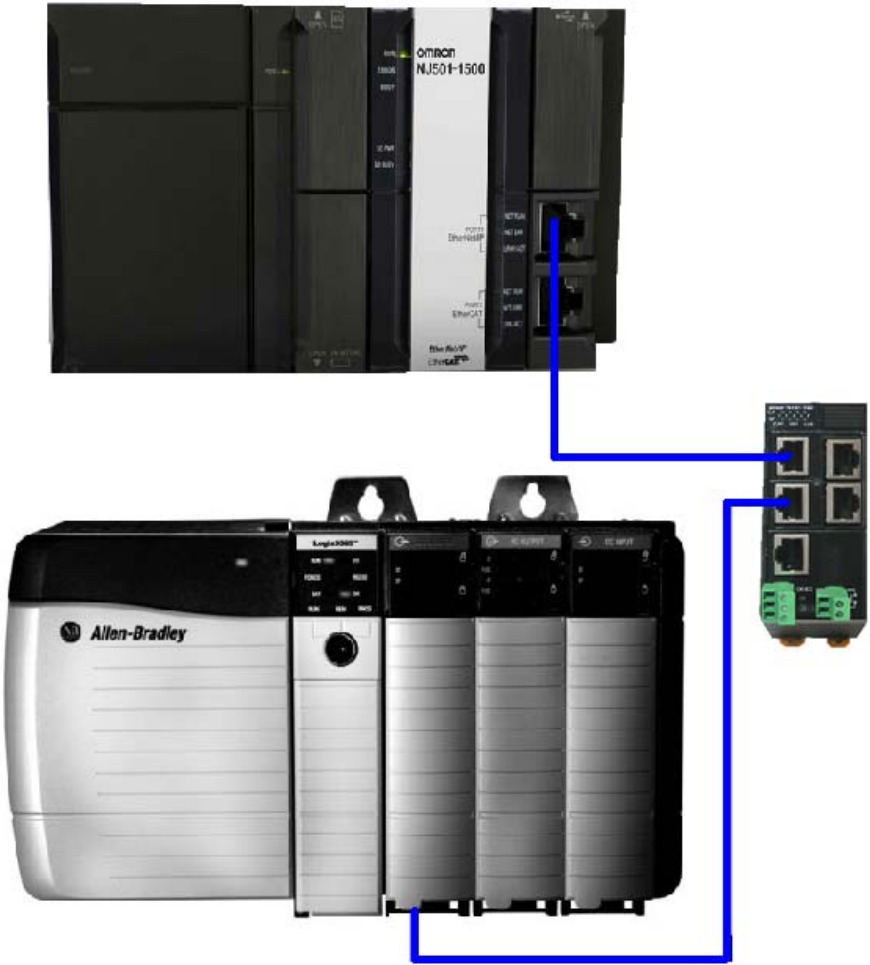


**Omron NJ to Rockwell CompactLogix or ControlLogix
EtherNet/IP Implicit Messaging Example**

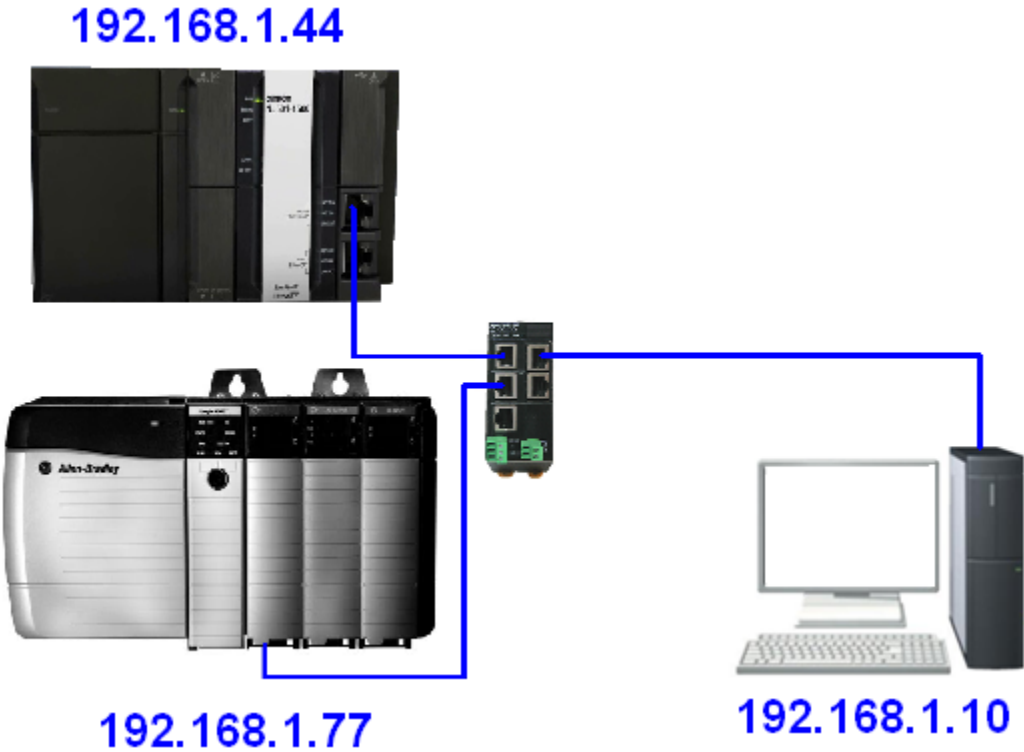


Section 1: Introduction

This document will allow the user to setup an EtherNet/IP Tag Datalink (Implicit Messaging) connection between an Omron NJ Machine Automation Controller (MAC) and a Rockwell ControlLogix or CompactLogix controller. This Tag Datalink will share an array of 100 Integer values (200 Bytes) from the Omron NJ MAC to a Rockwell CompactLogix and an array of 100 Integer values (200 Bytes) from the CompactLogix to the NJ MAC. A ControlLogix would be similar to the steps shown in this document.

There is a second tag used in the NJ, which maps the 32 bit Run / Idle header in the connection from the CompactLogix to the NJ, which is necessary, but does not contain meaningful data. This is the tag called CLtoNJRunIdleHeader.

Section 2: Example Configuration:

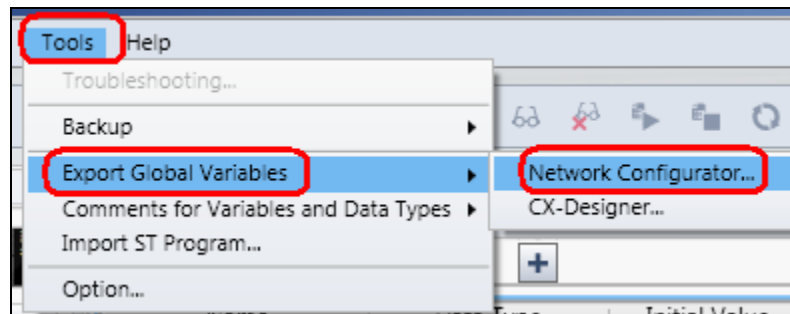


Section 3: NJ Configuration

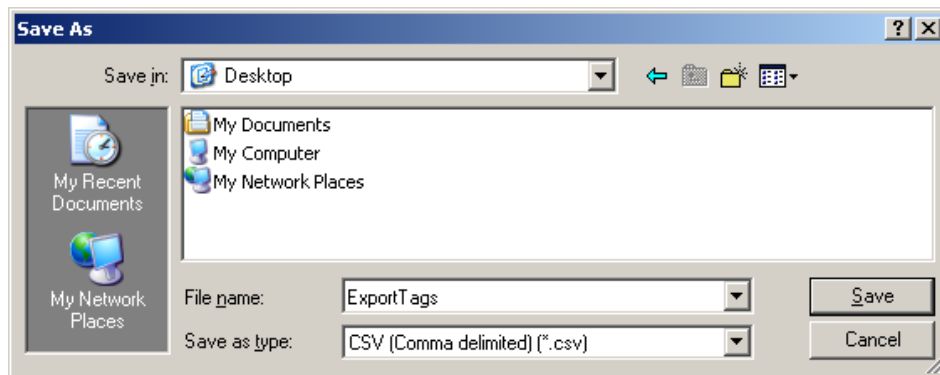
1. In Sysmac Studio, configure the Sysmac NJ tags as shown in the Global Variables.

Name	Data Type	Initial Value	AT	Retain	Constant	Network Publish
NJtoCL	ARRAY[0..99] of INT			<input type="checkbox"/>	<input type="checkbox"/>	Output
CLtoNJ	ARRAY[0..99] of INT			<input type="checkbox"/>	<input type="checkbox"/>	Input
CLtoNJRunIdleHeader	ARRAY[0..1] of INT			<input type="checkbox"/>	<input type="checkbox"/>	Input

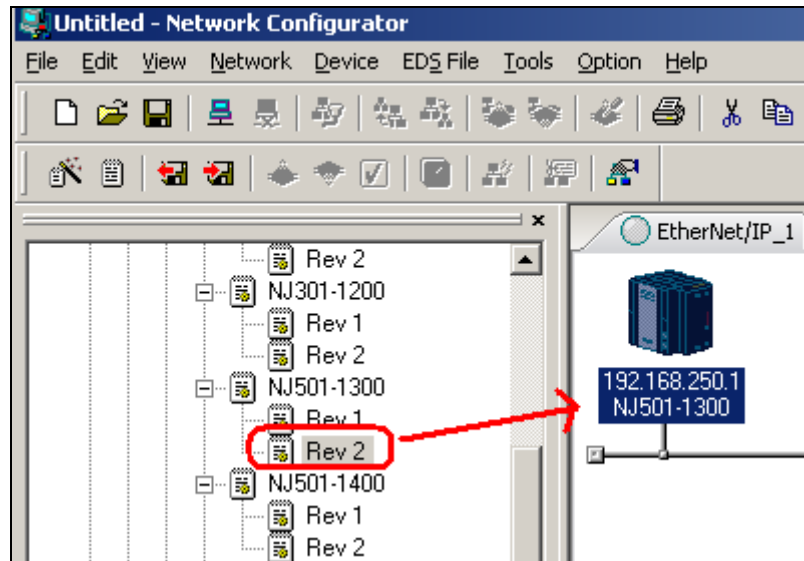
2. Synchronize the project with the NJ controller to transfer the Tags to the NJ.
3. In Sysmac Studio, export the Tags to the Network Configurator for EtherNet/IP.



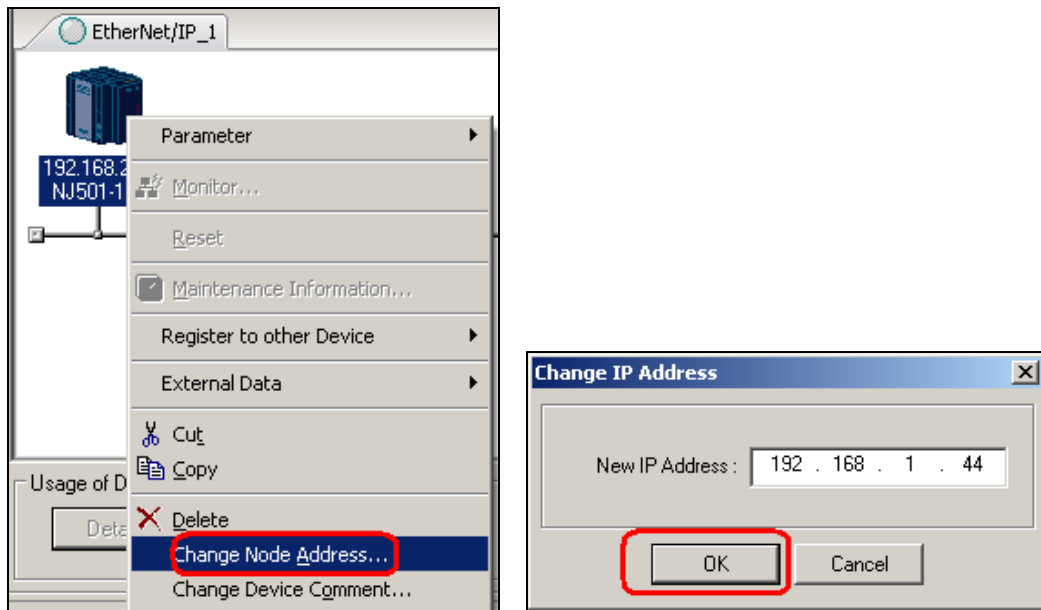
4. Save the .csv file that contains the tags. This will be imported in a later step.



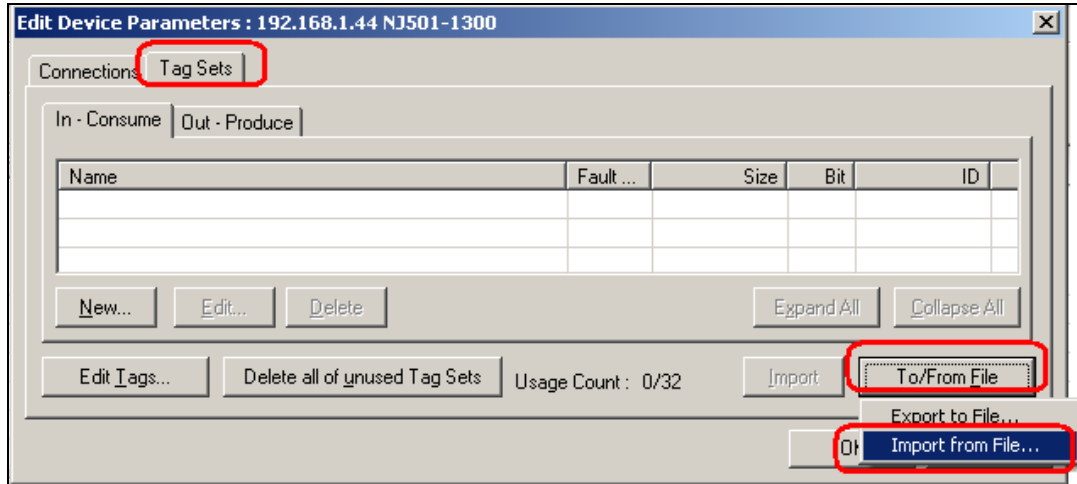
- In the Network Configurator for EtherNet/IP, add an NJ to the network diagram. Select the correct model and Revision. Rev 1 = NJ firmware 1.00, 1.01, or 1.02. Rev 2 = NJ firmware 1.03 or higher.



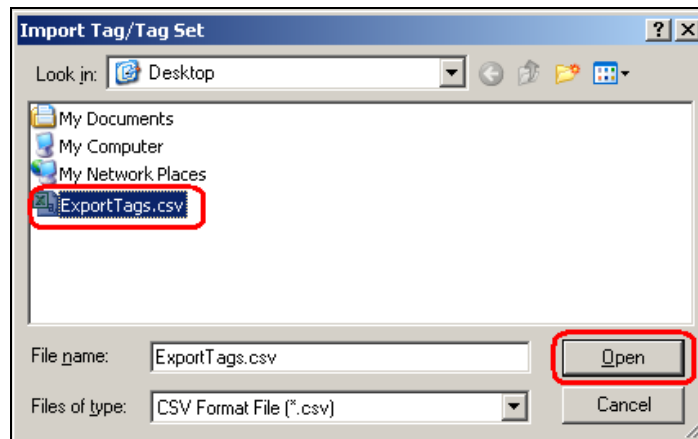
- Right click on the NJ in the network diagram, and select '**Change Node Address**'. Enter the IP Address of the NJ, and click '**OK**'.



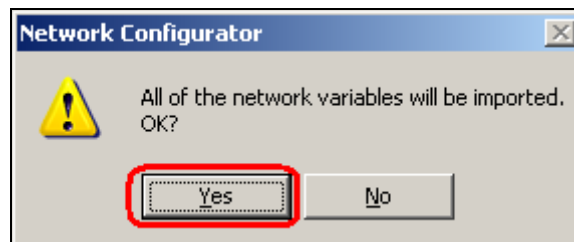
7. Double click on the NJ CPU in the network diagram.
8. Click on the 'Tag Sets' tab, and click 'To / From File', and select 'Import from File'.



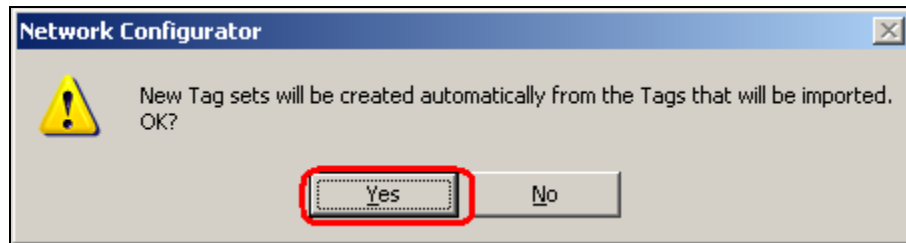
9. Browse for the .csv file created earlier, select it, and click 'Open'.



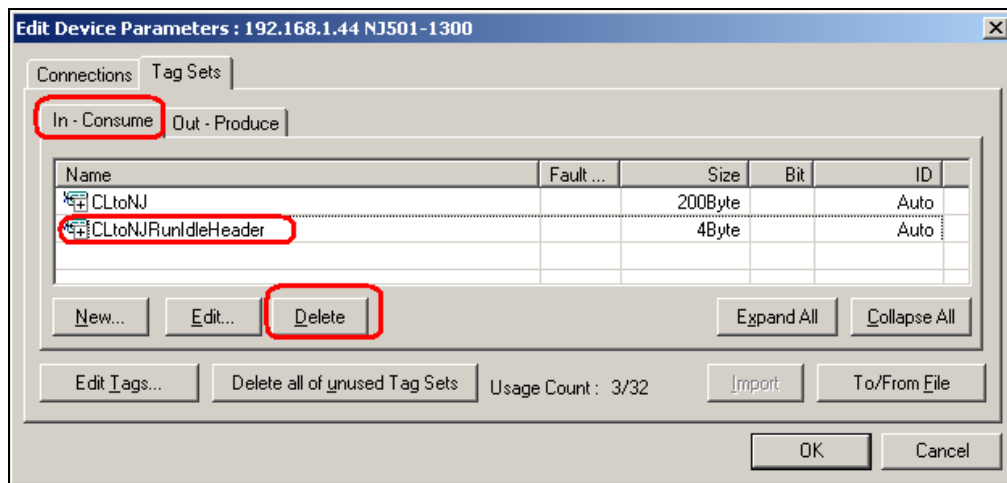
10. When the following dialog box appears, click 'Yes'.



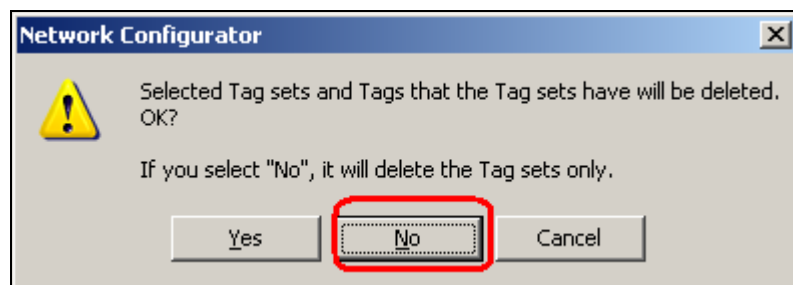
11. When the following dialog box appears, click 'Yes'.



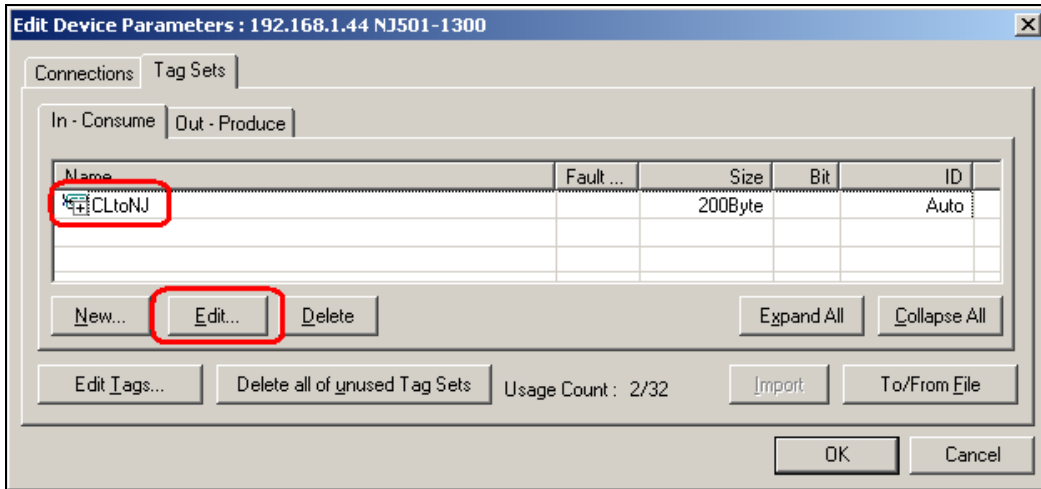
12. On the 'In - Consume' tab, select the Tag Set named 'CLtoNJRunIdleHeader', and click 'Delete'.



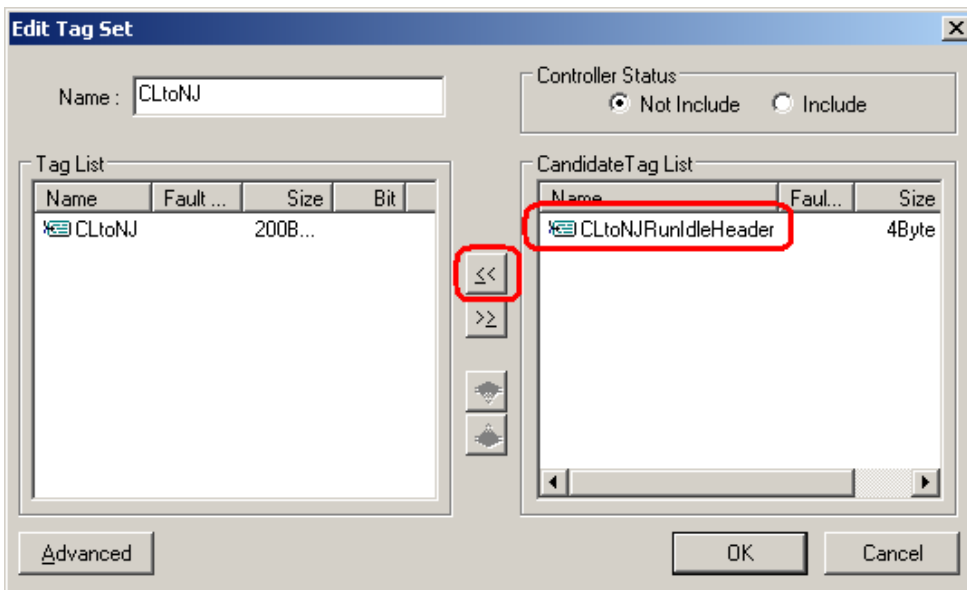
13. When the following dialog box appears, click 'No'.



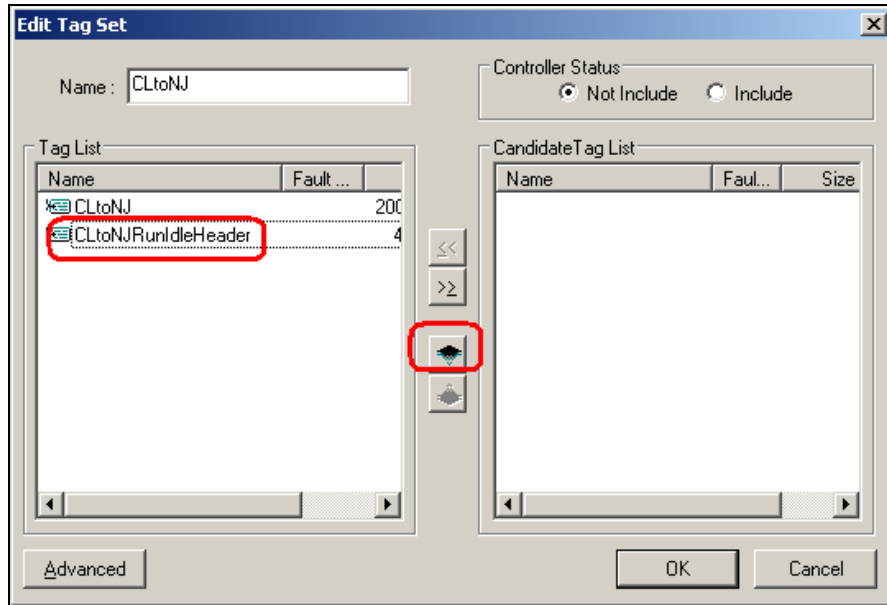
14. On the 'In - Consume' tab, select the Tag Set named 'CLtoNJ', and click 'Edit'.



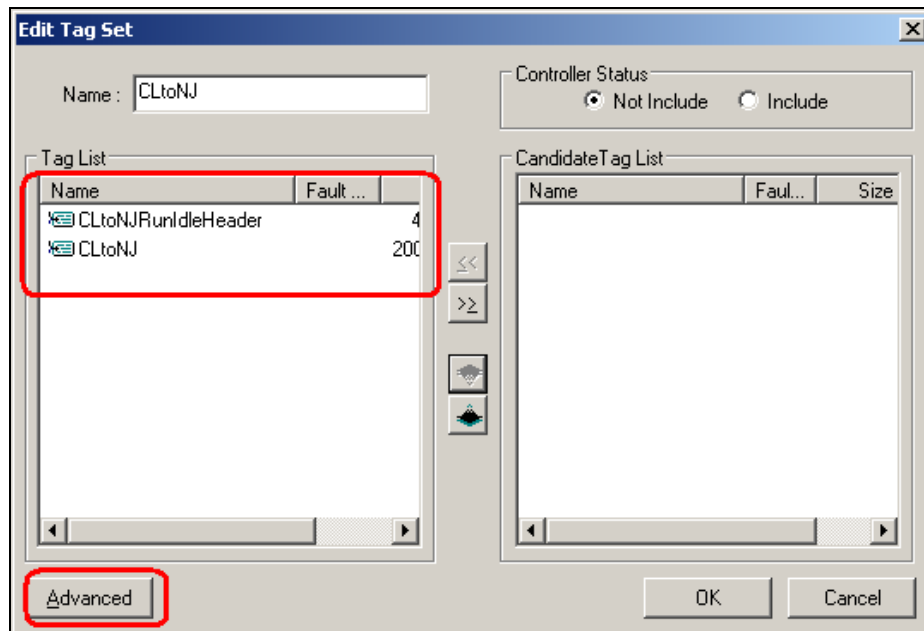
15. Select the Tag named 'CLtoNJRunIdleHeader' on the right, and click the 2 left pointing arrows to add this tag to the Tag Set on the left.



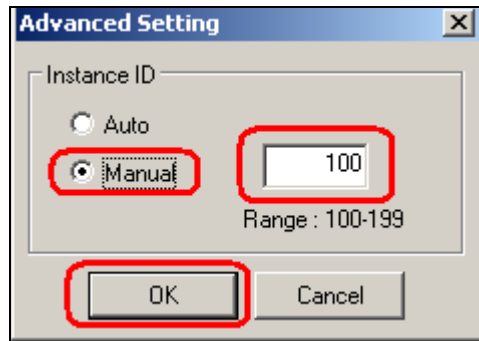
16. In the Tag Set on the left, select the Tag named 'CLtoNJRUnIdleHeader', and click the **Up Arrow** to move the tag to the top of the list.



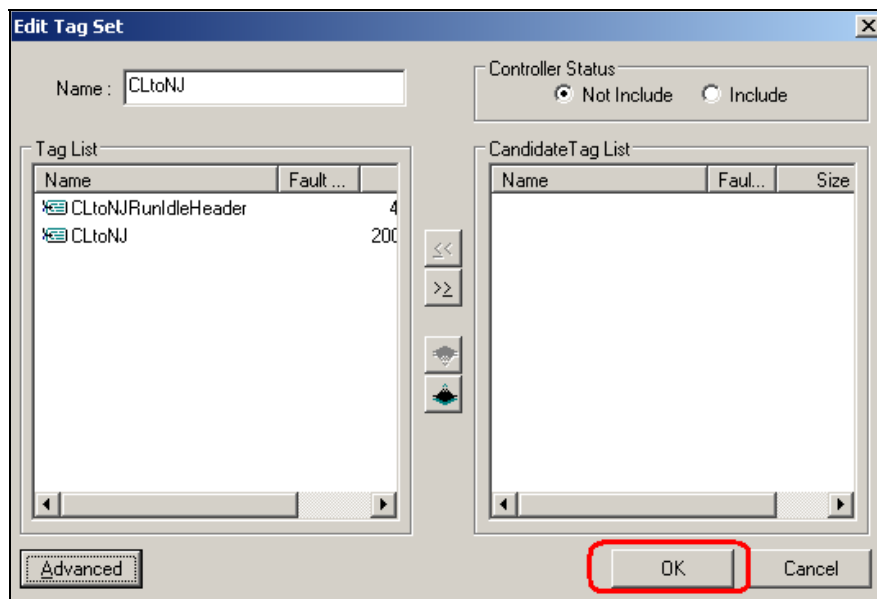
17. Verify that the CLtoNJRUnIdleHeader is now at the top of the list, then click 'Advanced'.



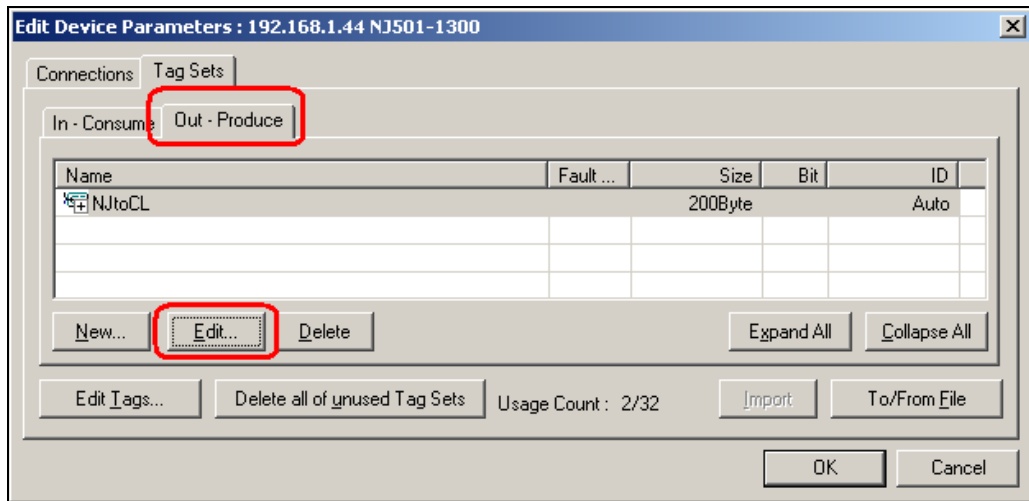
18. Select the 'Manual' radio button, and enter a value of **100** for the Assembly Number. Click 'OK'.



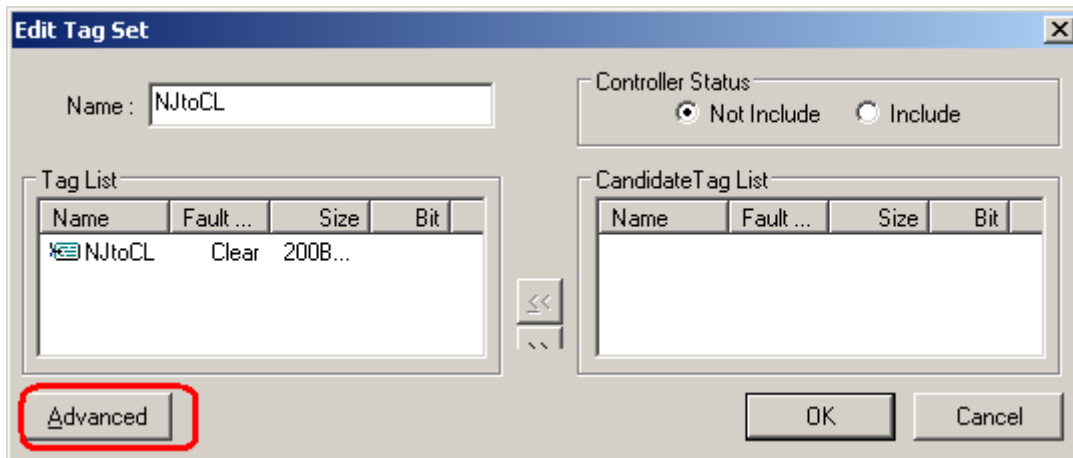
19. Click 'OK' to complete the edit of the Tag Set.



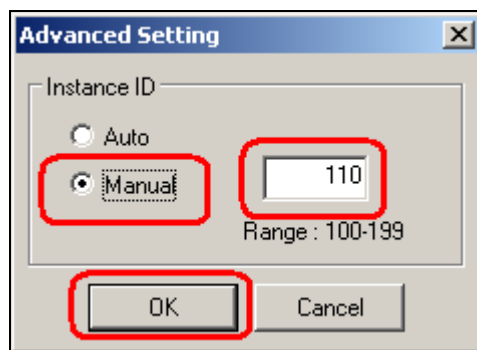
20. Click on the 'Out - Produce' tab, and select 'Edit'.



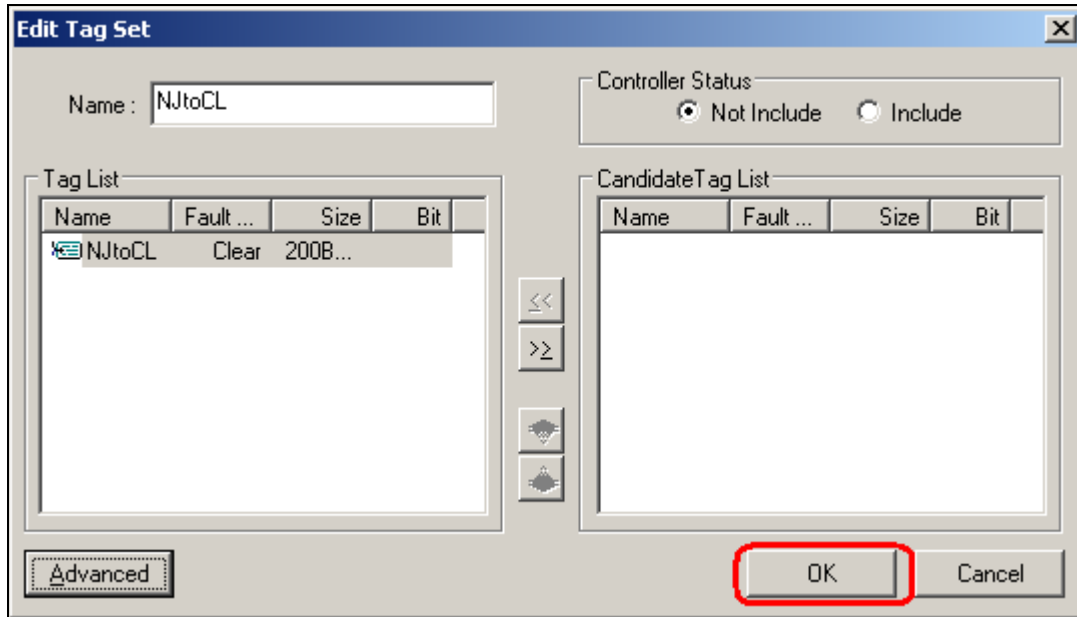
21. Click 'Advanced'.



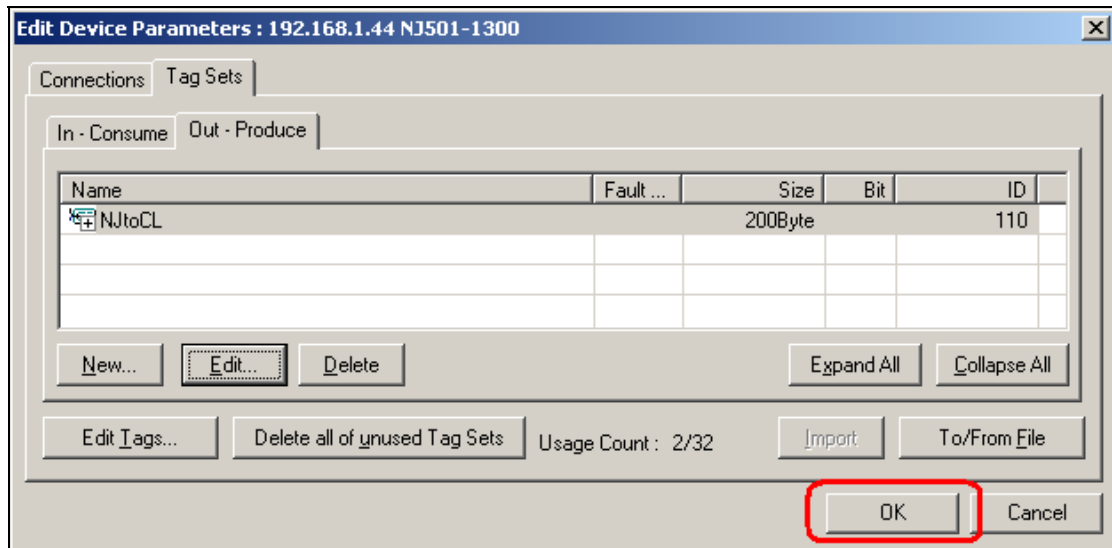
22. Select the 'Manual' radio button, and enter a value of 110 for the Assembly Number. Click 'OK'.



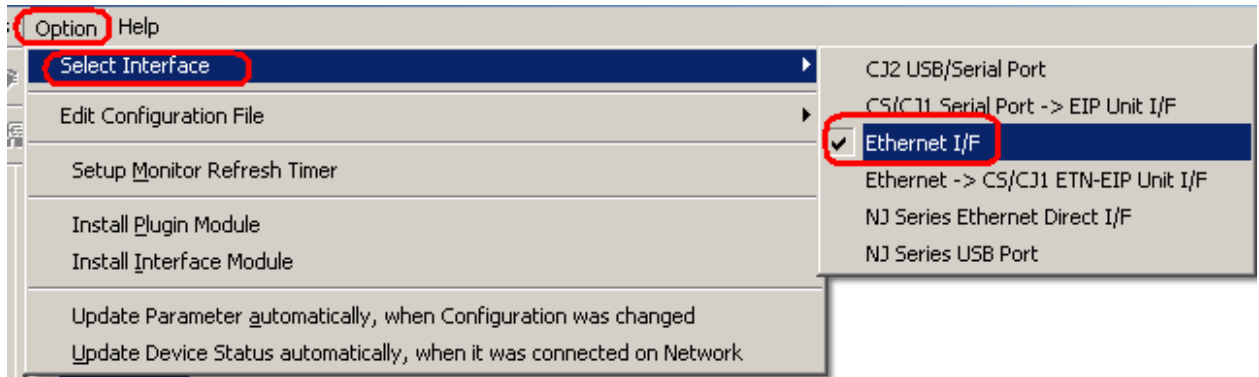
23. Click 'OK' to complete the edit of the Tag Set.



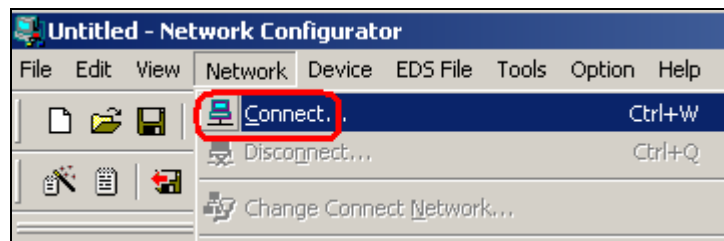
24. Click 'OK' to complete the network configuration of the NJ.



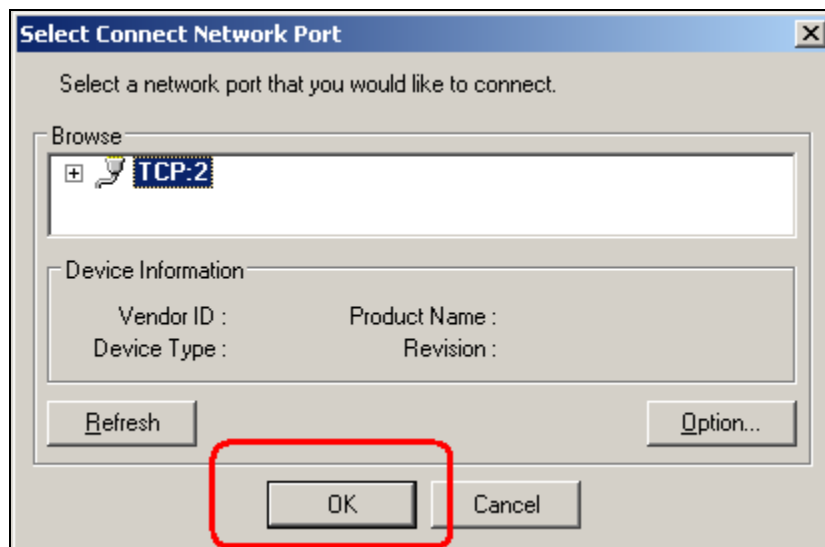
25. The network configuration has been setup, but still need to be downloaded to the NJ. To Connect to the network, click '**Options**' / '**Select Interface**' menus. Choose '**Ethernet I/F**'.



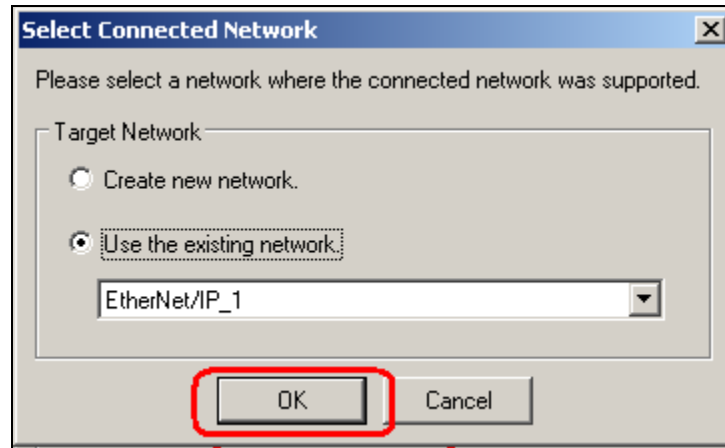
26. Click on the '**Network**' / '**Connect**' menus to connect to the network.



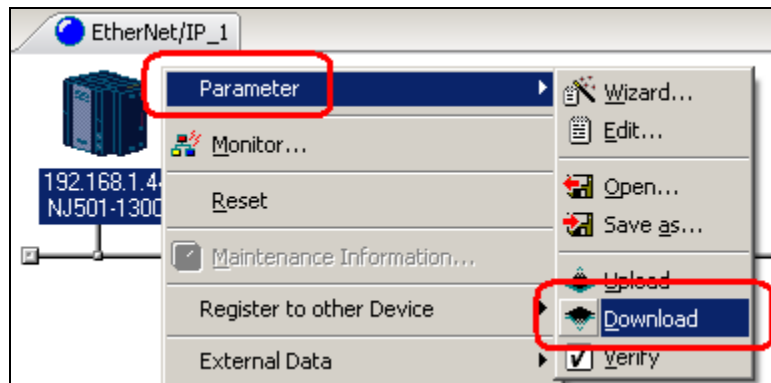
27. Click '**OK**' to connect



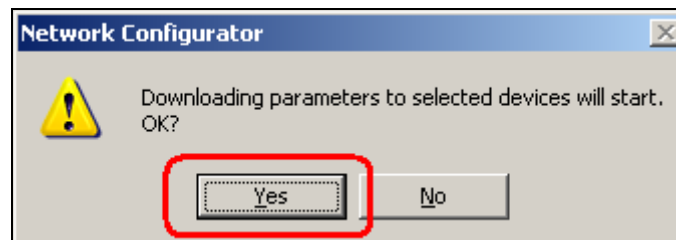
28. Click 'OK' to select 'Use the existing network'.



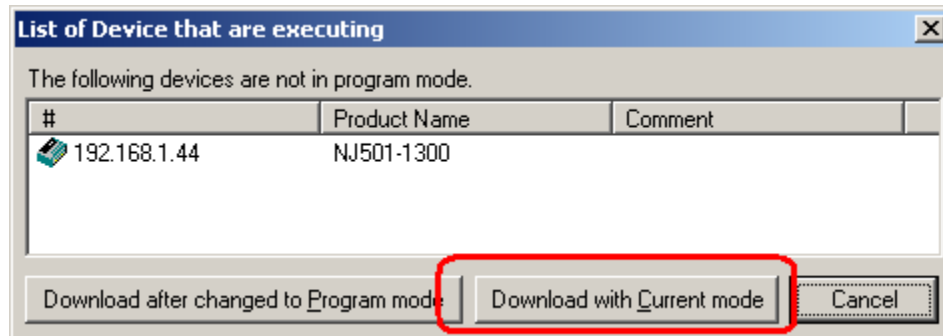
29. Download the EtherNet/IP settings to the NJ by right clicking on the NJ in the network diagram, and select 'Parameter' / 'Download'.



30. When the following dialog box appears, click 'Yes'.



31. If the NJ is not in program mode, you will get the option to change modes, or download with the NJ in the current mode. Click '**Download with Current mode**'.

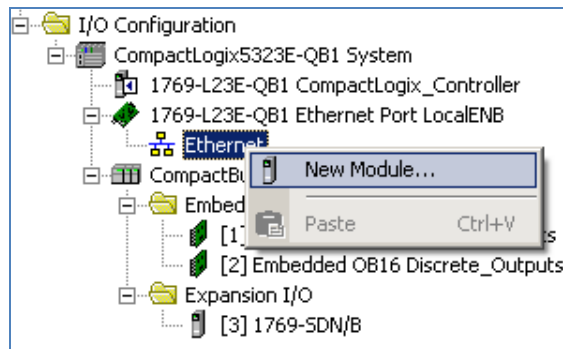


32. When the following dialog appears, the NJ is ready to accept a connection from a CompactLogix. Click 'OK'.

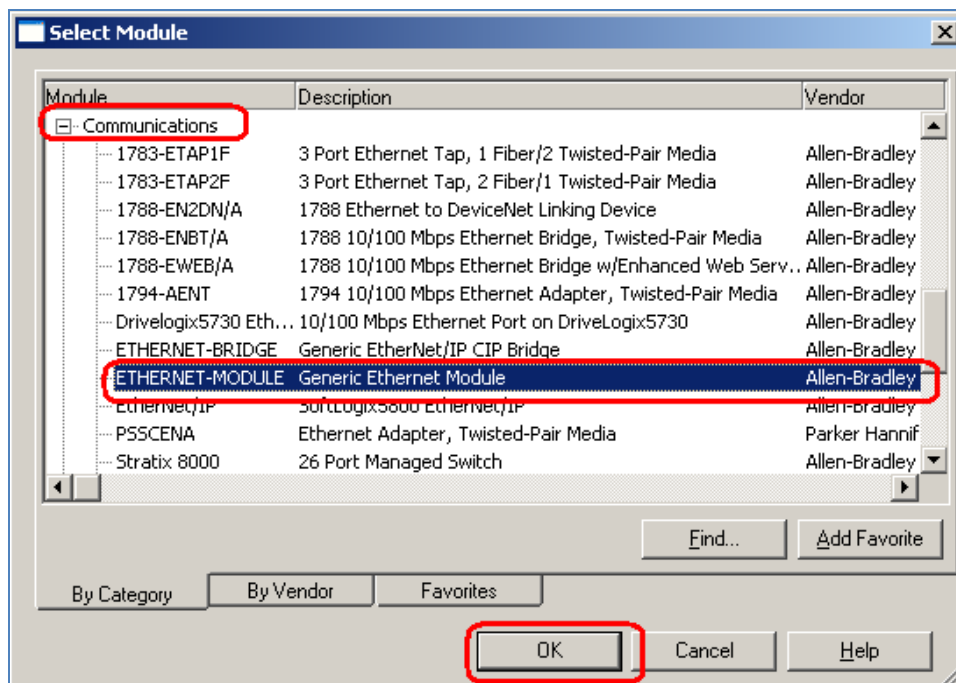


Section 4: CompactLogix Configuration

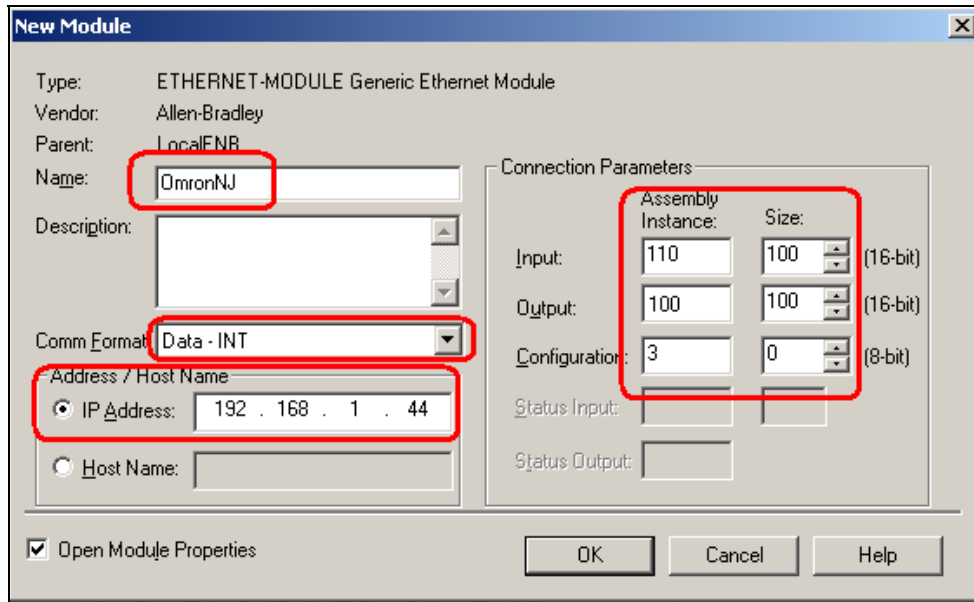
1. Open an existing project file or create a new project file for the CompactLogix in RSLogix 5000.
2. Configure the IP address of the CompactLogix as 192.168.1.77 using RSLogix 5000 (as an example IP Address).
3. In RSLogix 5000, right click on the Ethernet module in the CompactLogix, and click 'New Module'.



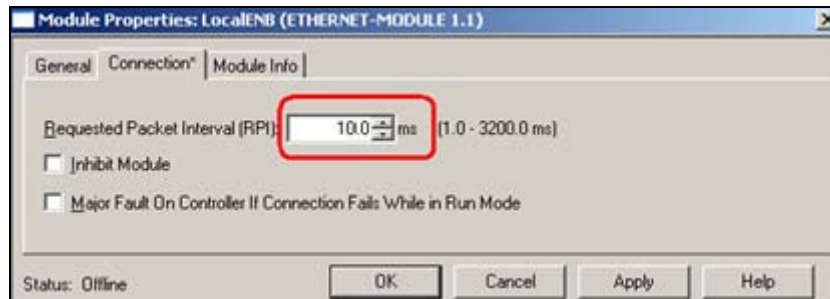
4. In the 'Communications' group, select 'ETHERNET-MODULE Generic Ethernet Module', and click 'OK'.



5. Configure the connection as shown, and click **OK**.



6. Configure the RPI for 10 ms, and click **OK**.



Tags will have been created automatically for the OmronNJ connection as shown below.

[-] OmronNJ:I	{...}	{...}		AB:ETHERNET_...
[+] OmronNJ:I.Data	{...}	{...}	Decimal	INT[100]
[-] OmronNJ:O	{...}	{...}		AB:ETHERNET_...
[+] OmronNJ:O.Data	{...}	{...}	Decimal	INT[100]

7. Download the project to the CompactLogix processor using RSLogix 5000.
8. Using RSLogix 5000 and Sysmac Studio to set data and monitor the data in the 2 controllers, verify the operation of the EtherNet/IP Tag Datalink.

Data from NJ to CompactLogix

RS Logix 5000			Sysmac Studio	
Name	△	Value	Name	Online value
[-] OmronNJ:I.Data		{...}	▼ NJtoCL[0-3]	
[+] OmronNJ:I.Data[0]		1	NJtoCL[0]	1
[+] OmronNJ:I.Data[1]		2	NJtoCL[1]	2
[+] OmronNJ:I.Data[2]		3	NJtoCL[2]	3
[+] OmronNJ:I.Data[3]		4	NJtoCL[3]	4

Data from CompactLogix to NJ

RS Logix 5000			Sysmac Studio	
Name	△	Value	Name	Online value
[-] OmronNJ:O.Data		{...}	▼ CLtoNJ[0-3]	
[+] OmronNJ:O.Data[0]		11	CLtoNJ[0]	11
[+] OmronNJ:O.Data[1]		12	CLtoNJ[1]	12
[+] OmronNJ:O.Data[2]		13	CLtoNJ[2]	13
[+] OmronNJ:O.Data[3]		14	CLtoNJ[3]	14

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