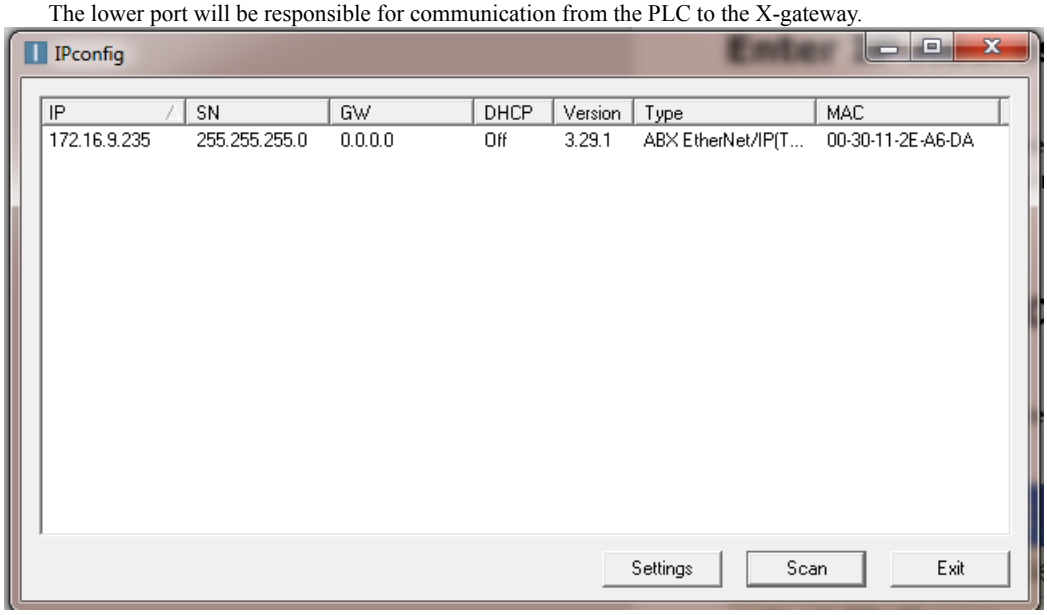
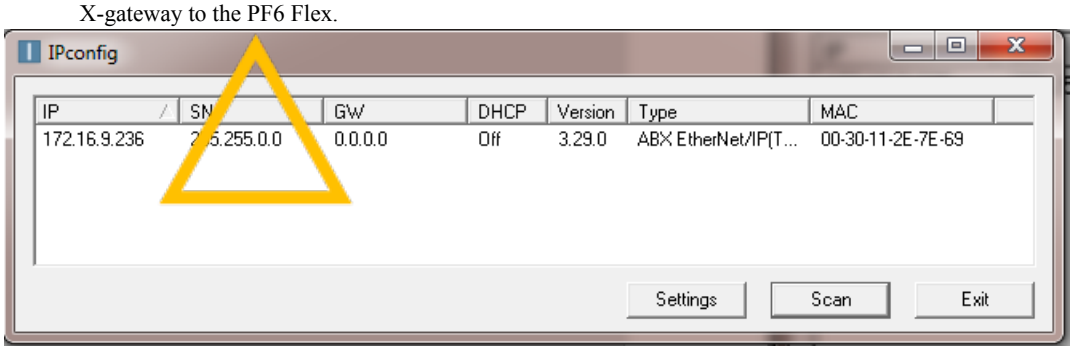
Enter IP Addresses for the X-Gateway

- Configure the Ethernet ports of the X-gateway using IP Config. Connect your laptop to the lower port of the X-gateway and start IP Config. Scan and Set the IP address by double clicking on the correct MAC address. The lower port will be responsible for communication from the PLC to the X-gateway.

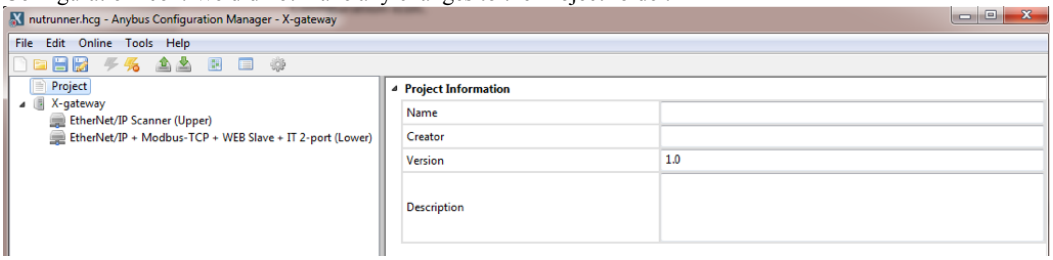


- Connect your laptop to the upper port of the X-gateway and start IP Config. Scan and Set the IP address by double clicking on the correct MAC address. The upper port will be responsible for communication from the X-gateway to the PF6 Flex.

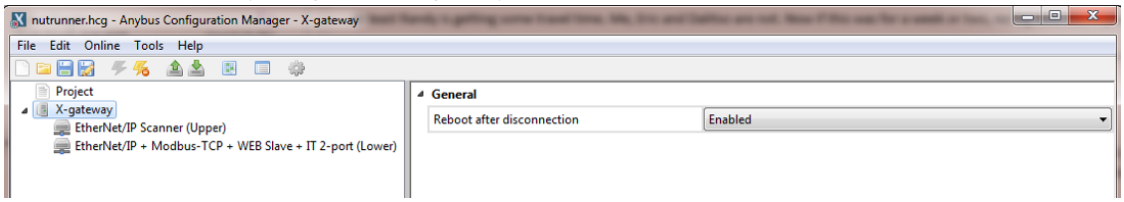


Configuration for the X-Gateway

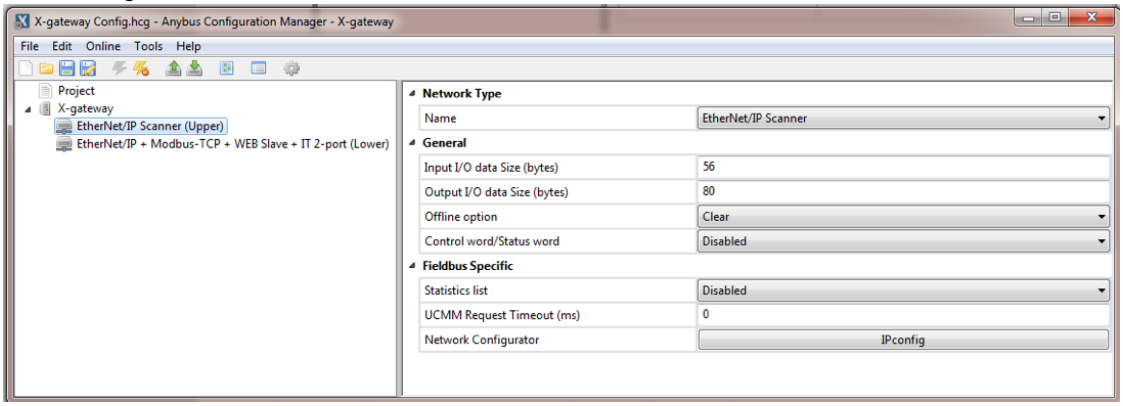
- Start the Anybus Configuration Manager – X-gateway. Connect the USB cable to the USB port on the front of the X-gateway. Select Online and then Connect or select the Lightning Bolt icon. Next upload the current config from the X-gateway by selecting Online and then Upload Configuration or select the Upload Configuration icon. We did not make any changes to the Project folder.



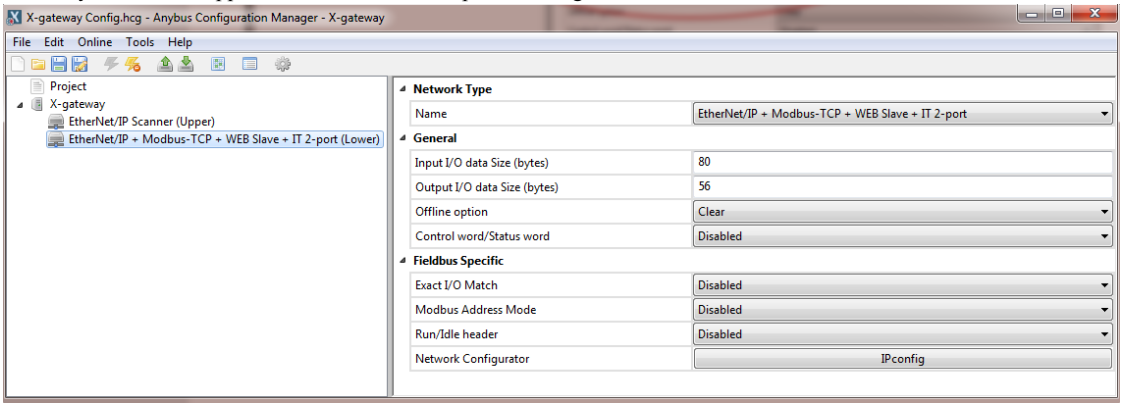
- We did not make any changes to the X-gateway folder.



- EtherNet/IP Scanner (Upper) folder should have the following parameters. The Input and Output size is in bytes, so 56 and 80 are required to match the 28 words and 40 words programmed in the PLC. The IPconfig selection always seems to show the same IP regardless if you have the upper or lower selected, so please disregard.

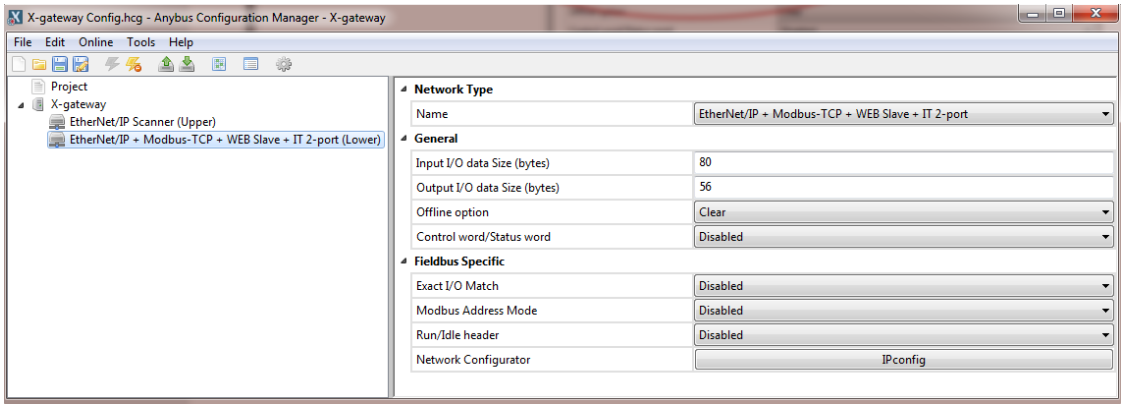


- EtherNet/IP Scanner (Lower) folder should have the following parameters. The Input and Output size is in bytes, so 80 and 56 are required to match the 40 words and 28 words programmed in the PLC. Change the Modbus Address Mode to Disabled. The IPconfig selection always seems to show the same IP regardless if you have the upper or lower selected, so please disregard.



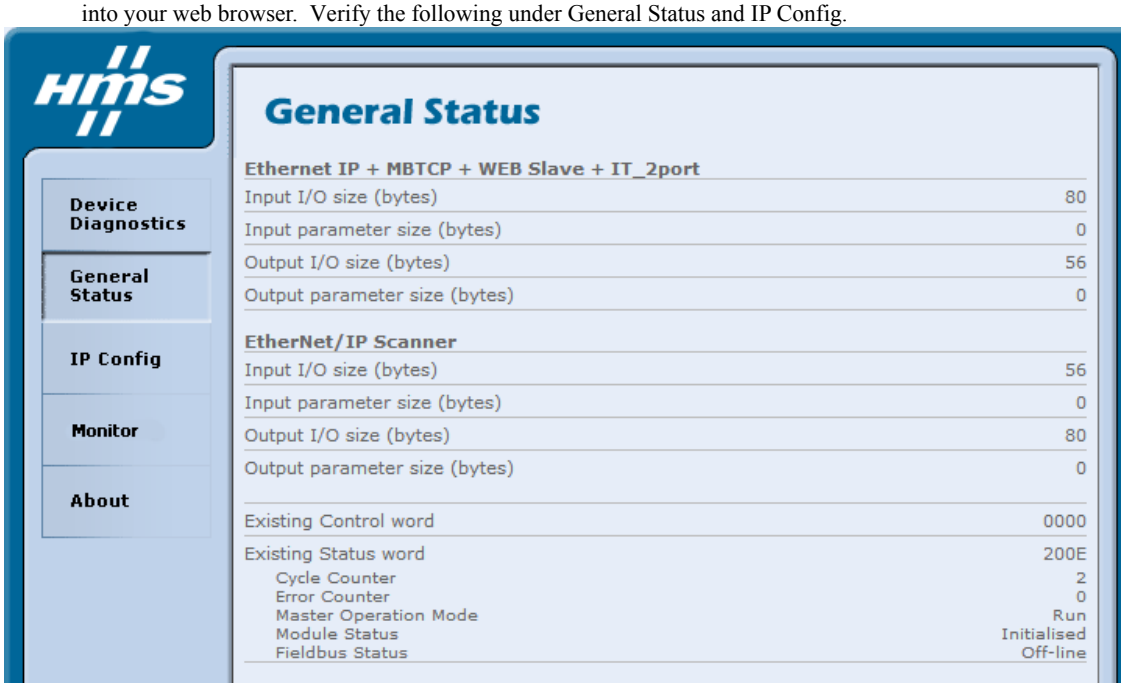


- Next download the current config to the X-gateway by selecting Online and then Download Configuration or select the Download Configuration icon.

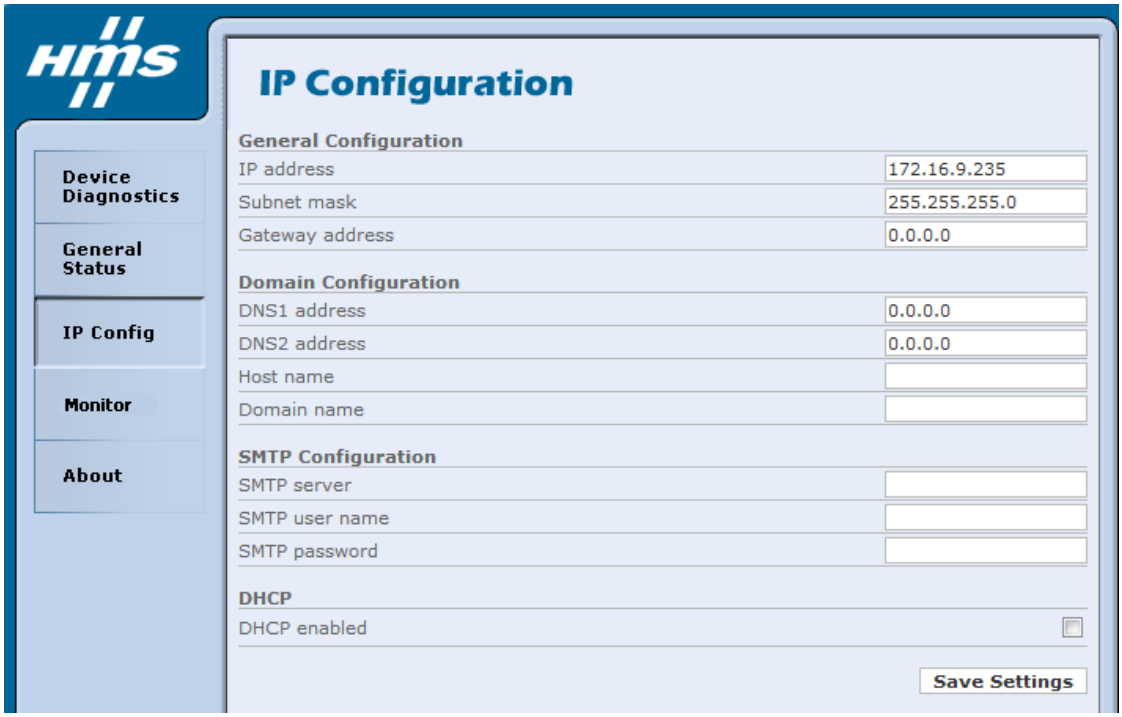


- FYI…It seemed as though every time I would reconnect to the X-gateway through this tool, I would have to upload the config before I could make changes and download.
- Please leave this program running as we will need it in a few moments to put the module into Idle Mode to finish the configuration.

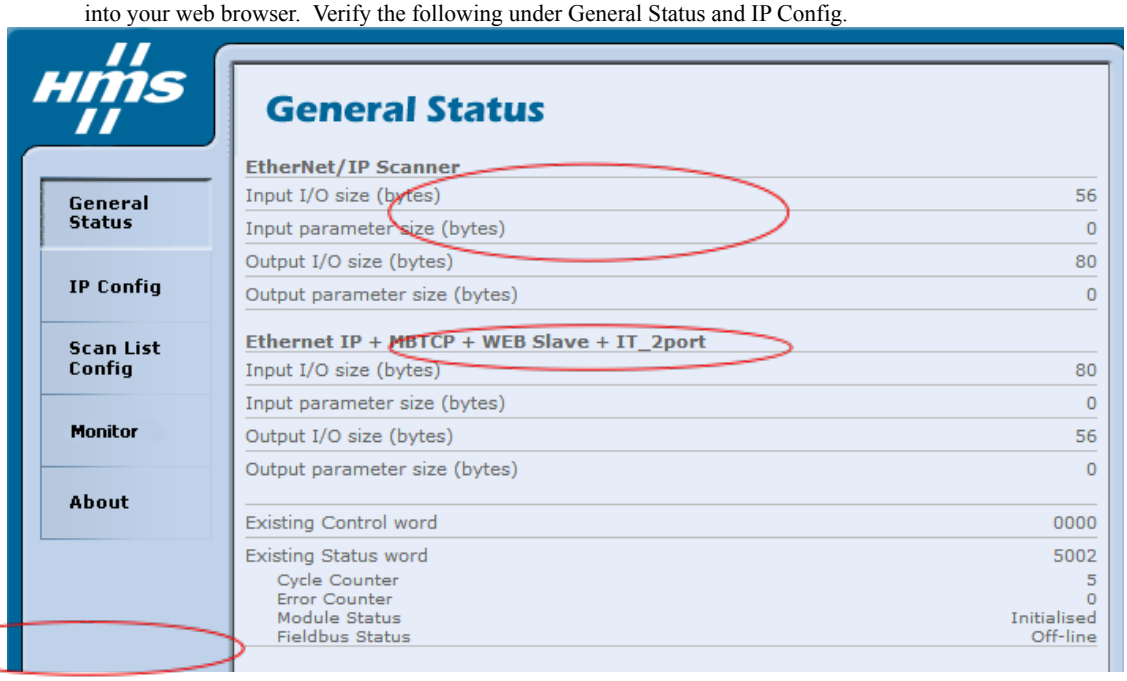
- Connect your laptop to the lower port of the X-gateway again and enter the IP address you configured earlier into your web browser. Verify the following under General Status and IP Config.



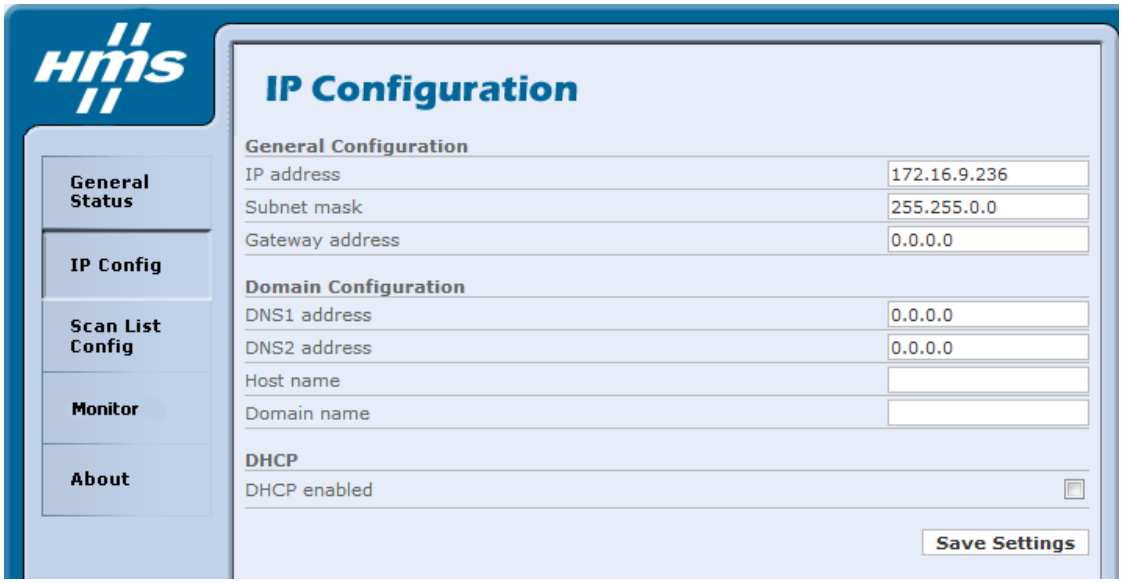
This should be your IP address



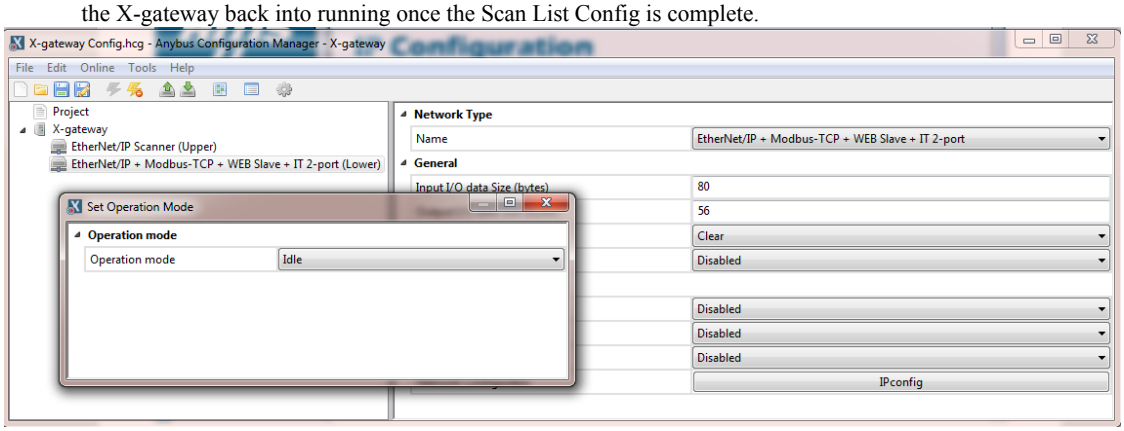
- Connect your laptop to the upper port of the X-gateway again and enter the IP address you configured earlier into your web browser. Verify the following under General Status and IP Config.



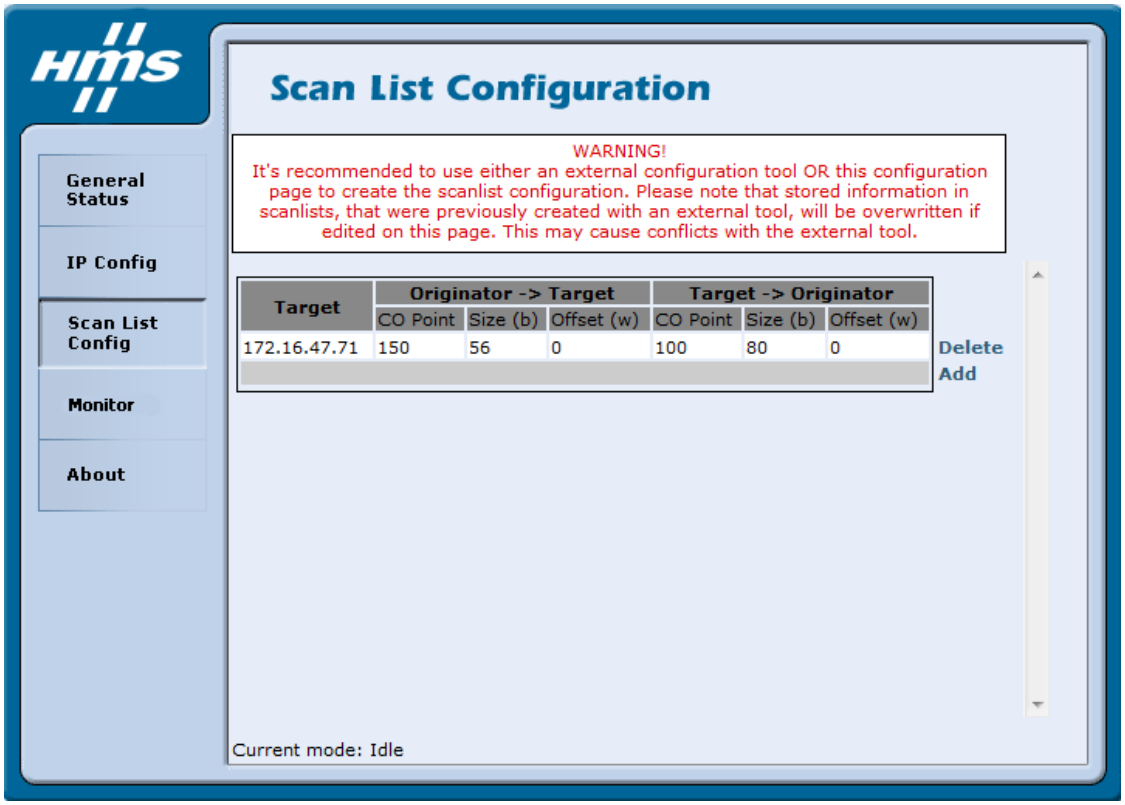
This should be your IP address



- Scan List Config can only be updated when the X-gateway is in Idle mode. This is done with the Anybus Configuration Manager – X-gateway that we used a few moments ago. Select Tools, Set Operation Mode and then select Idle for the Operation Mode. Again, leave this program running because we will be using it to put the X-gateway back into running once the Scan List Config is complete.

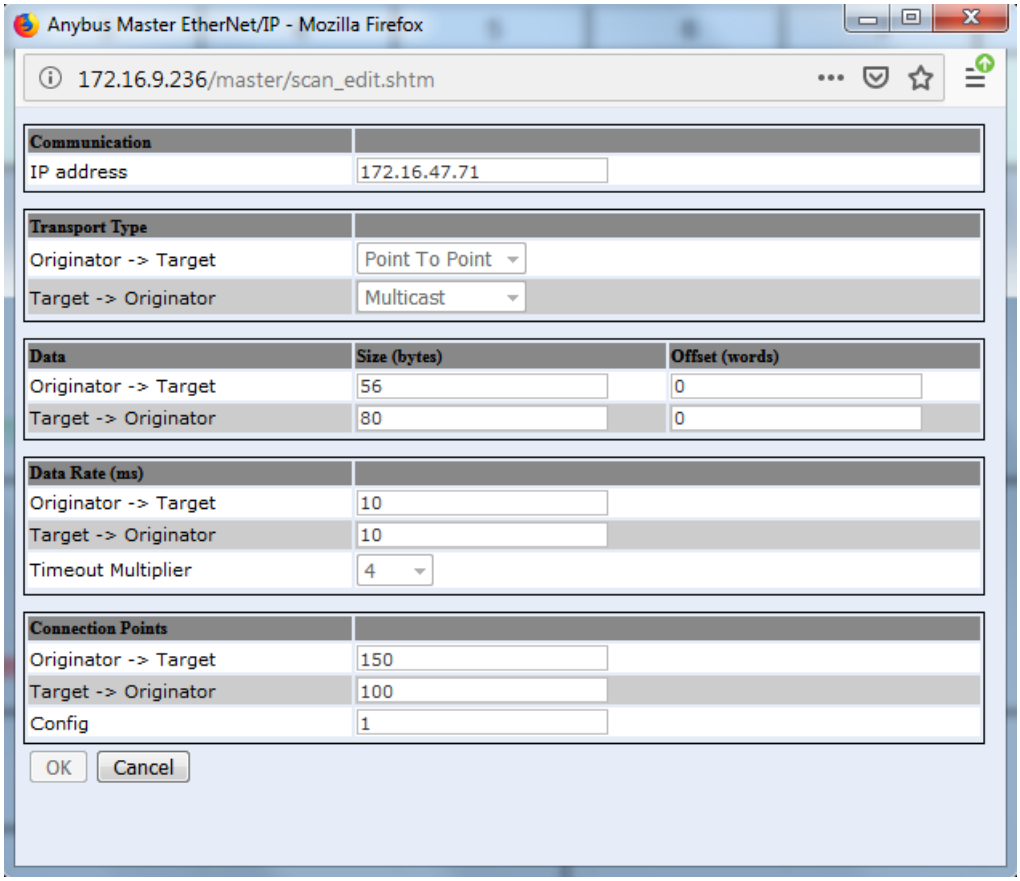


- Back to the web interface again and select Scan List Config. Your X-gateway will not have an existing target like the picture below. These screens don't necessarily update real time… so selecting a different tab and then coming back to the tab you want is sometimes necessary. Verify that your Current mode is Idle. Select Add.

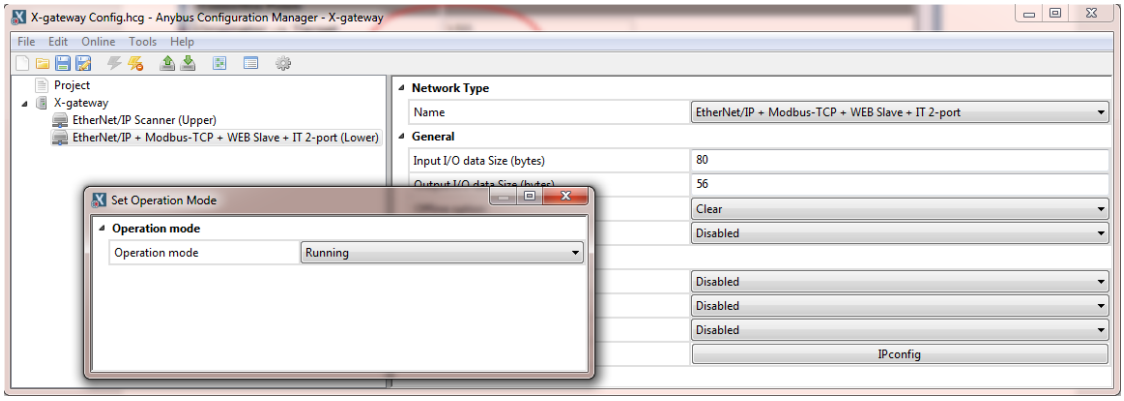


- Enter the Config as shown below
  - Enter the IP address of the PF6 Flex
  - Select Multicast for Target -> Originator
  - Enter 56 bytes to PF6 Flex
  - Enter 80 bytes from PF6 Flex
  - Enter 10ms for the Data Rate
  - Enter 150 and 100 for the Connection Points
  - Select OK

This should be your IP address

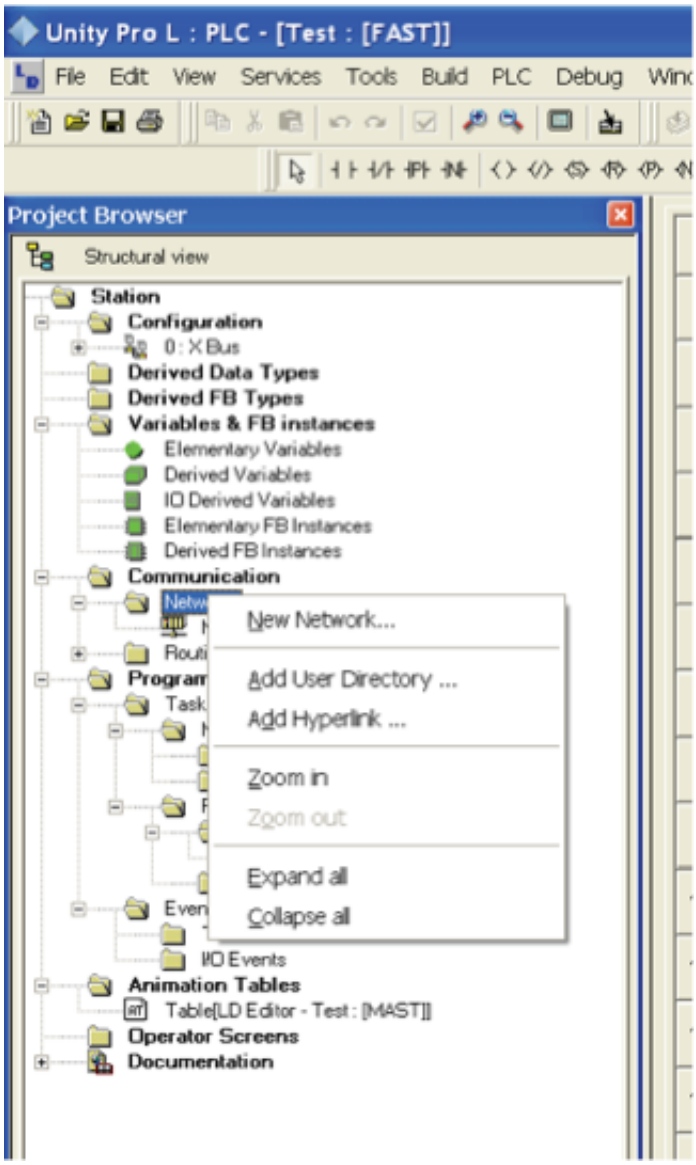


- Return to the Anybus Configuration Manager – X-gateway and put it back into run mode.

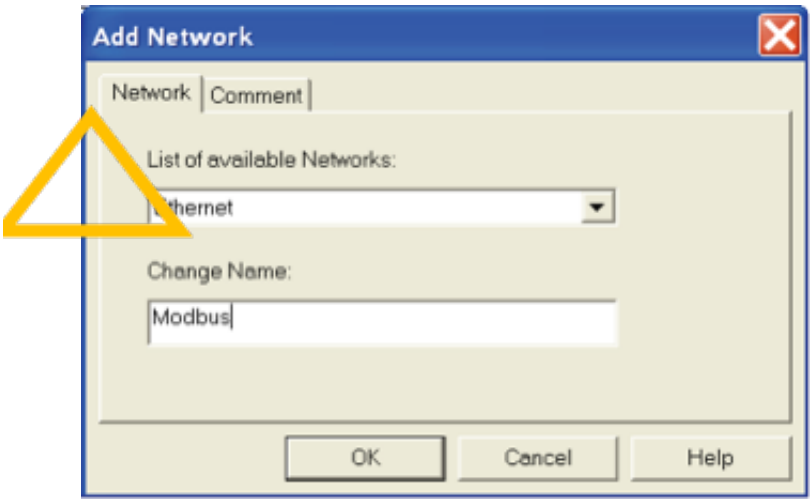


The Modbus-TCP network configuration

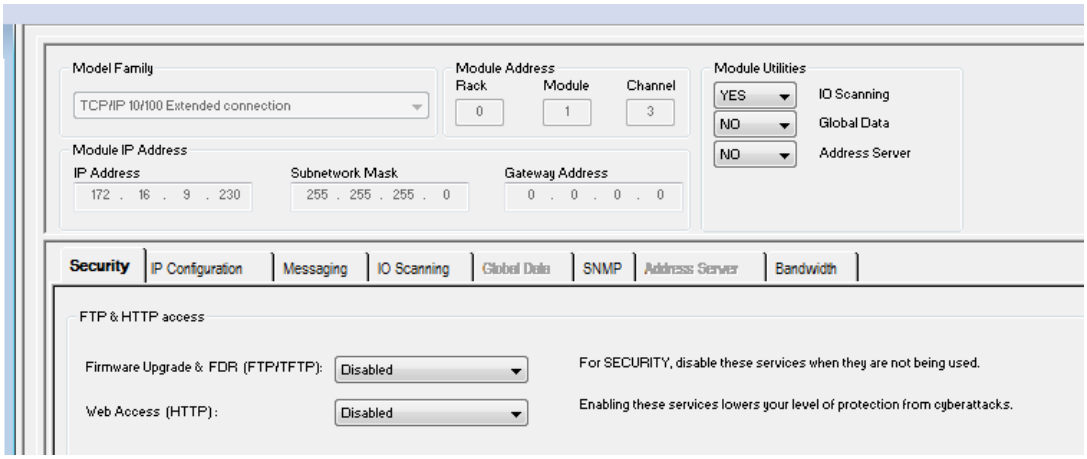
- Configure the Ethernet module. Right click on Networks in the navigation list to the left and select new network.



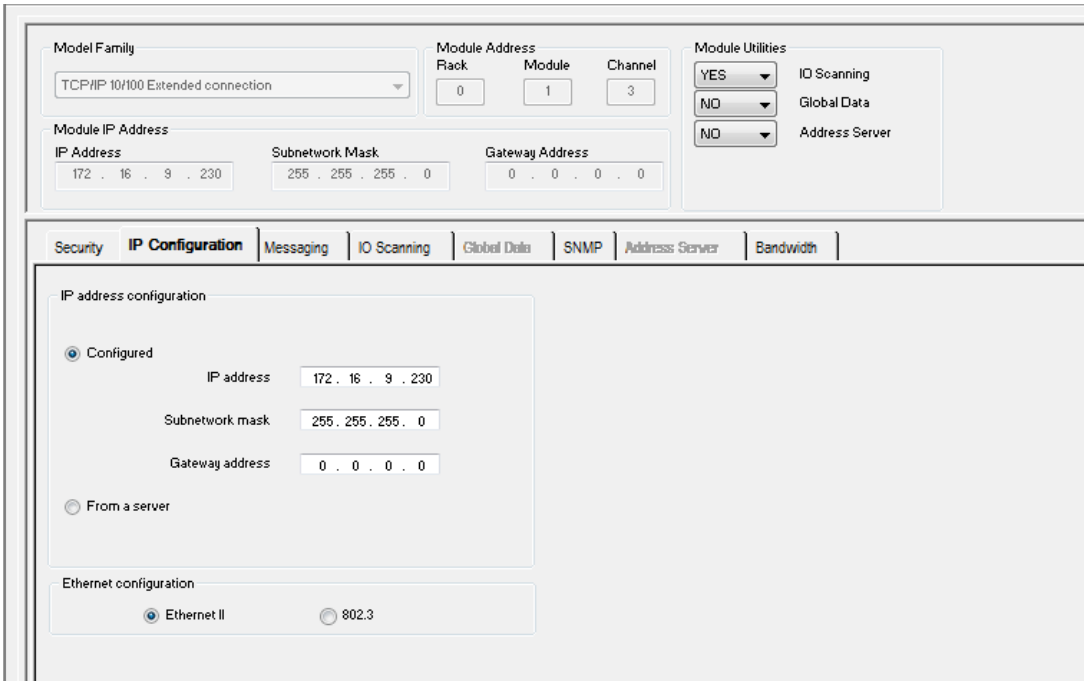
- Select Ethernet and choose a name. In this case the network is named Modbus.



- Select TCP/IP 10/100 Extended connection
- Select Yes for I/O scanning.



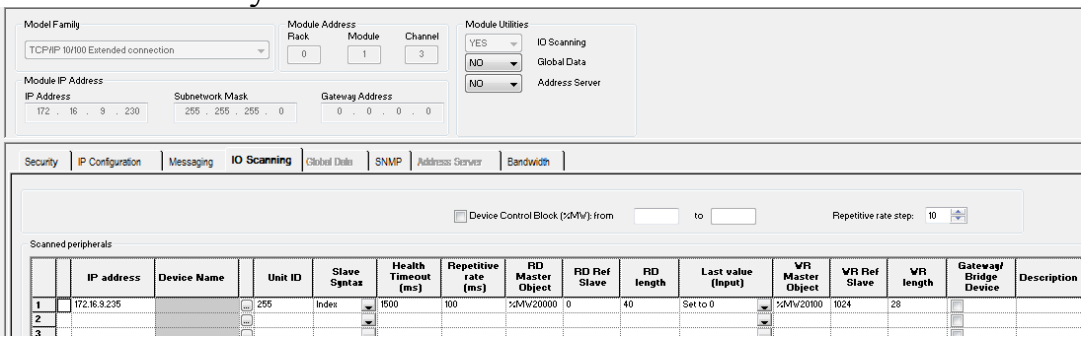
- Select IP Configuration tab
    - Enter the IP address and Subnet mask for the PLC



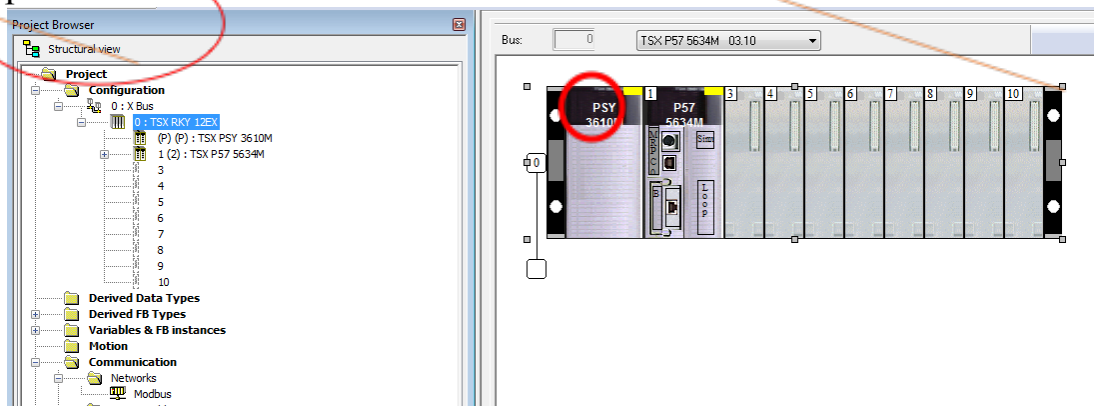
- Select IO Scanning tab and enter the config for communication to the X-gateway lower module.
    - Enter IP address of the lower Modbus-TCP portion of the X-gateway.
    - For RD Master Object, be careful to choose 40 words of unused memory space. The assigned words will serve as the inputs to the PLC.
    - RD length is the 40 words the PF6 Flex will output to the PLC.
    - For WR Master Object, be careful to choose 28 words of unused memory space. The assigned words will serve as the

outputs from the PLC.

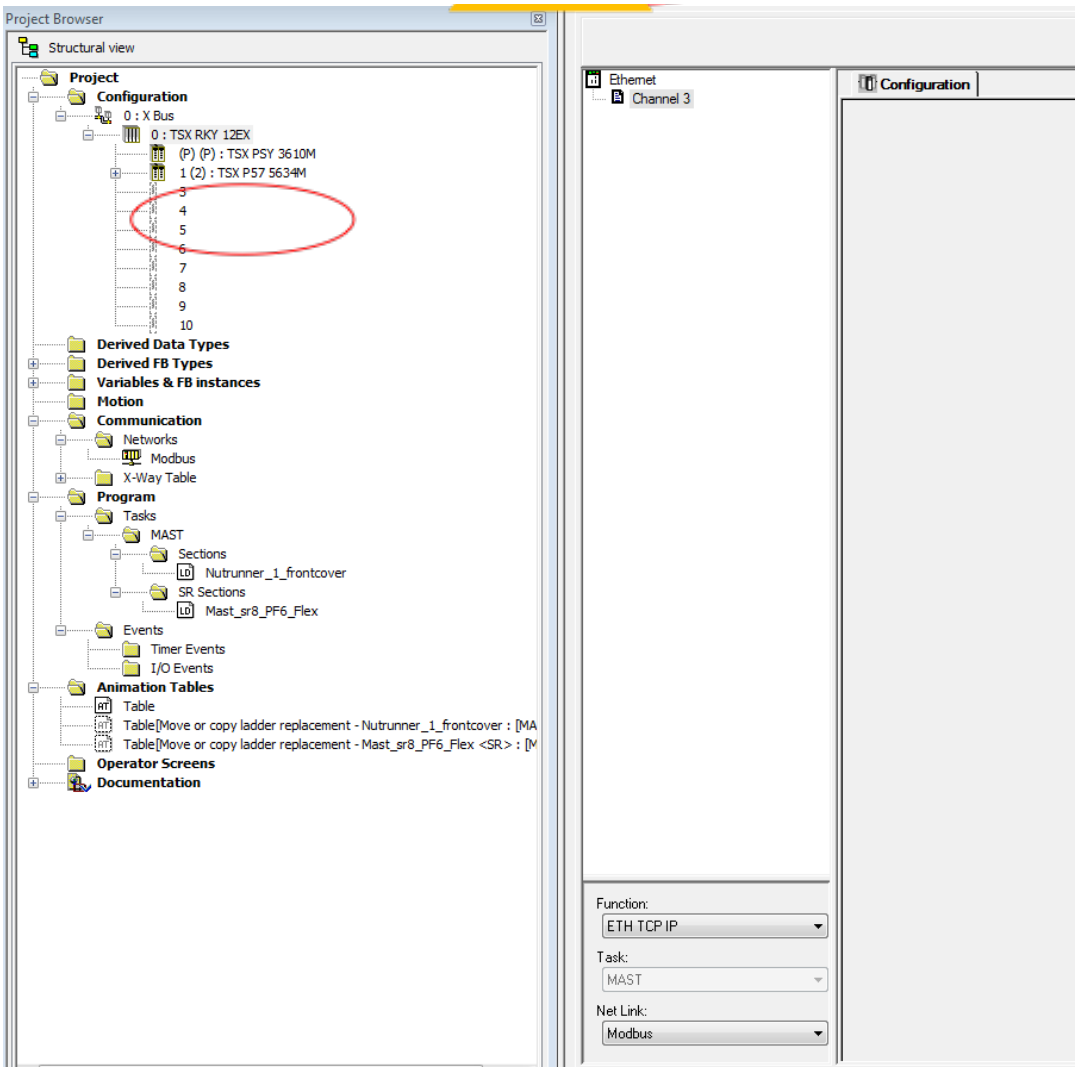
- WR length is the 28 words that the PLC will output to the PF6 Flex.
- I am not sure what the RD Ref Slave or WR Ref Slave are, but a doc we found says 0 and 1024 without explanation and it seems to work.
- The other parameters seem to fill themselves in and appear to be very reasonable.



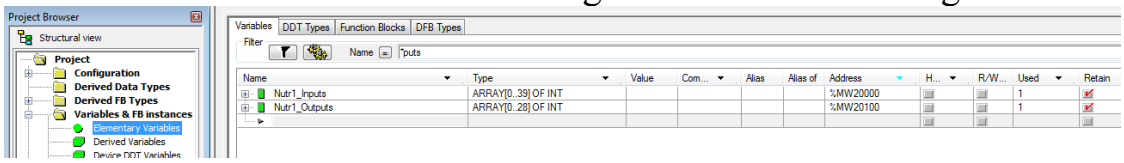
- Make sure to close this window when complete. Unity will not allow you to save the project with this config open.
-
- The next step is to open the configuration in the left navigation list and double click on the PLC Rack. Double click on the Ethernet port of the PLC as seen below.



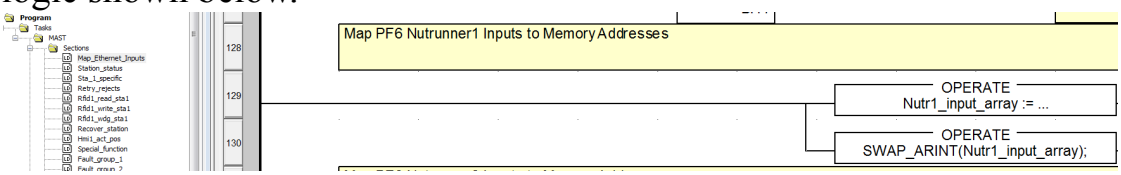
- Select the Modbus communication config that was just created.



- Next, create the variables for the inputs and outputs to the PF6 Flex. Use the addresses that were assigned in the I/O scanning

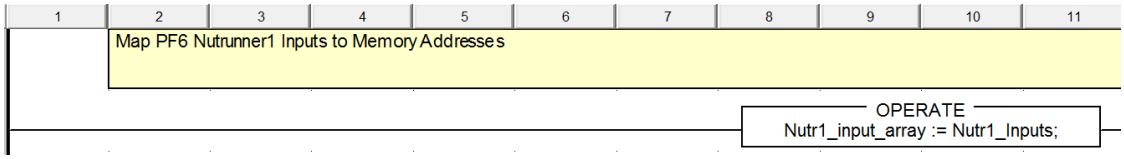


- We will be replacing the existing logic that sends and receives I/O from the PF6 Flex. Open Map_Ethernet_Inputs and replace the logic shown below.

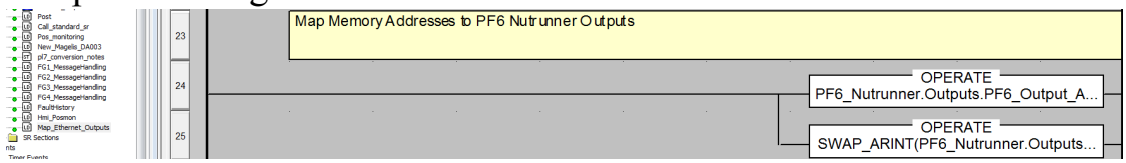


- Replace with this logic. The SWAP is no longer needed.

  Nutr1_input_array (Array of 40 Ints starting at %MW19200) should already exist and Nutr1_Inputs is a new variable we just created.



- Do the same for the Outputs. Open Map_Ethernet_Outputs and replace the logic shown below.



- Replace with this logic. The SWAP is no longer needed.

  Nutr1_output_array (Array of 28 Ints starting at %MW19240) should already exist and Nutr1_Outputs is a new variable we just created.

