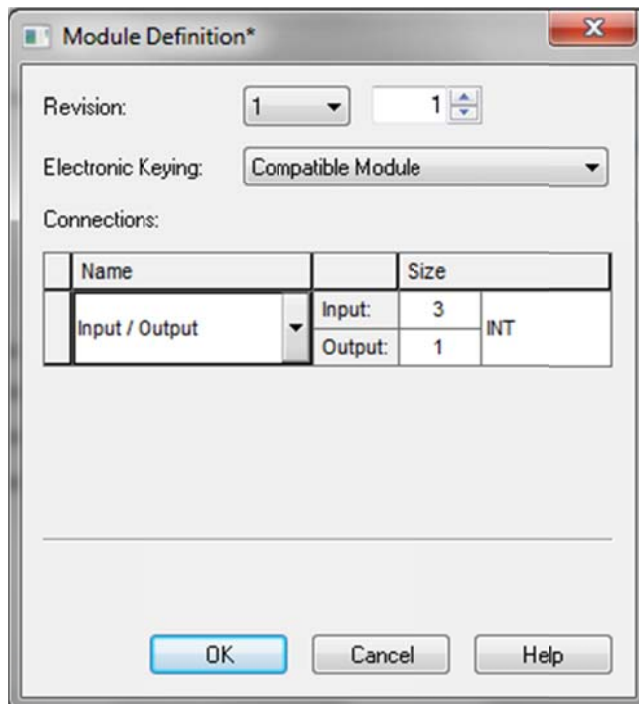
3. Enter the common data such as the Name, Description and IP address in the following form.



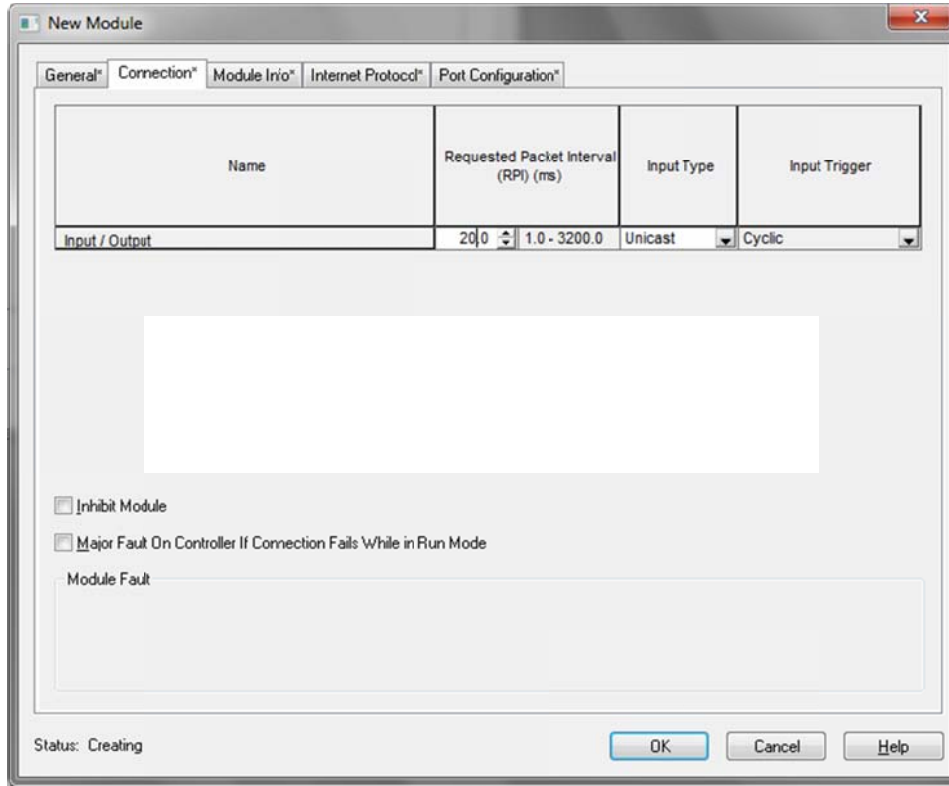
4. Click on the Change ... button to set the detailed IO data.



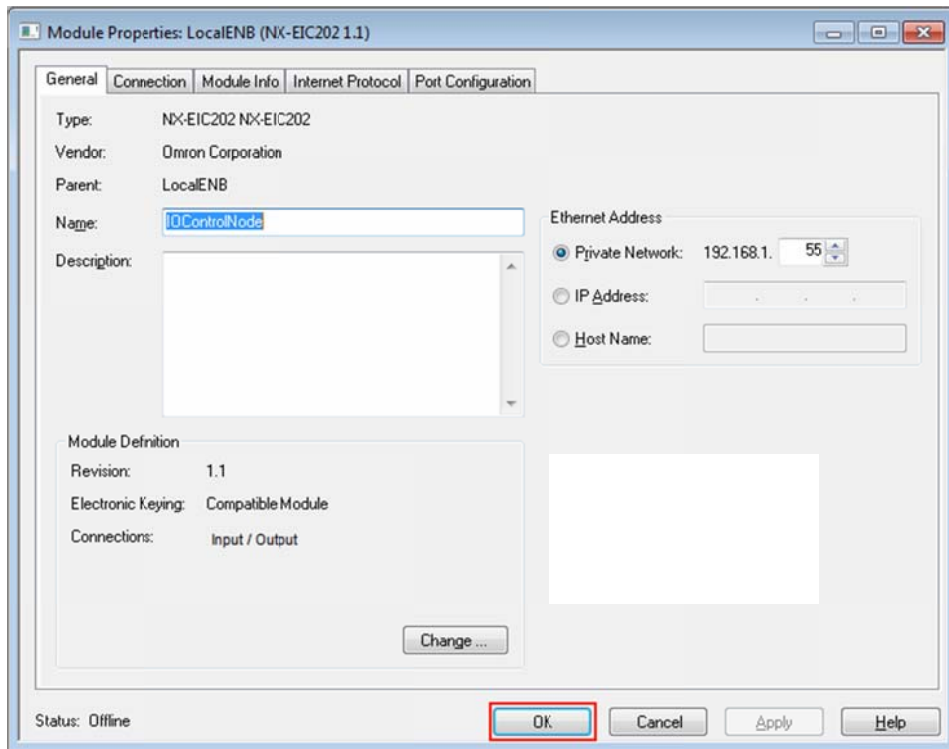
5. Please select the correct size of the input and output buffers in the Module Definition window. Use the data as indicated in the I/O Allocation window (see section 2.3). Set the data type to INT and select correct sizes (note Sysmac Studio indicates the size in bytes). Select OK.



- The Connection tab of the New Module window gives the settings of RPI and the input type (Unicast/Multicast). Please fill in according to your requirements.



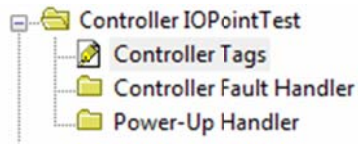
- Click OK to add the NX-EIC202 to the network.



The NX-EIC202 has now been configured. Please follow the standard procedure of the Rockwell software to download configure the PLC and the network.

3 NX-EIC202 Operation

The Controller Tags show the Input and Output data allocated to the NX-EIC202.



-	IOControlNode:1	{...}	{...}		_002F:NX_EIC202_BD7BDD2D:1:0
-	IOControlNode:1.ConnectionFaulted	0		Decimal	BOOL
-	IOControlNode:1.Data	{...}	{...}	Decimal	INT[3]
+	IOControlNode:1.Data[0]	16#0000		Hex	INT
+	IOControlNode:1.Data[1]	16#0000		Hex	INT
+	IOControlNode:1.Data[2]	16#0000		Hex	INT
-	IOControlNode:0	{...}	{...}		_002F:NX_EIC202_F5E3CF1A_2:0:0
-	IOControlNode:0.Data	{...}	{...}	Decimal	INT[1]
+	IOControlNode:0.Data[0]	16#0000		Hex	INT

These tags can be used in the PLC program to use the IO data of the coupler.

Appendix A Setting NTP server connection

The OMRON NX-EIC202 coupler supports the use of an NTP server. Please refer to section 13.3.3 of [1] for details on this feature. Unfortunately the RSLogix does not support to set the NTP settings using the EDS file.

The following two settings are required for the NTP server:

Setting	Class (hex)	Instance (hex)	Attribute (hex)	Example value
NT server IP address	F5	01	64	"192.168.1.119"
Timezone	F5	01	66	(GMT +09:00) Japan

Set the following value for the Timezone setting.

Value	Description	Value	Description
0	(GMT -12:00) Kwajalein	22	(GMT +04:30) Afghanistan
1	(GMT -11:00) Midway Island	23	(GMT +05:00) Russia (Yekaterinburg, Perm)
2	(GMT -10:00) USA (Hawaii)	24	(GMT +05:30) India
3	(GMT -09:00) USA (Alaska)	25	(GMT +05:45) Nepal
4	(GMT -08:00) Canada, USA (Pacific)	26	(GMT +06:00) Russia (Novosibirsk, Omsk)
5	(GMT -07:00) Canada, USA (Mountain)	27	(GMT +06:30) Myanmar
6	(GMT -06:00) Canada, USA (Central)	28	(GMT +07:00) Thailand
7	(GMT -05:00) Canada, USA (Eastern)	29	(GMT +07:00) Vietnam
8	(GMT -04:00) Canada (Atlantic)	30	(GMT +08:00) Australia (Western)
9	(GMT -03:30) Canada (Newfoundland)	31	(GMT +08:00) China
10	(GMT -03:00) Argentina	32	(GMT +08:00) Taiwan
11	(GMT -02:00) Antarctica	33	(GMT +09:00) Japan
12	(GMT -01:00) Azores	34	(GMT +09:00) Republic of Korea
13	(GMT +00:00) England	35	(GMT +09:30) Australia (Northern Territory), Australia (South)
14	(GMT +00:00) United Kingdom, Portugal	36	(GMT +10:00) Australia (New South Wales/Queensland/Victoria)
15	(GMT +00:00) Greenwich Mean Time (UTC)	37	(GMT +10:30) Australia (Lord Howe Island)
16	(GMT +01:00) France, Germany, Italy, Spain, Switzerland	38	(GMT +11:00) New Caledonia
17	(GMT +01:00) Sweden	39	(GMT +11:30) Norfolk Island
18	(GMT +02:00) Bulgaria, Finland, Greece	40	(GMT +12:00) New Zealand
19	(GMT +03:00) Russia (Moscow, St.Petersburg)	41	(GMT +12:45) Chatham Island
20	(GMT +03:30) Iran	42	(GMT +13:00) Tonga
21	(GMT +04:00) Russia (Samara, Izhevsk)		

Please note a power cycle is required after changing the settings of these parameters.

Any tool or unit which supports CIP messaging can set the NTP setting based on the description above.

The following section shows how to use the Network Configurator tool to download the settings.

Setting NTP server connection using Network Configurator

Perform the following steps of the Operation Manual to configure the Unit using EDS file (see [1] section 9-5).

Step 1:

Start the Network Configurator

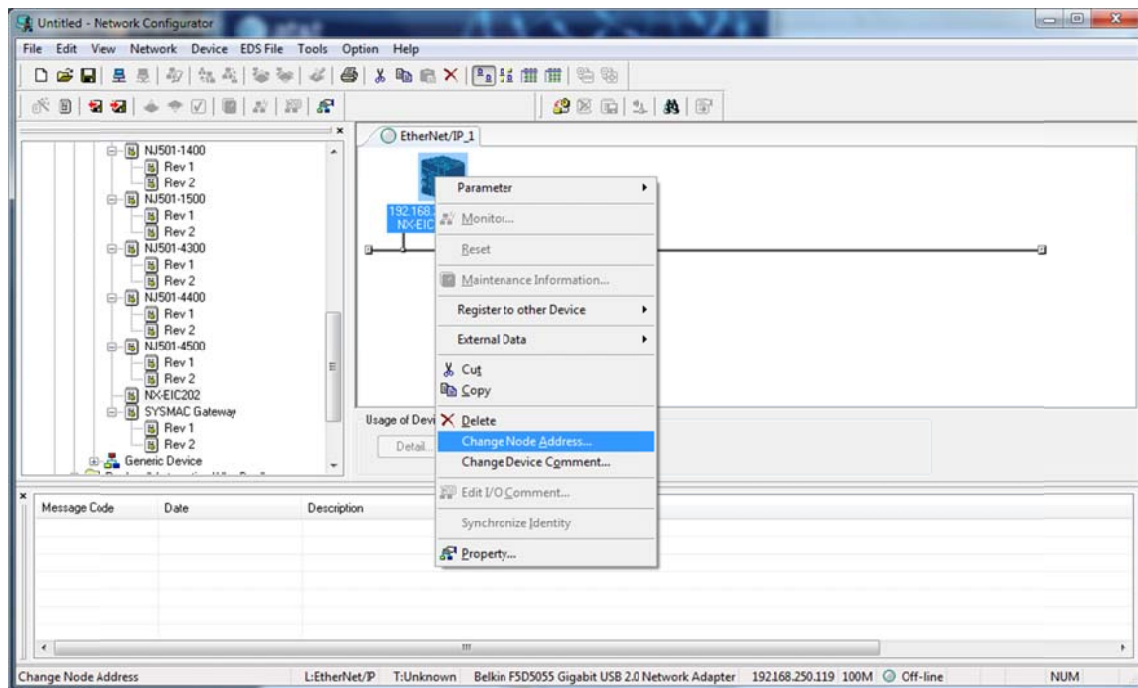
Step 2:

Register the devices that will participate in the tag data links by dragging the devices from the Hardware List and dropping them in the Network Configuration Pane on the right.

Please only add the NX-EIC202.

Step 3:

Right-click the registered device's icon to display the pop-up menu, and select Change Node Address. Set the node address of the NX-EIC202 you want to configure.

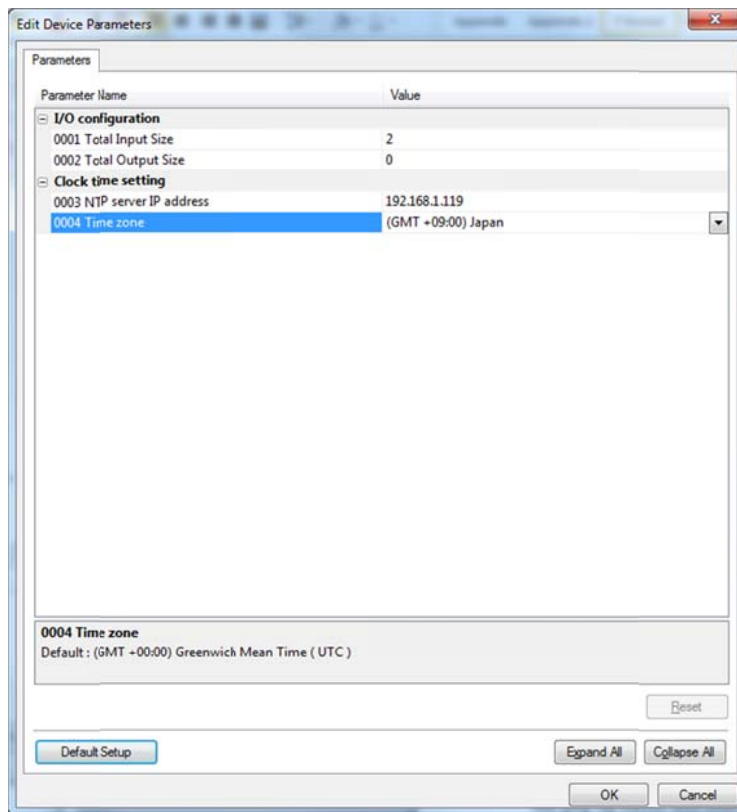


Step 4:

Right-click the registered device's icon to display the pop-up menu, and select Parameter ~ Edit.

Step 5:

Set the two NTP parameters to the required values. Click OK to close the window.



Step 6:

Download the updated settings to the coupler. Right-click the registered device's icon to display the pop-up menu, and select Parameter ~ Download.



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