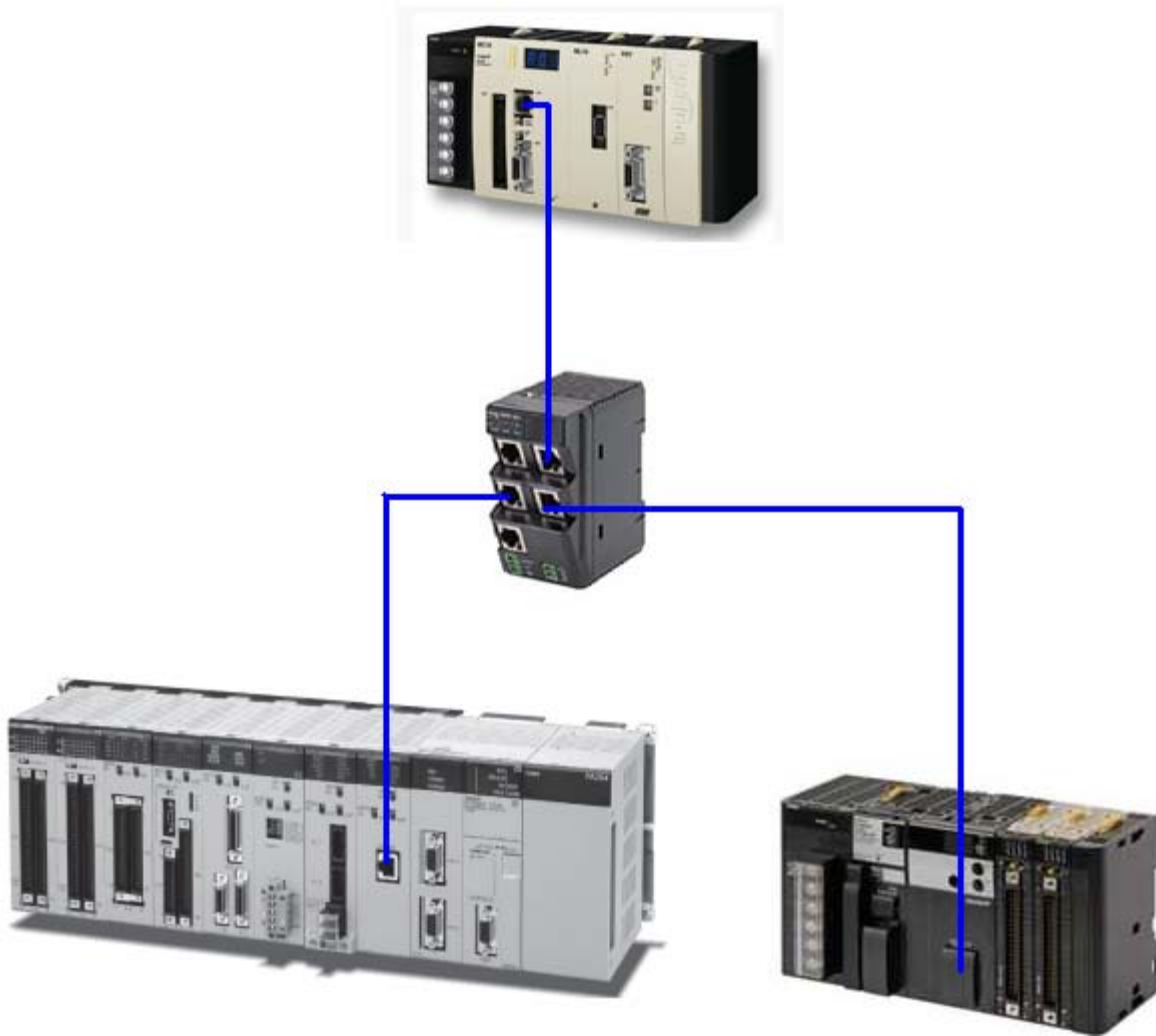


# Connecting an Omron PLC to an Omron Trajexia TJ2-MC64 using EtherNet/IP



**Section 1: Introduction:** This document explains how to connect an Omron PLC (CJ1, CJ2, CS1) with EtherNet/IP communications to an Omron Trajexia TJ2-MC64 motion controller with built in EtherNet/IP.

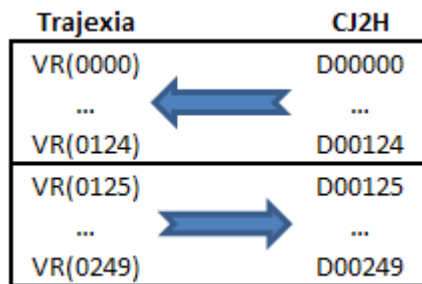
The Trajexia TJ2-MC64 motion controller contains the EtherNet/IP protocol as part of the suite of protocols supported by the built in Ethernet port. This protocol is not supported by the Trajexia TJ1-MC04 or TJ1-MC16 motion controller.

The TJ2-MC64 is capable of producing up to 500 bytes of data and consuming up to 500 bytes of data from another device, such as a PLC. Only 1 PLC can be connected to a TJ2-MC64, as the EtherNet/IP implementation supports a single connection only.

Shown below are the recommended maximum Produced and Consumed assembly sizes at 100 ms RPI and 20 ms RPI. Values higher than those shown below could affect system performance.

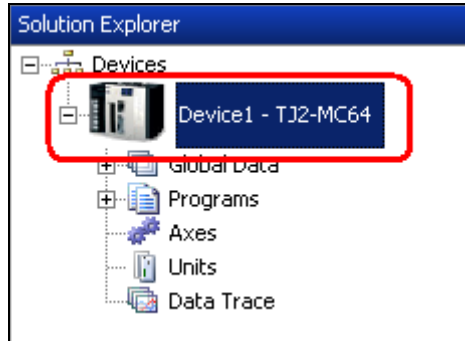
RPI	Input bytes (max)	Output bytes (max)
100	376	376
20	250	250

In the following example, the connection show below will be configured. A CJ2H will be used as an example, but the procedure for a CJ1M, CJ1G, CJ1H, CJ2M, or CS1 would be nearly identical.

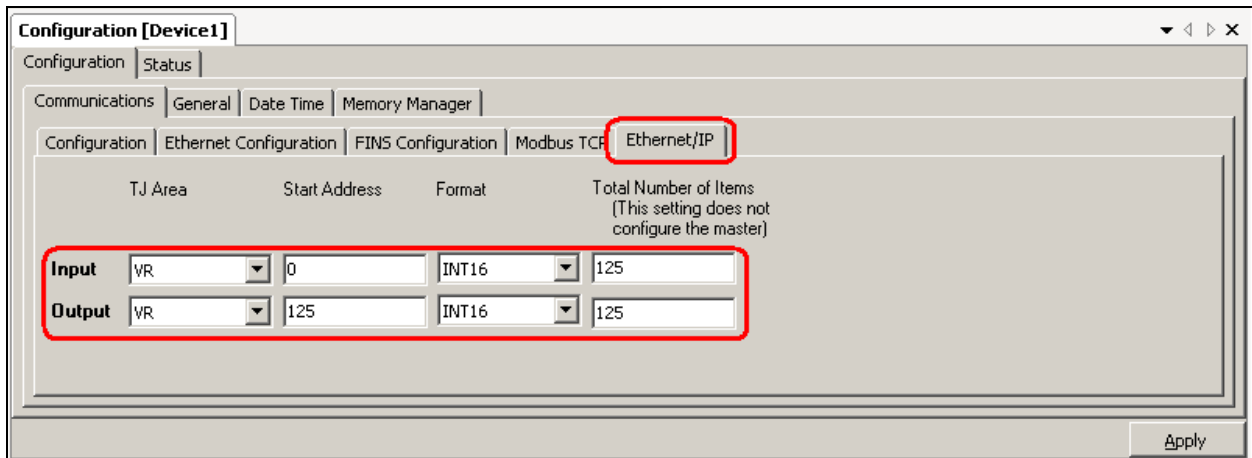


## Section 2: TJ2-MC64 Configuration:

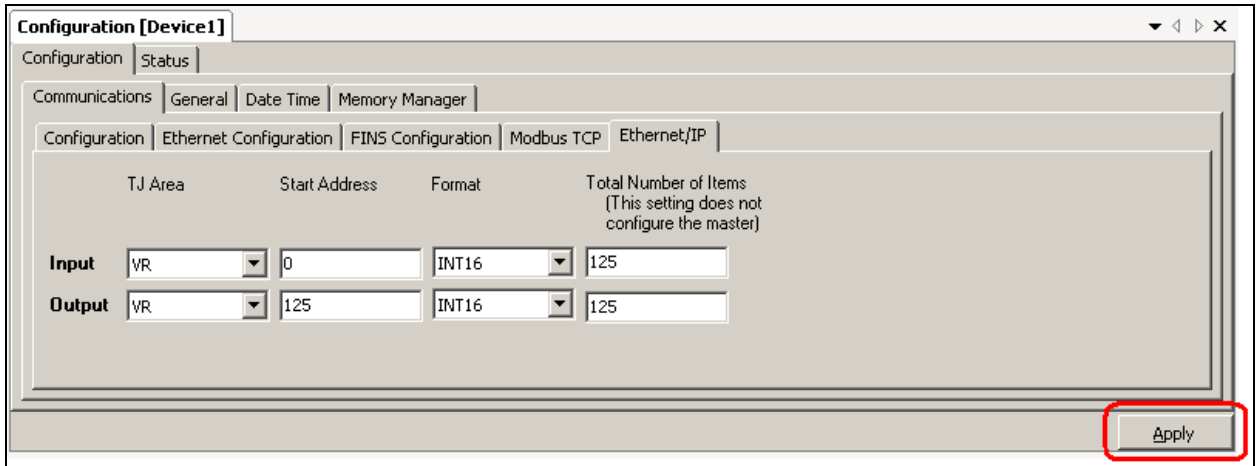
1. In CX Motion Pro or Trajexia Studio, double click on the Trajexia TJ2-MC64 to edit the Device Configuration.



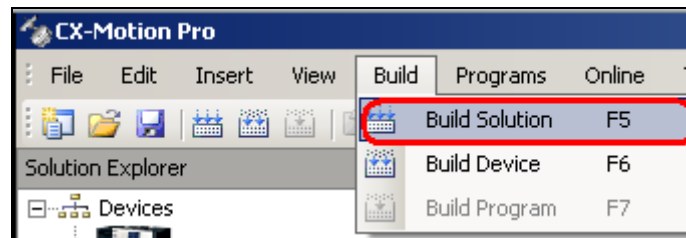
2. Click on the Ethernet/IP tab, and enter the TJ2-MC64 data area, starting address, Format, and Total Number of Items for Input (Consumed data) and Output (Produced data). In the following example, 125 INT16 data types (250 Bytes) are transferred to / from the TJ2-MC64.



3. Click **Apply**.



4. Build the Solution from the **Build / Build Solution** menus. The process of Building the Solution automatically adds the code to the Shell program to configure the EtherNet/IP communications on startup.



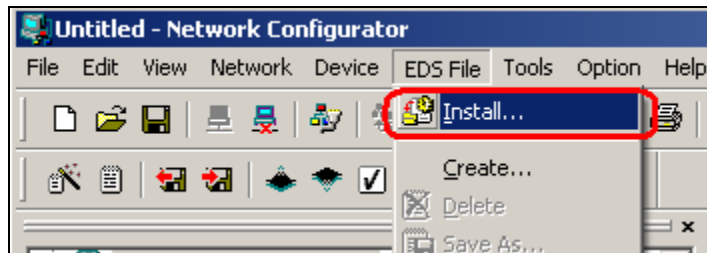
```
' Ethernet/IP Settings: Device --> Trajexia
ETHERNET (1,-1,14,1,0,0) 'Start Address
ETHERNET (1,-1,14,1,1,3) 'Data Type
ETHERNET (1,-1,14,1,2,0) 'Data Format
' ETHERNET(1,-1,14,1,3,125) Total Items

' Ethernet/IP Settings: Trajexia --> Device
ETHERNET (1,-1,14,2,0,125) 'Start Address
ETHERNET (1,-1,14,2,1,3) 'Data Type
ETHERNET (1,-1,14,2,2,0) 'Data Format
' ETHERNET(1,-1,14,2,3,125) Total Items
```

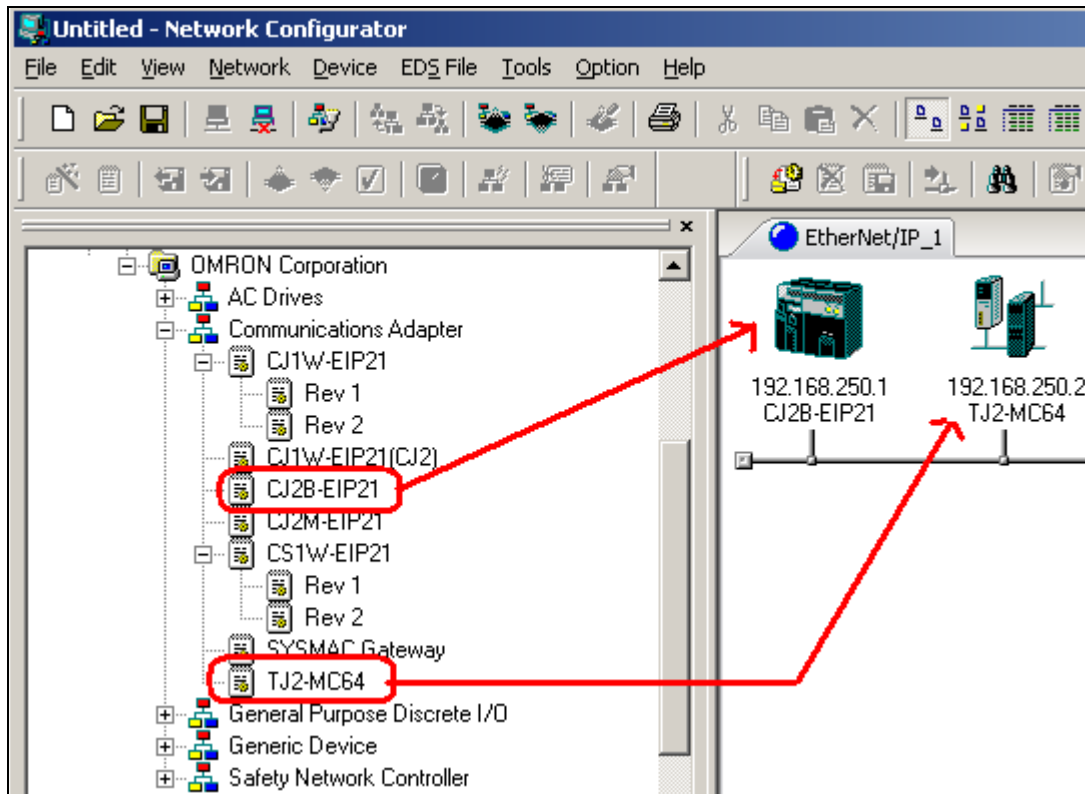
5. After Building the Solution, Synchronize the project with the TJ2-MC64.

### Section 3: CJ2H Configuration:

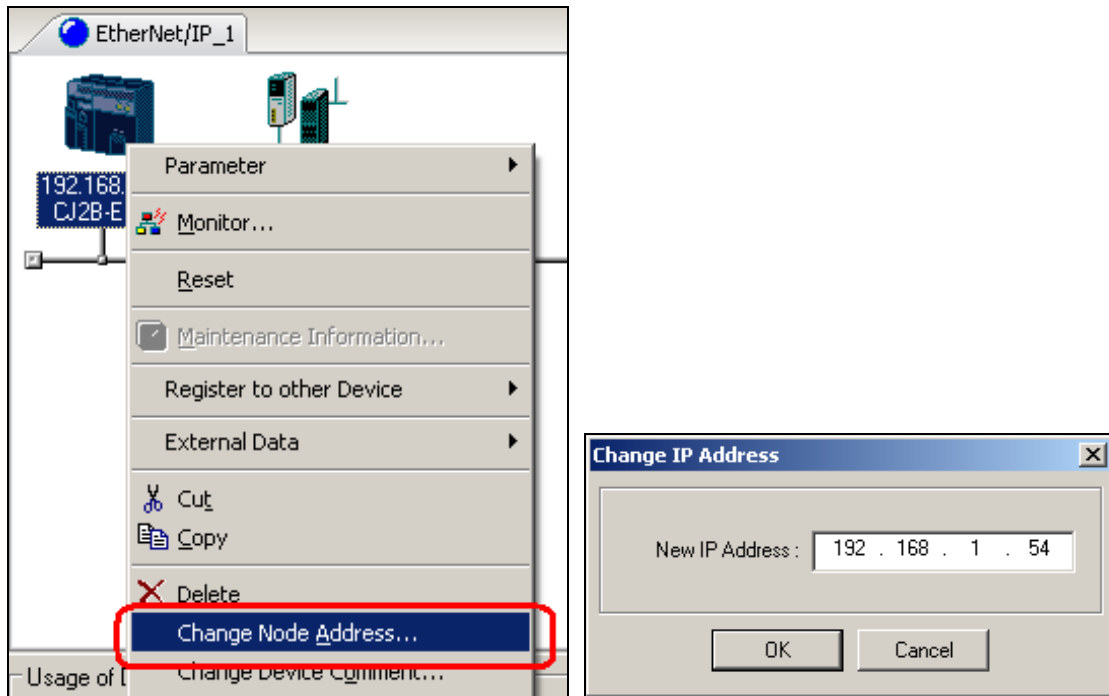
1. Launch the Network Configurator for EtherNet/IP from **Start / Programs / Omron / CX One / Network Configurator for EtherNet IP/ Network Configurator**.
2. Install the .eds file for the Trajexia TJ2-MC64 if it is not already installed, using the **EDS File / Install** menus.



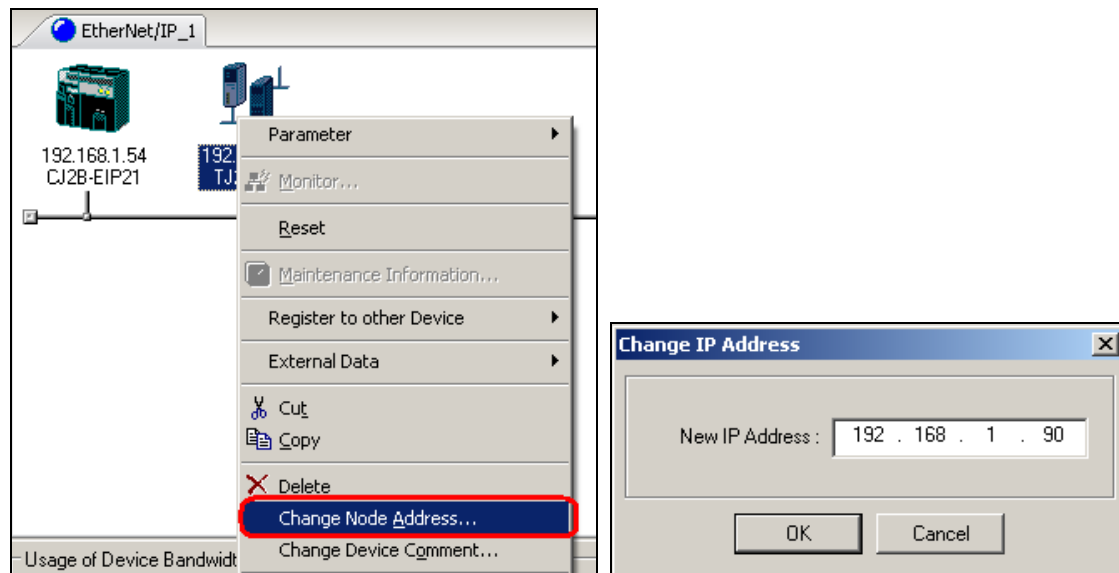
3. Drag a CJ2B-EIP21 (CJ2H PLC) and a TJ2-MC64 (Trajexia) onto the network diagram.



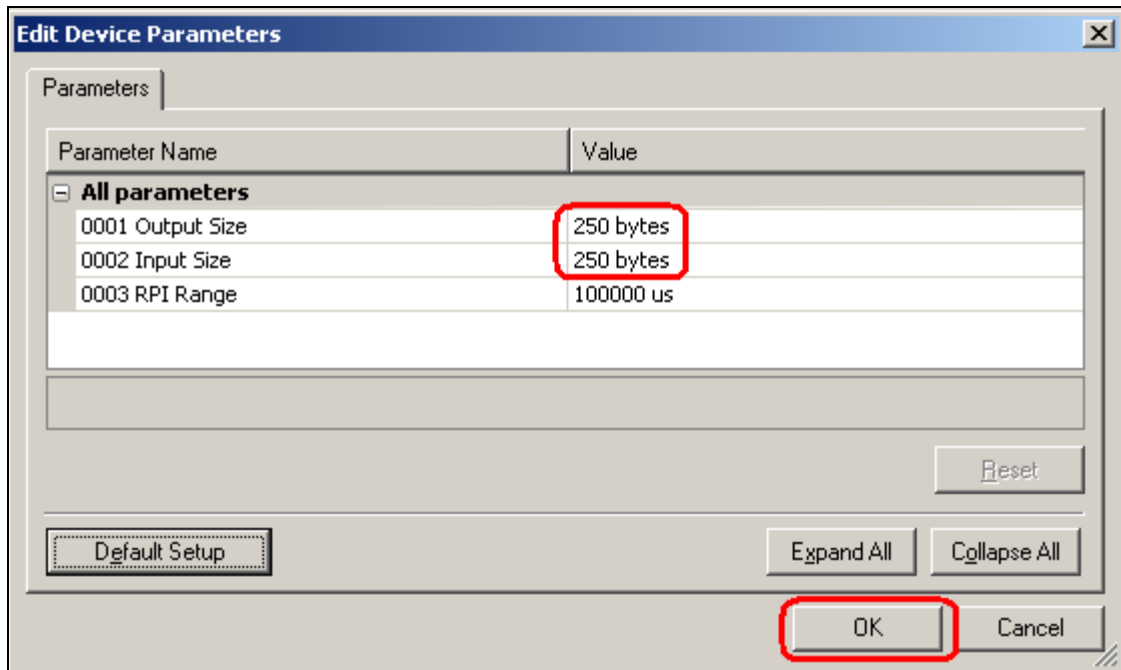
4. Set the IP Address for the CJ2H by right clicking on the CJ2B-EIP21, and selecting **Change Node Address**. Set the IP Address as 192.168.1.54.



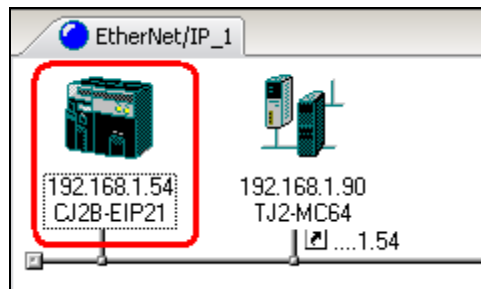
5. Set the IP Address for the Trajexia by right clicking on the TJ2-MC64, and selecting Change Node Address. Set the IP Address as 192.168.1.90.



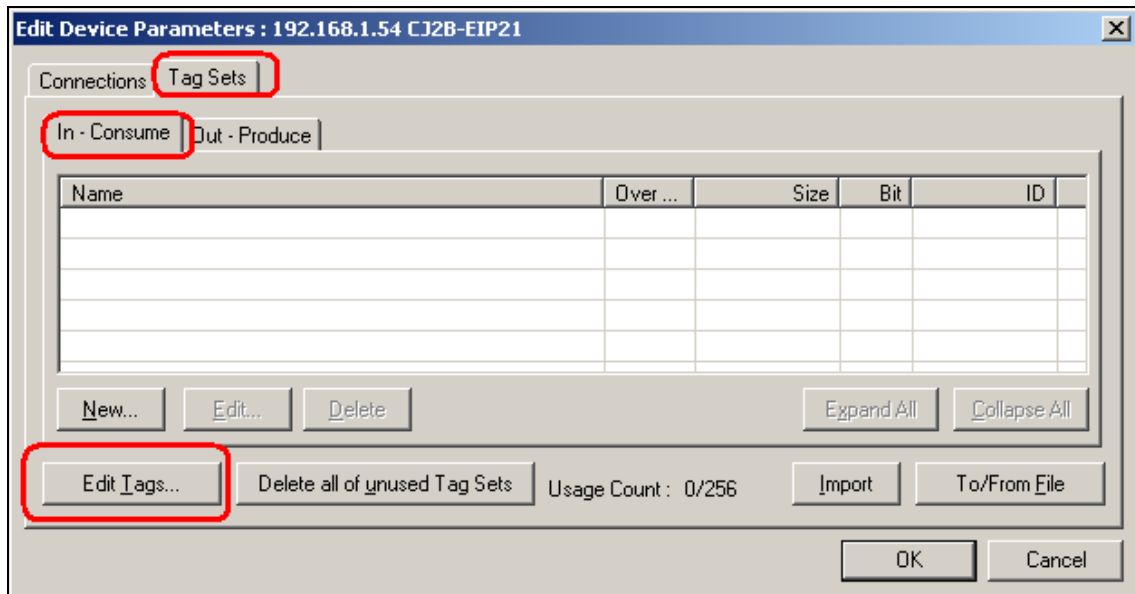
6. Double click on the TJ2-MC64 to configure the size of the produced and consumed connections. Change the **Output Size** and **Input Size** to **250 bytes**. When finished, click **OK** to close the window.



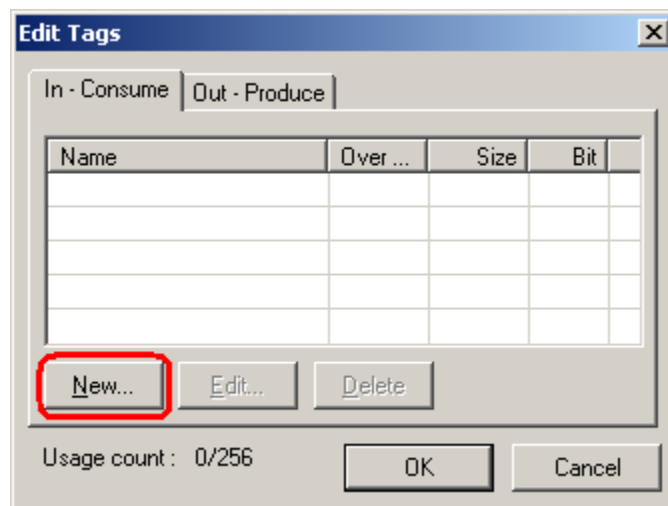
7. Double click on the CJ2B-EIP21 to configure the Tags and Connection to the TJ2-MC64.



8. Click on the **Tag Sets** tab, the **In – Consume** tab, and click **Edit Tags**.

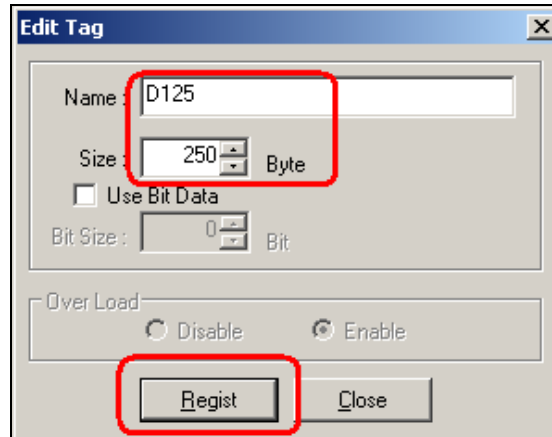


9. Click **New**.

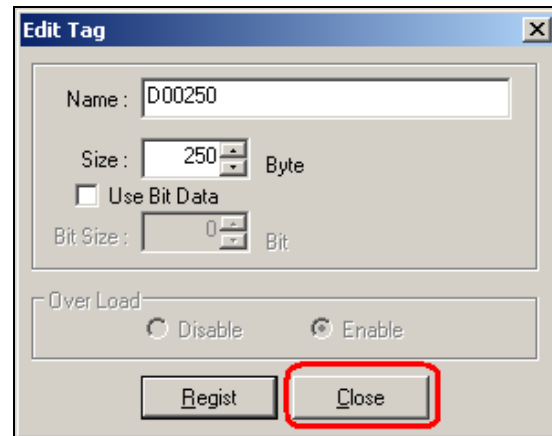




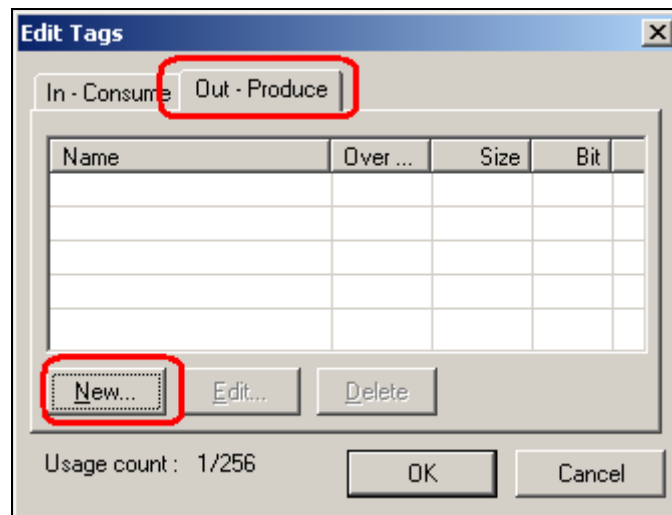
10. Enter **D125** as the Name, and **250** as the Number of Bytes, then click **Regist**.



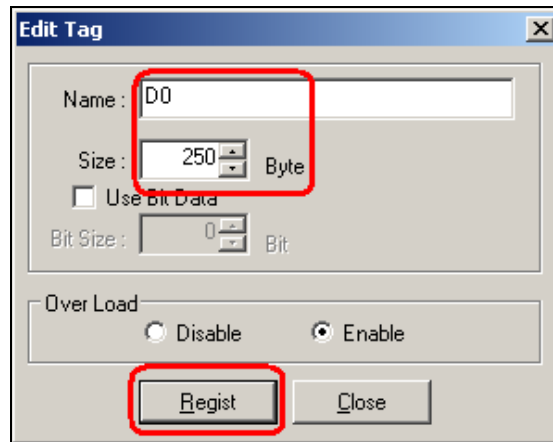
11. The software will assume that you wish to create another Tag. Click **Close**



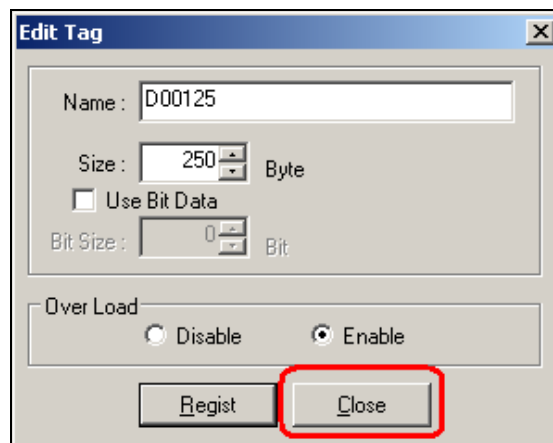
12. Click the Out – Produce tab, and click New.



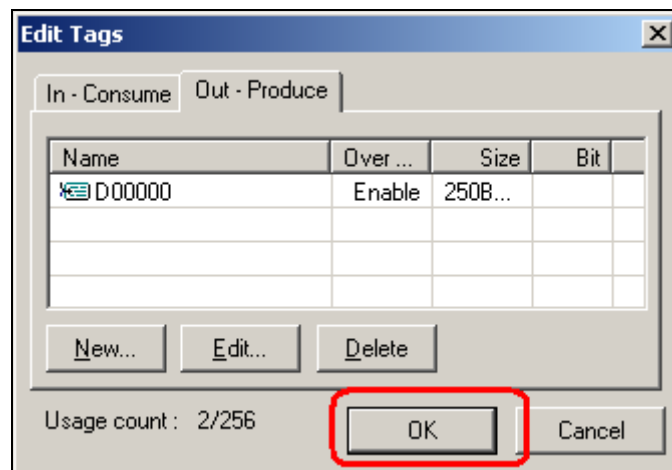
13. Enter **D0** as the Name, and **250** as the Number of Bytes.



14. The software will assume that you wish to create another Tag. Click **Close**.



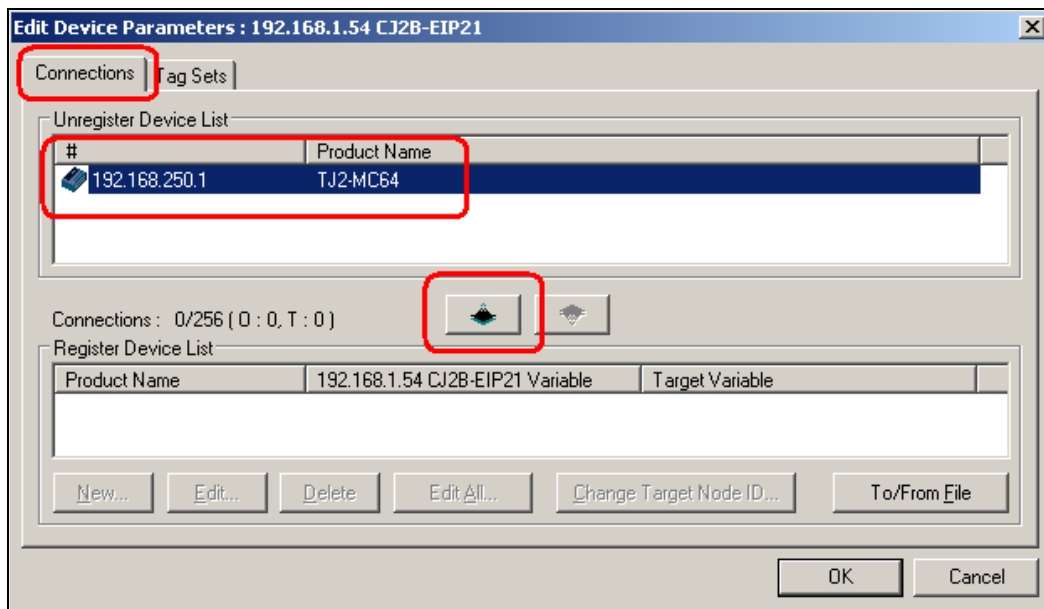
15. Click **OK** to close the Edit Tags window.



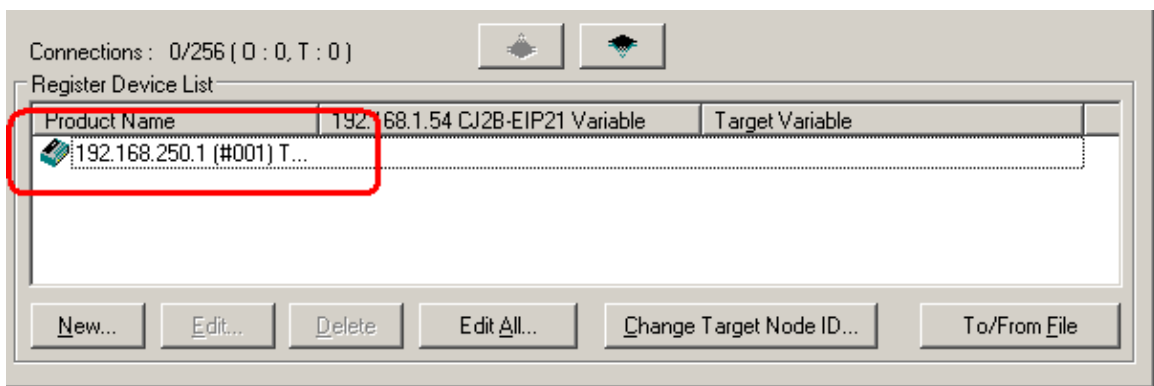
16. Click **Yes** to create Tag Sets with the same names as the Tags that were created.



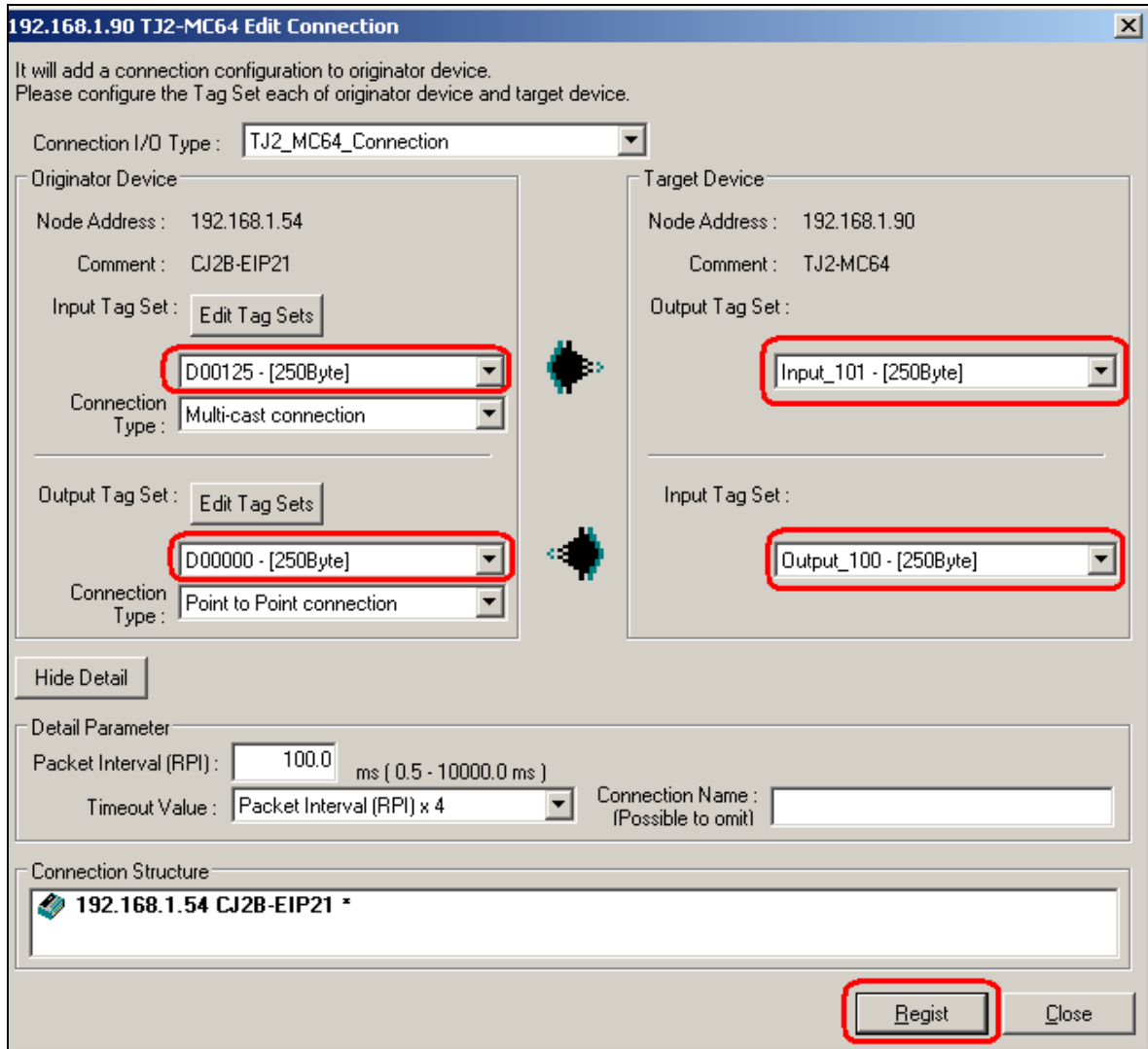
17. Click on the **Connections** tab, select the TJ2-MC64 in the Unregistered Device List, and click the down arrow to move it into the Registered Device List.



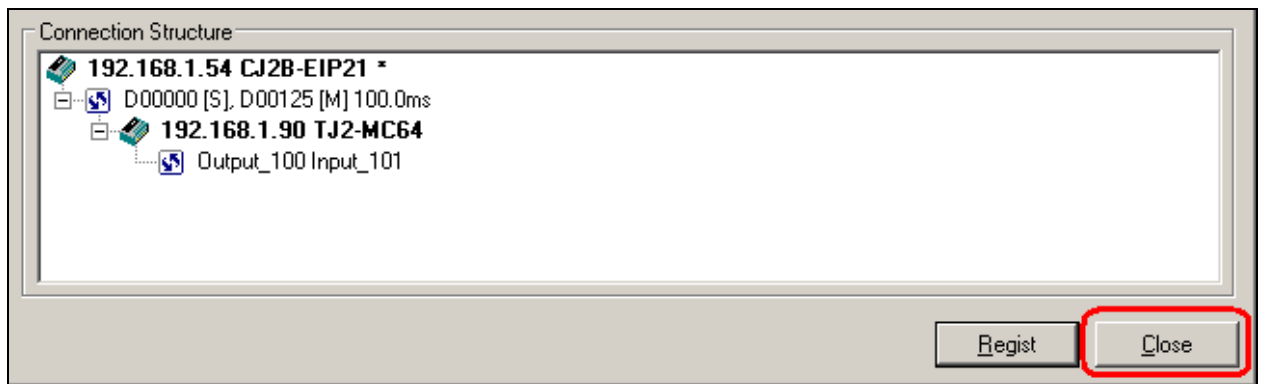
18. Double click on the TJ2 in the Registered Device List to create a connection.



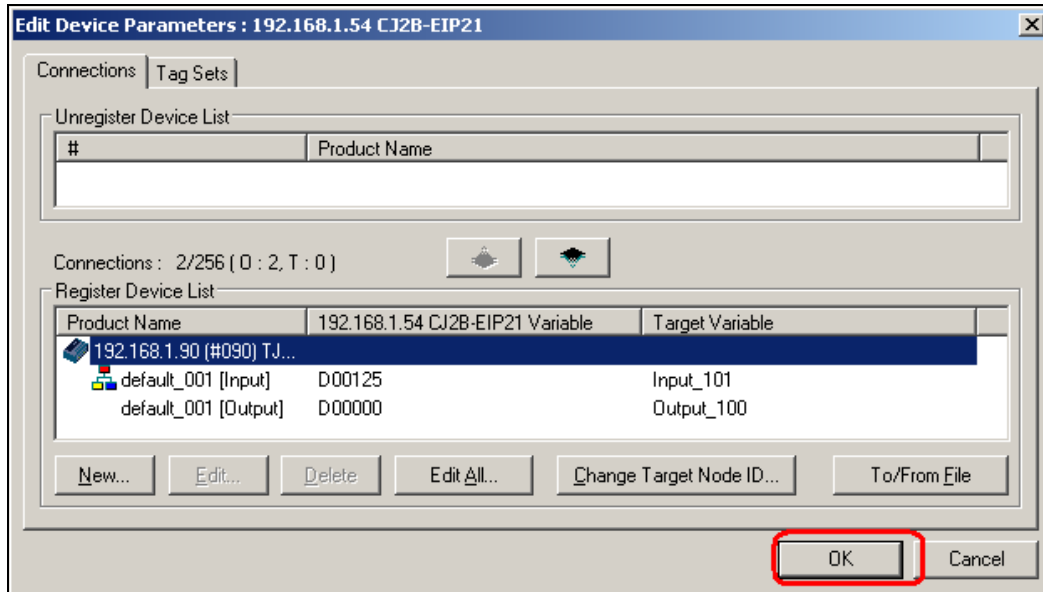
19. Configure the connection as shown, and click **Regist**.



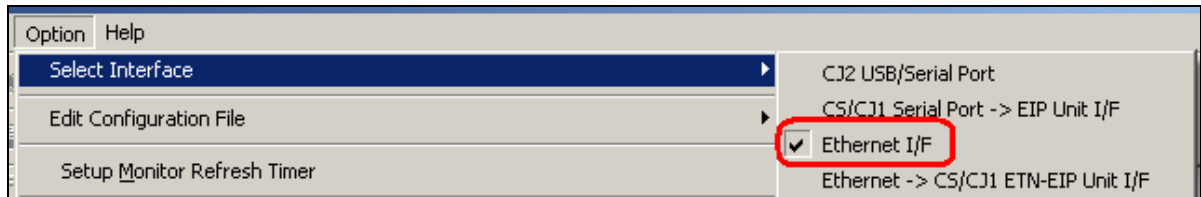
20. The software will assume that you wish to create another Connection. Click **Close**.



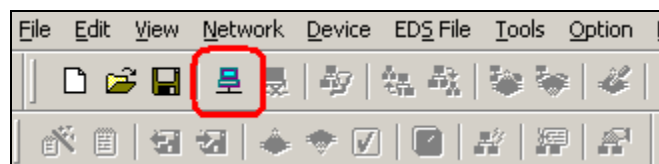
21. Click **OK** to close the Edit Device Parameters window.



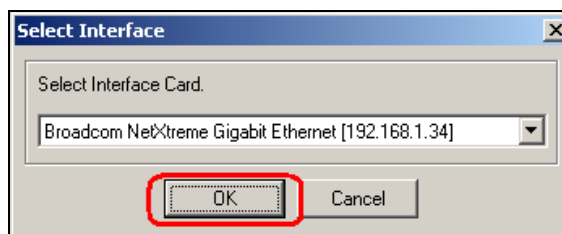
22. To select the connection method to connect to the EtherNet/IP network, click on the **Options / Select Interface** menus. **Select Ethernet I/F.**



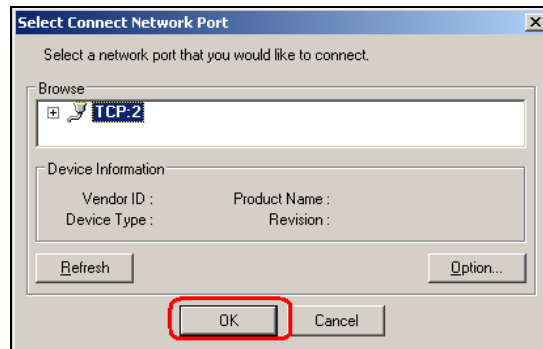
23. Click the **Connect** icon as shown.



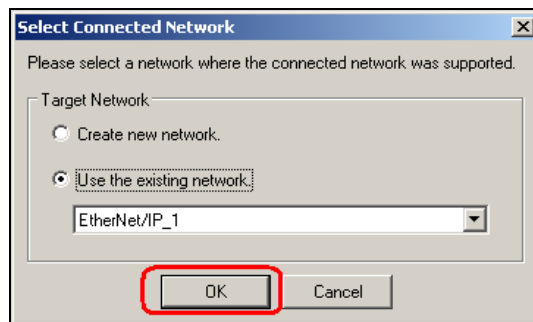
24. Select the appropriate network adapter, and click **OK**.



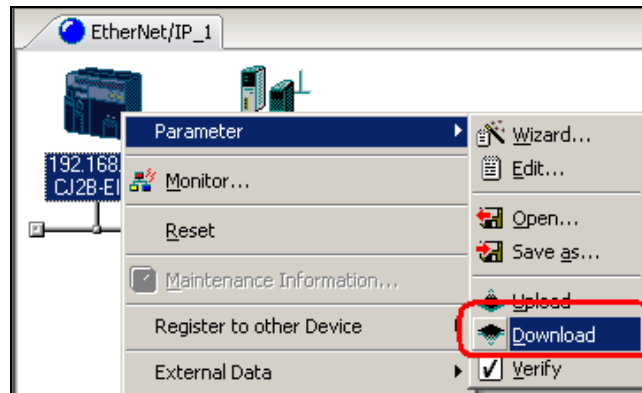
25. Click **OK** to select TCP port 2 to connect to the network directly.



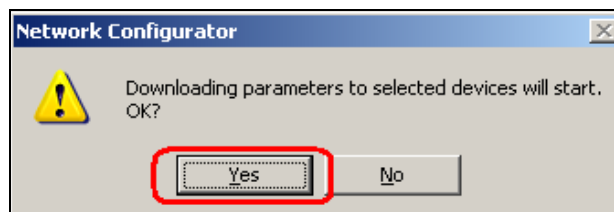
26. Select **Use the existing network**, and click **OK**.



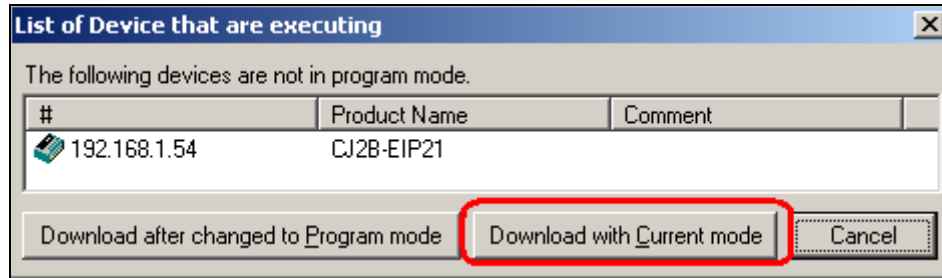
27. Right click on the CJ2B-EIP21 module in the network diagram, and select **Parameter / Download**.



28. Click **Yes** to download the parameters.



29. To download to the EIP module without changing the PLC to Program mode, click **Download with Current mode**.



30. When the download completes, click **OK**.



31. Using CX Programmer and CX Motion Pro (or Trajexia Studio), monitor the memory in the CJ2H and Trajexia TJ2-MC64 to see the data exchange.

**CX Programmer Watch Window**

Name	Address	FB Usage	Value
Out_to_TJ2_Start	D0		&1111
Out_to_TJ2_End	D124		&2222
In_from_TJ2_Start	D125		&3333
In_from_TJ2_End	D249		&4444

**CX-Motion Pro Watch Window**

Watch	
Name	Value
VR(0)	1111
VR(124)	2222
VR(125)	3333
VR(249)	4444