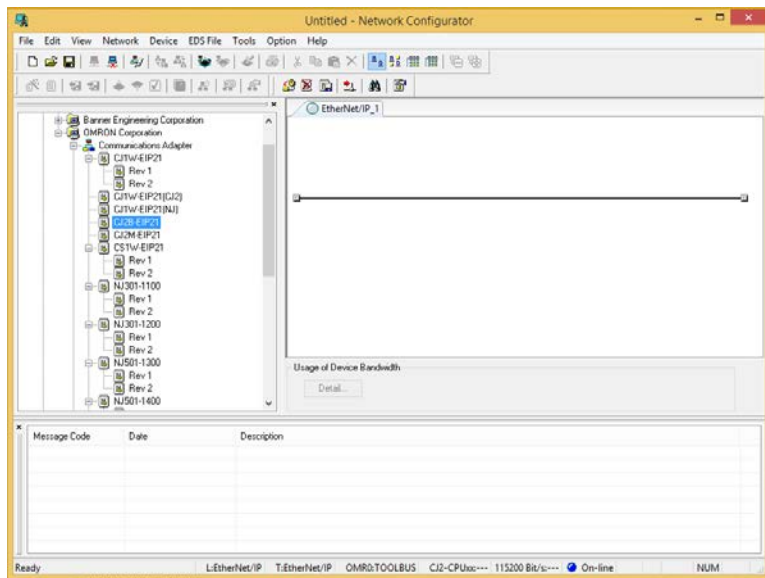
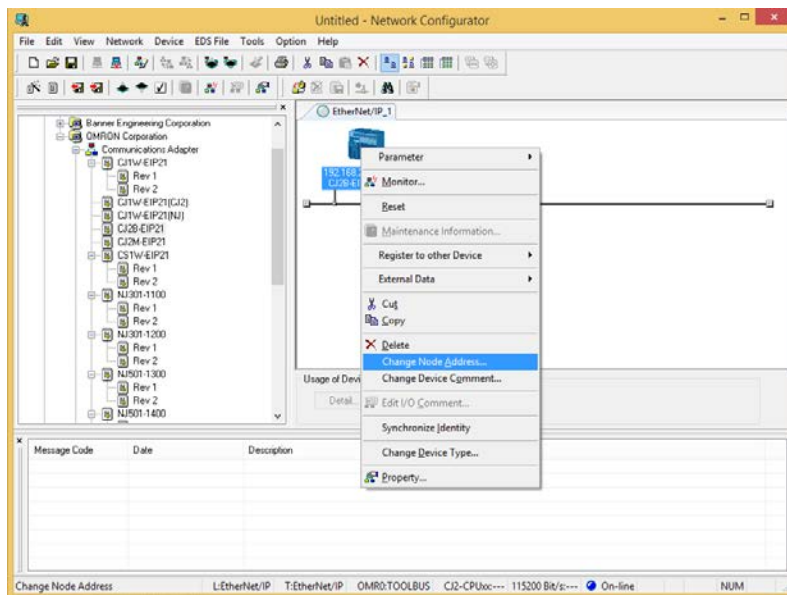


Establishing an EtherNet/IP Connection between an SC22-3E safety controller and Omron CJ2H PLC

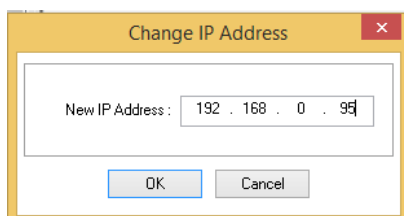
1. Open the Omron Network Configurator software.



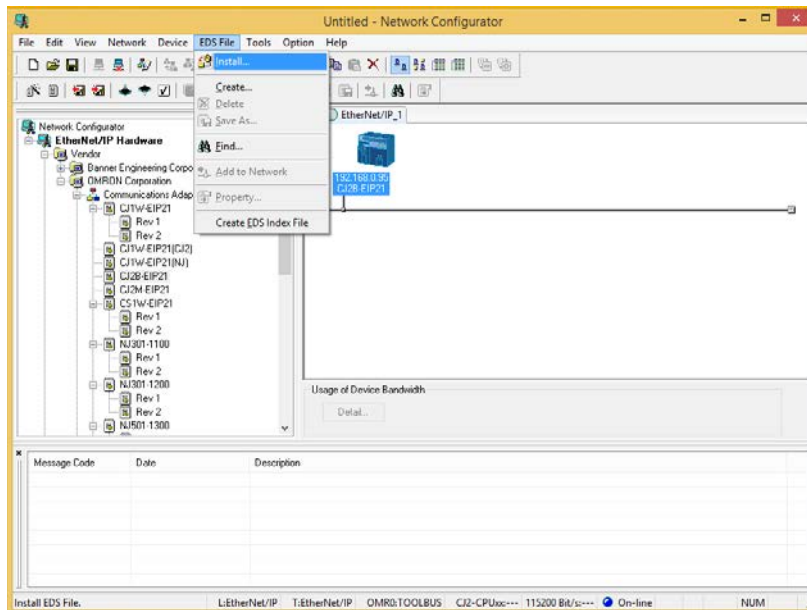
2. Add the correct PLC to the network. Then right click on the PLC to change its IP address.



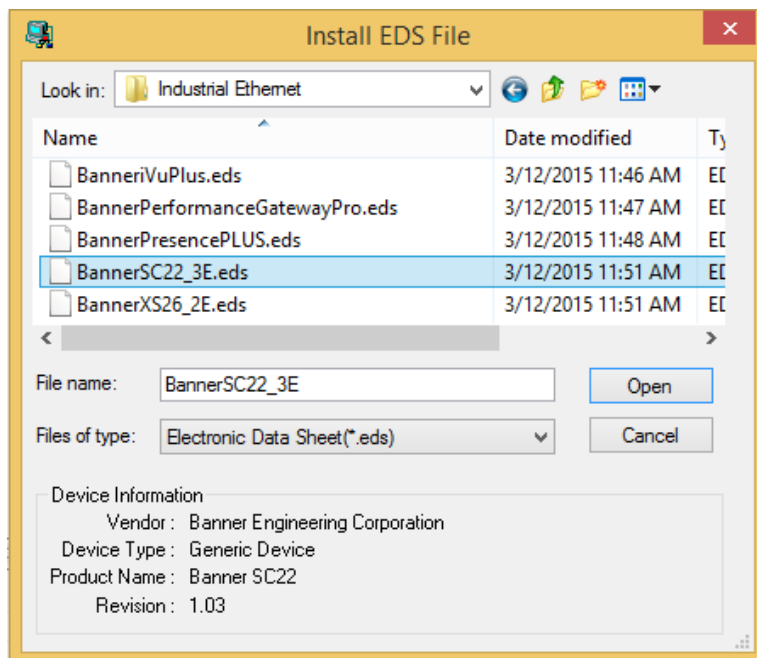
3. Here is the PLC's IP address



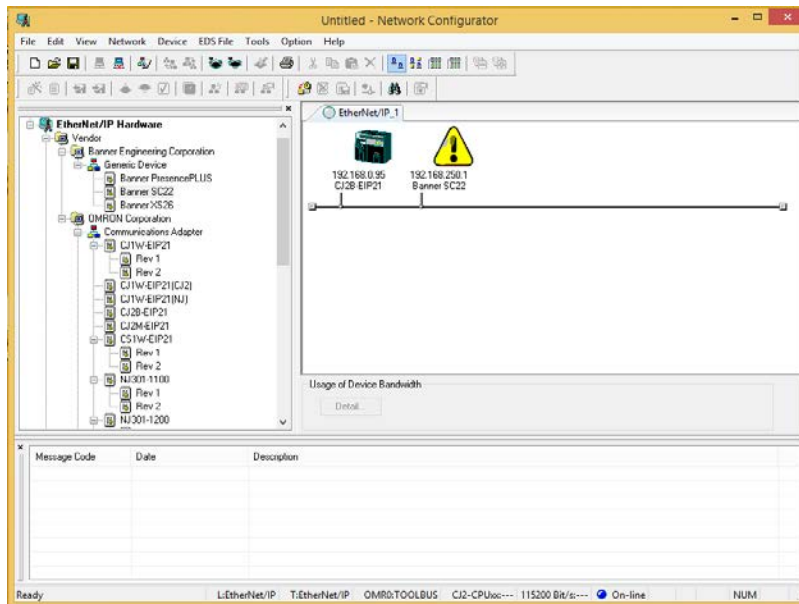
4. Install the SC22 EDS file. Choose EDS_File, then Install.



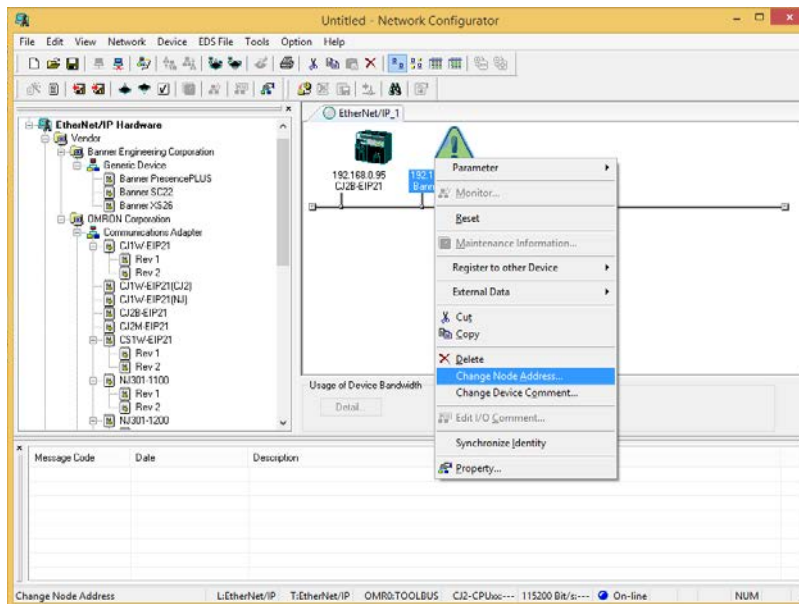
5. Choose the EDS file.



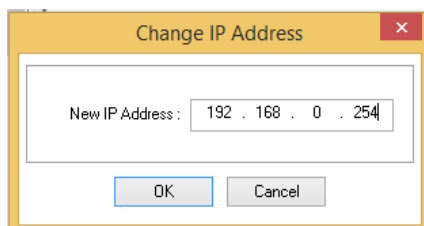
6. Double click the new item from the list at left to add it to the network.



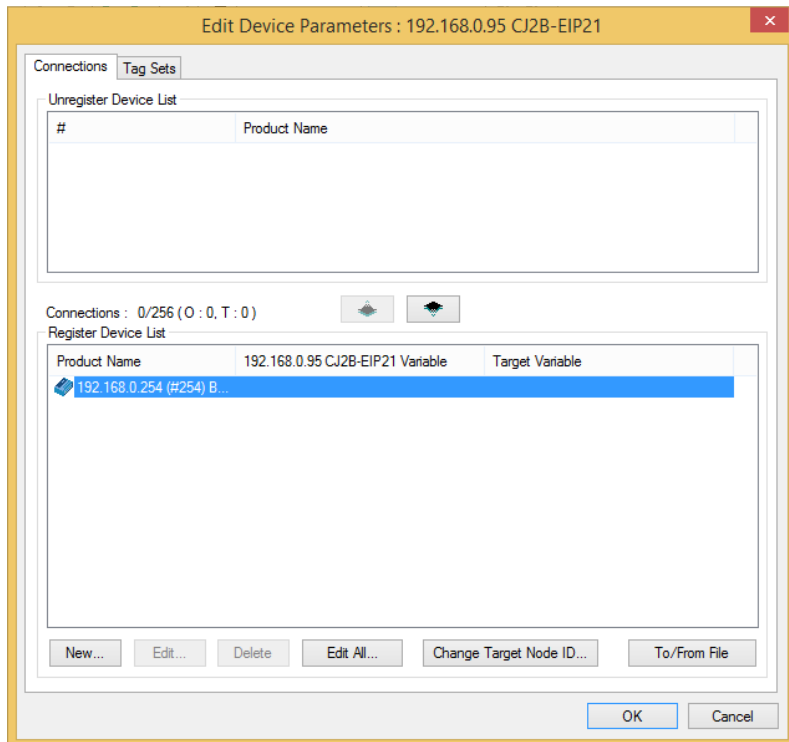
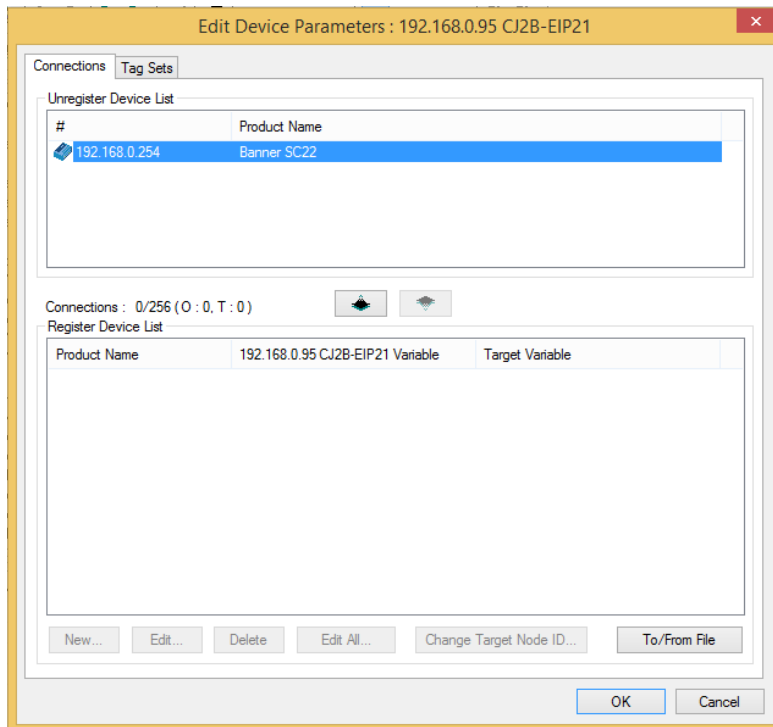
7. Right click on the safety controller to change the IP address.



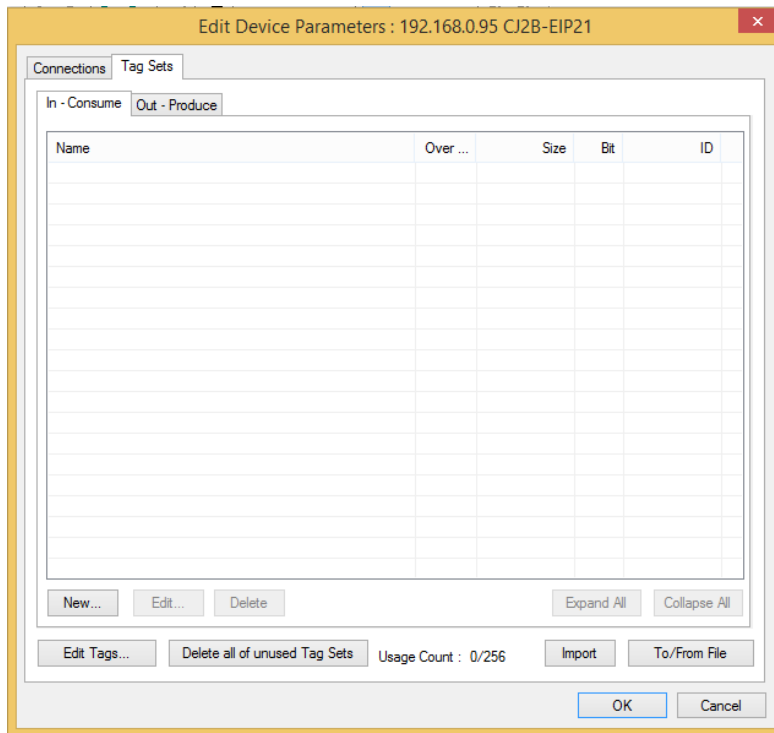
8. Enter the safety controller's IP address.



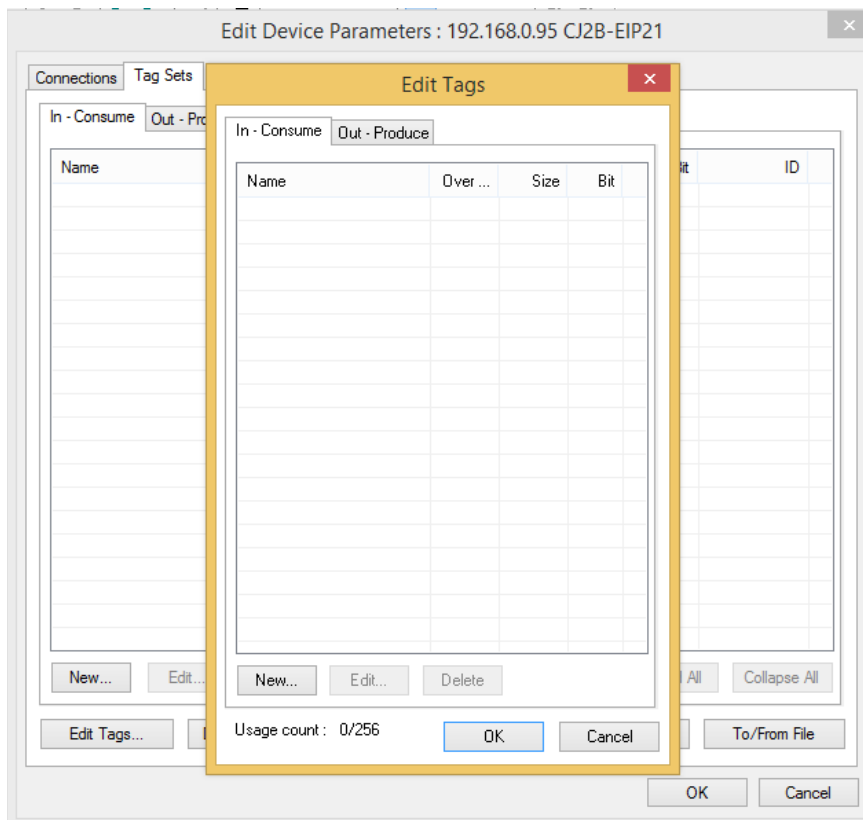
9. Double click on the PLC icon to edit the device parameters. Choose the safety controller from the “Unregister Device List”, then click the down arrow to send it to the “Register Device List”.



10. Click on the “Tag Sets” tab (to see the window below), then click the “Edit Tags...” button.



11. Choose the “In- Consume” tab, then click “New”.



12. Choose an appropriate type and size CPU Data Area. In our case, the safety controller will be sending out 16-bit words, so the DM area works. Choose a number of bytes equal to the desired EIP assembly instance. Here we are looking at “In- Consume” (from the PLC’s point of view), which is the T→O assemblies. See the **SC22-3E Industrial Ethernet User’s Guide**, section 2.3 for more information on the assembly objects. Your choices are:

- a. 100 (0x64), size 8 bytes
- b. 101 (0x65), size 84 bytes
- c. 102 (0x66) [Error Log Only], size 280 bytes

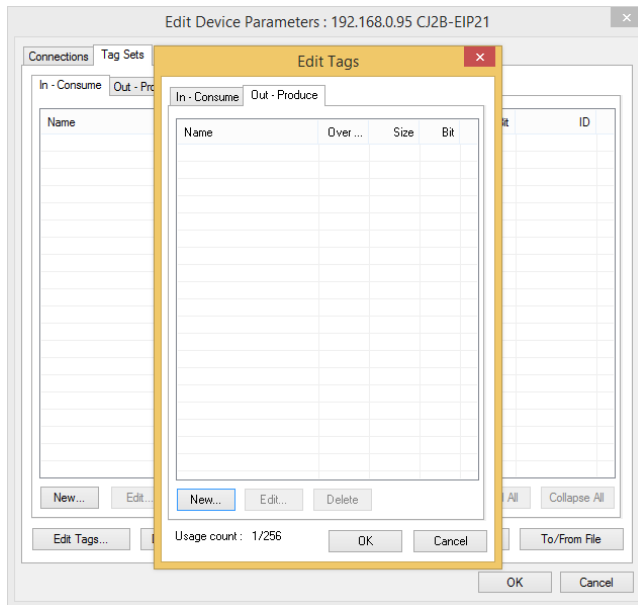
The screenshot shows the 'Edit Tags' dialog box. The 'In - Consume' tab is active. A table with columns 'Name', 'Over ...', 'Size', and 'Bit' is present. An 'Edit Tag' sub-dialog is open, showing the following fields and options:

- Name: D00000
- Size: 8 Byte
- ☐ Use Bit Data
- Bit Size: 0 Bit
- Over Load: ☐ Disable, ☒ Enable

Buttons 'Regist' and 'Close' are at the bottom of the 'Edit Tag' sub-dialog. The main 'Edit Tags' dialog has buttons 'New...', 'Edit...', and 'Delete' at the bottom, along with 'Usage count: 0/256', 'OK', and 'Cancel' buttons.

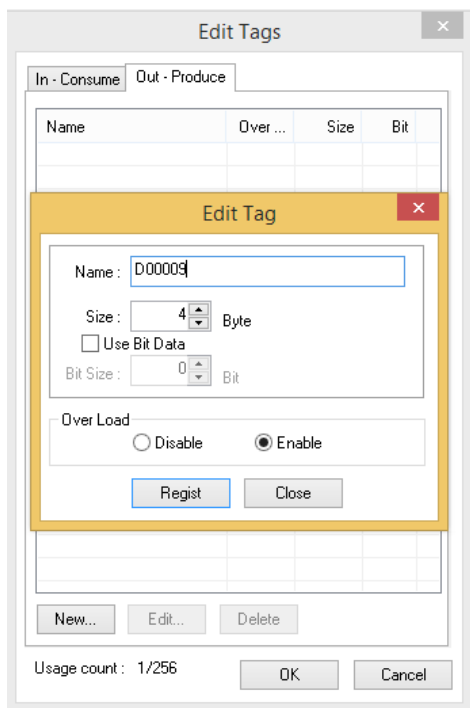
13. After filling in the Name (remember that this refers to a CPU Data Area on the PLC) and size in bytes, click the “Regist” button, then click “Close”.

14. Click on the Out- Produce tab, then click “New”.

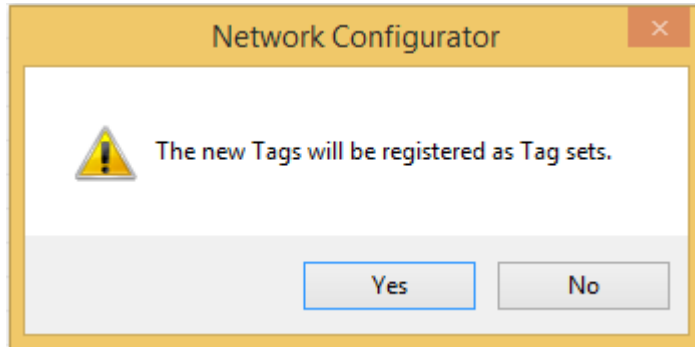


15. Choose an appropriate type and size CPU Data Area. In our case, the safety controller does not use PLC outputs/safety controller inputs, but we have an assembly to use in this case. That assembly has two 16-bit words, so the DM area works. Your only choice is:

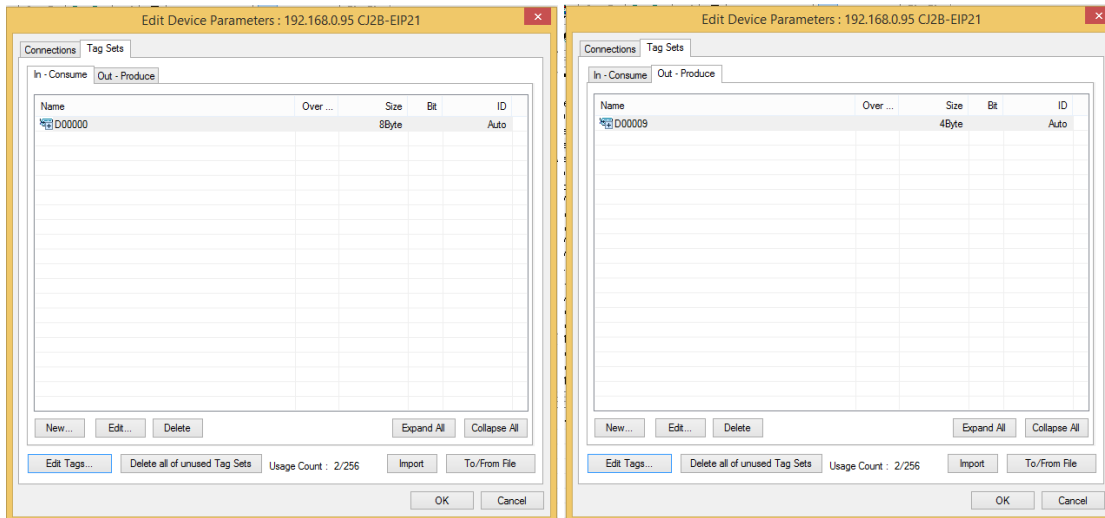
- 112 (0x70), size 4 bytes



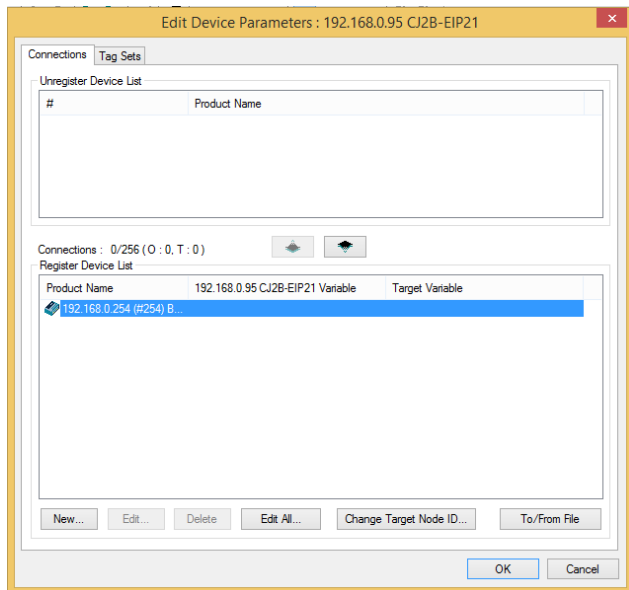
16. After filling in the Name (remember that this refers to a CPU Data Area on the PLC) and size in bytes, click the "Regist" button, then click "Close".
17. Click OK on the Edit Tags window, then click Yes when the software tells you "The new Tags will be registered as Tag sets."



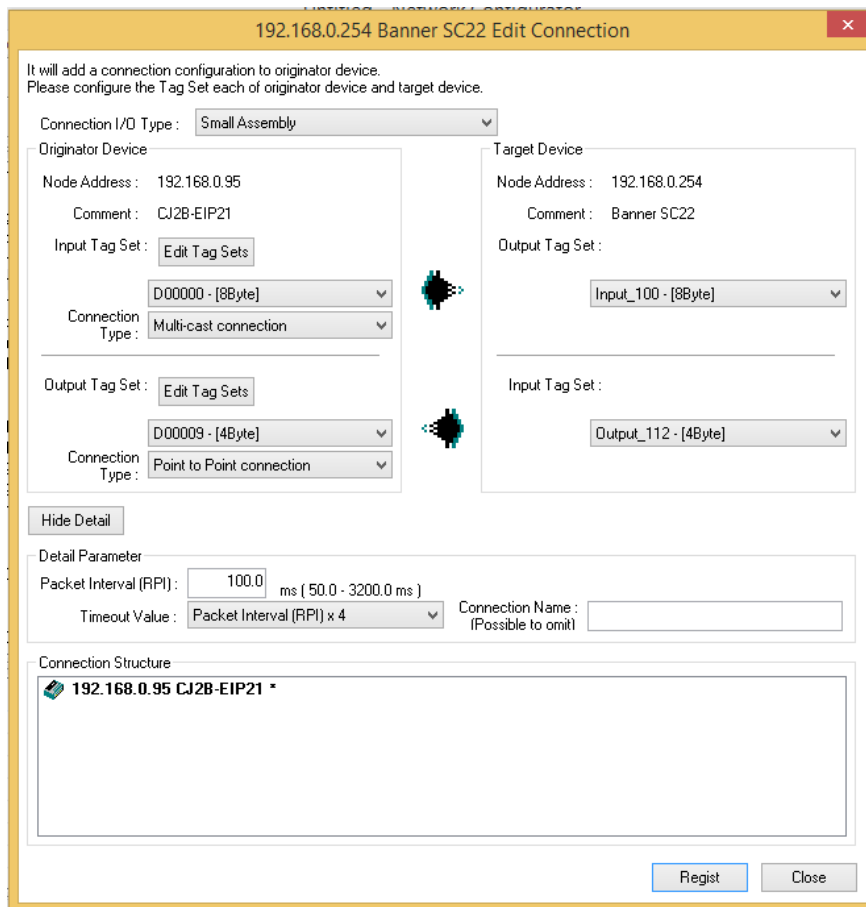
18. Double check the tags by clicking on both the In- Consume and Out- Produce tabs.



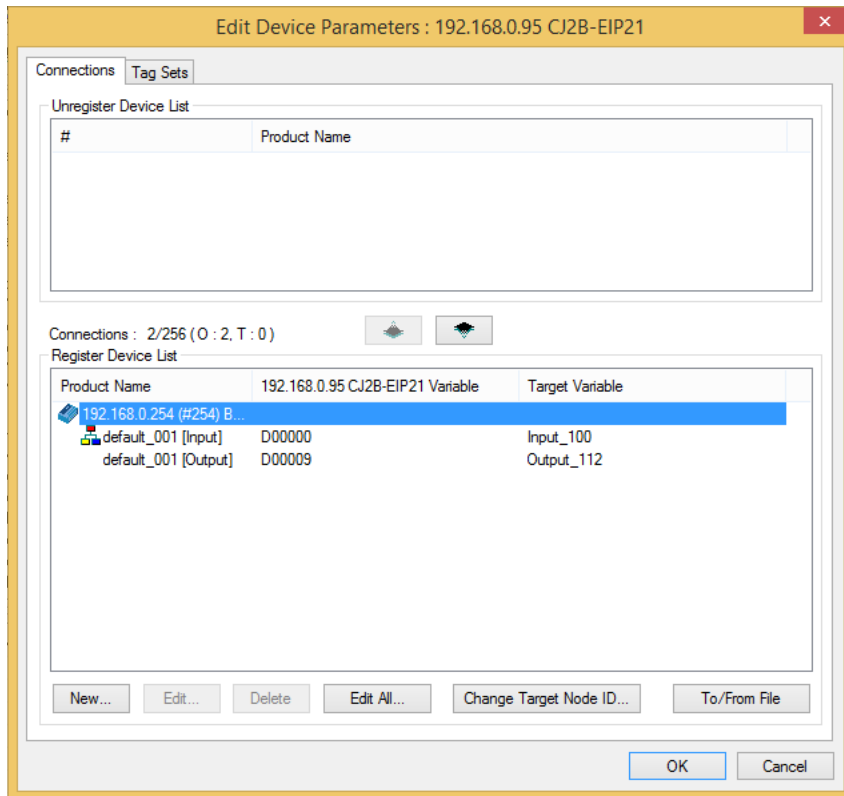
19. Go back to the “Connections” tab (to see the window below) then double click on the safety controller seen in the “Register Device List” to bring up the Edit Connection window.



20. Fill in the connections and RPI, then click “Regist”, then “Close”.



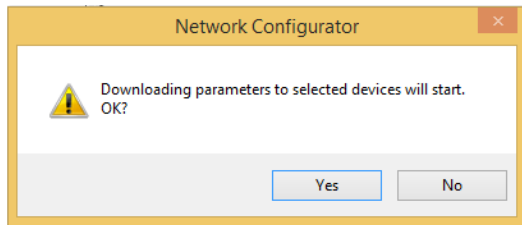
21. Now click "OK".



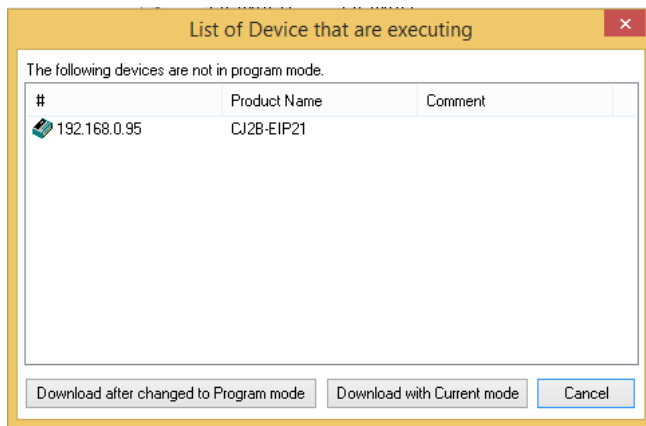
22. Go online and download the configuration to the PLC.



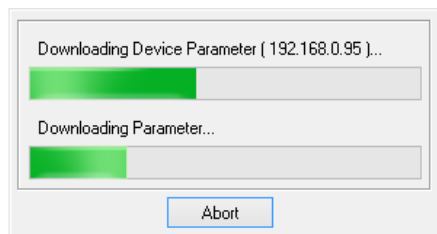
23. Click Yes.



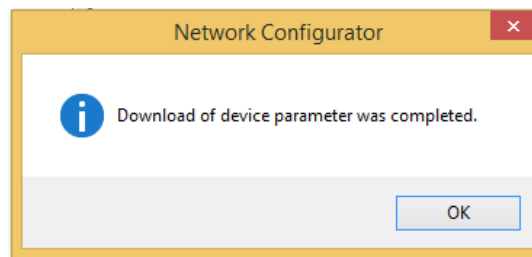
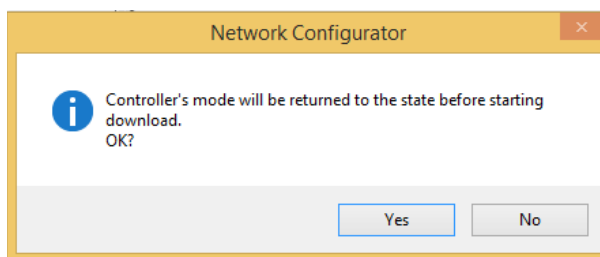
24. Choose a Download option.



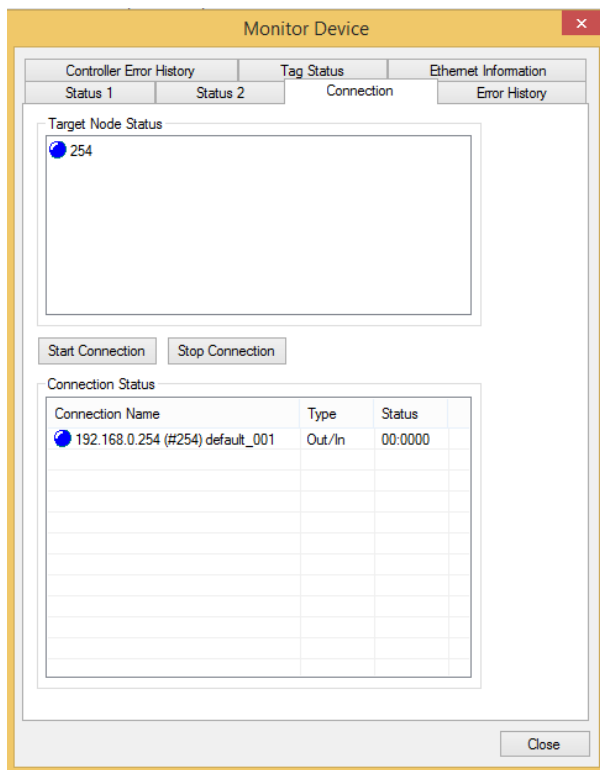
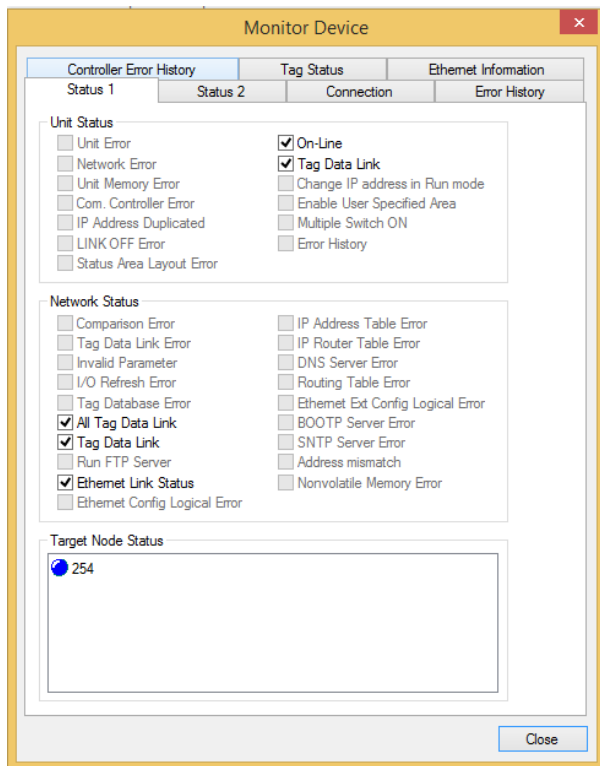
25. Downloading...



26. Click Yes, then click OK.



27. Now we can right click on the PLC icon and choose "Monitor". This window can tell us if the connection looks good. Blue icons indicate a connection running fine, without errors.



The image displays two side-by-side screenshots of the GX Developer software interface, specifically the 'Device Type Settings' and 'Change PLC' dialog boxes.

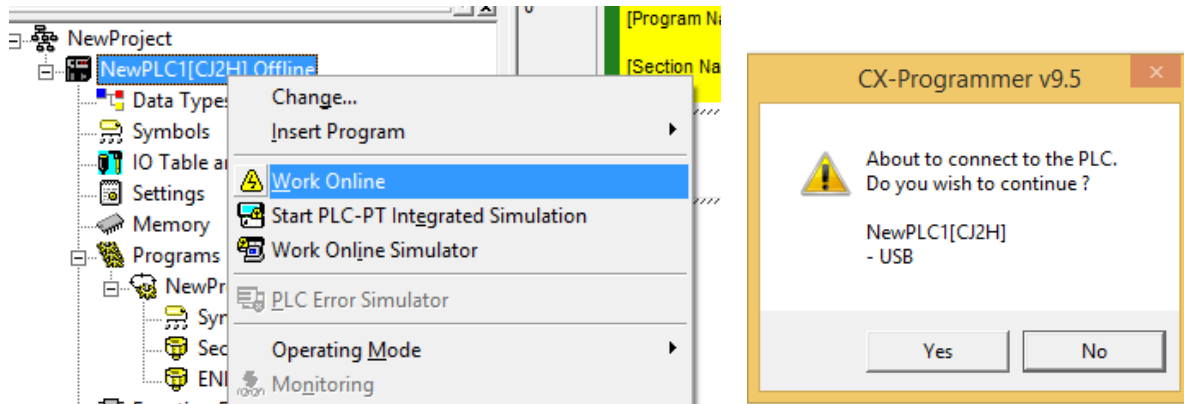
Left Window: Device Type Settings [CJ2H]

- Title Bar:** Device Type Settings [CJ2H] (Yellow background, red close button).
- General Tab:** Selected.
- CPU Type:** Dropdown menu showing 'CPU64-EIP'.
- Total Program Area Size:** Dropdown menu showing '50K [Step]' and a 'Read Only' checkbox.
- Expansion Memory:** Dropdown menu showing '32KW [4 Banks]' and a 'Read Only' checkbox.
- File Memory:** Dropdown menu showing 'None' and a 'Read Only' checkbox.
- Timer / Clock:** Check box labeled 'Installed' is checked.
- Buttons:** 'Make Default', 'OK', 'Cancel', and 'Help'.

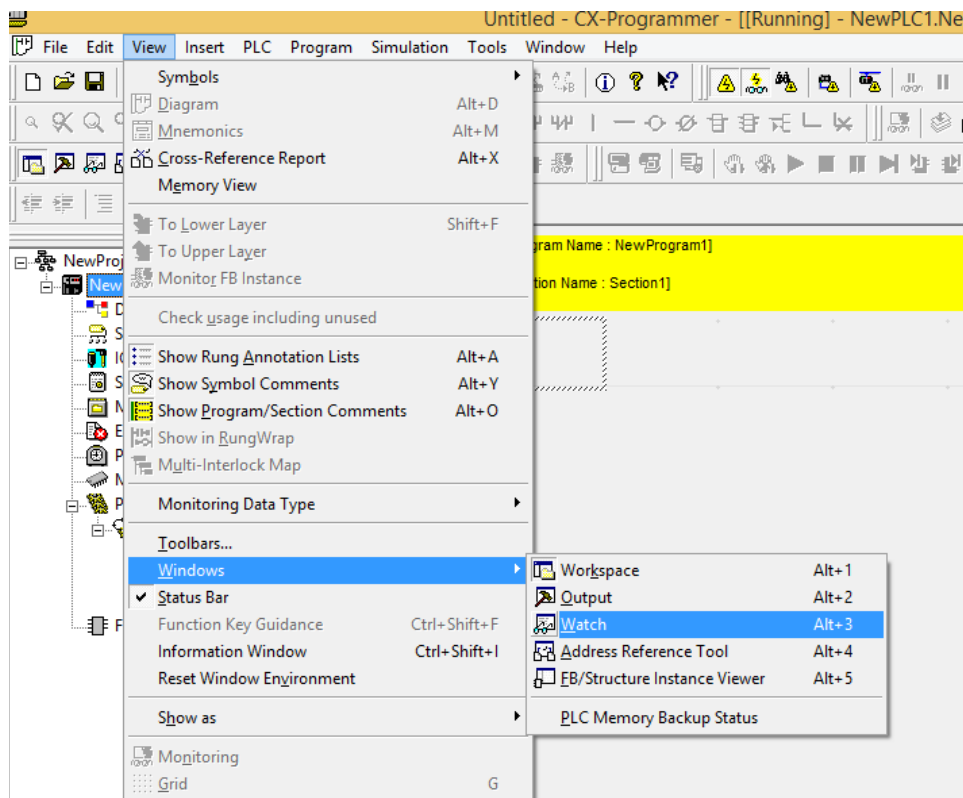
Right Window: Change PLC

- Title Bar:** Change PLC (Yellow background, red close button).
- Device Name:** Text field containing 'NewPLC1'.
- Device Type:** Dropdown menu showing 'CJ2H' and a 'Settings...' button.
- Network Type:** Dropdown menu showing 'USB' and a 'Settings...' button.
- Show all:** Check box is unchecked.
- Comment:** Large text area for entering comments.
- Buttons:** 'OK', 'Cancel', and 'Help'.

30. Go Online with the PLC. Click Yes.



31. Go to View→Windows→Watch



32. Click on the top line in the Watch window.

PLC Na...	Name	Address	Data Type / Format	FB Usage	Value	Value(...	Comment

33. Add some registers to the watch window.

Edit dialog

PLC: NewPLC1

Name or address: D00000 Browse...

Data Type / Format: INT (Signed Decimal,Channel)

OK Cancel

PLC Na...	Name	Address	Data Type / Format	FB Usage	Value	Value(Binary)	Comment
NewPLC1		D0	INT (Signed Decimal,Channel)		+1	0000 0000 0000 0001	
NewPLC1		D1	INT (Signed Decimal,Channel)		0	0000 0000 0000 0000	
NewPLC1		D2	INT (Signed Decimal,Channel)		0	0000 0000 0000 0000	
NewPLC1		D3	INT (Signed Decimal,Channel)		0	0000 0000 0000 0000	

In the watch window above, we see 4 registers of Safety Controller Output (PLC Input) data. Notice how Virtual Output #1 is currently on (D0 register, bit 0).