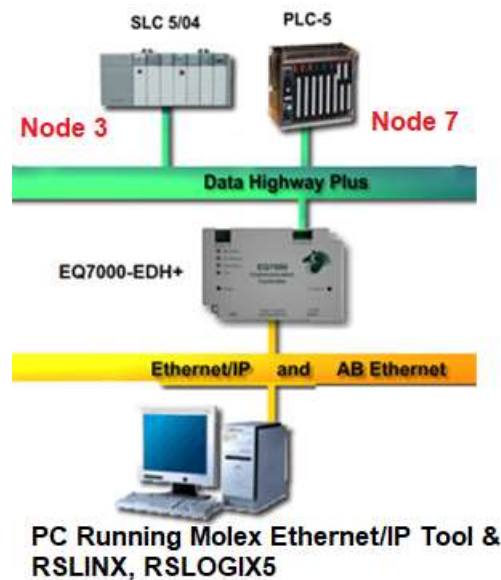


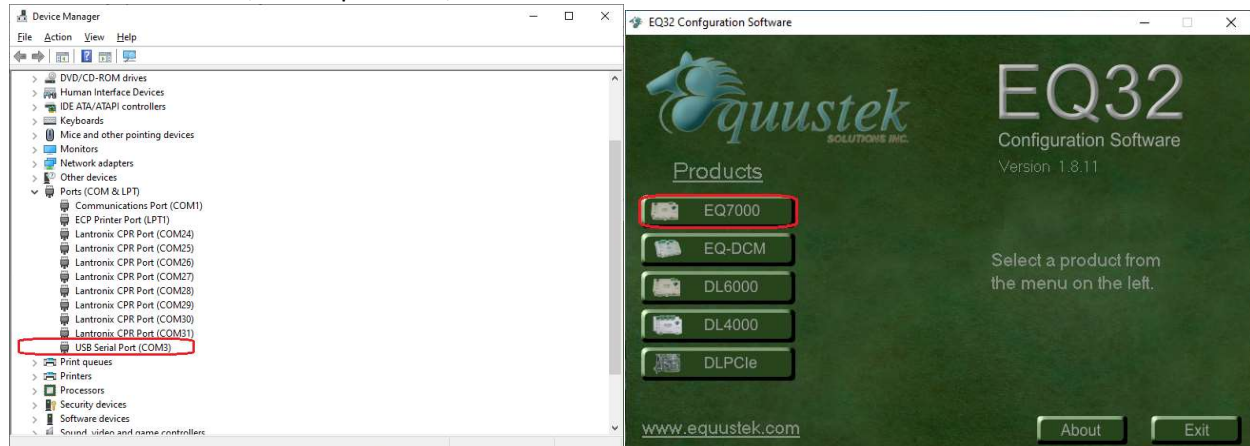
Moxel Ethernet/IP Tool getting data from SLC504 and PLC5 Using EQ7000-EDH+ on DH+ network

Setup for this application note, consisted of a SLC/504 and a PLC5 on a DH+ network with Equustek EQ7000-EDH+ and a PC with RSLINX and RSLOGIX 500 as well as Moxel Ethernet IP Tool on Allen Bradley Ethernet and Ethernet IP side of the EQ7000.

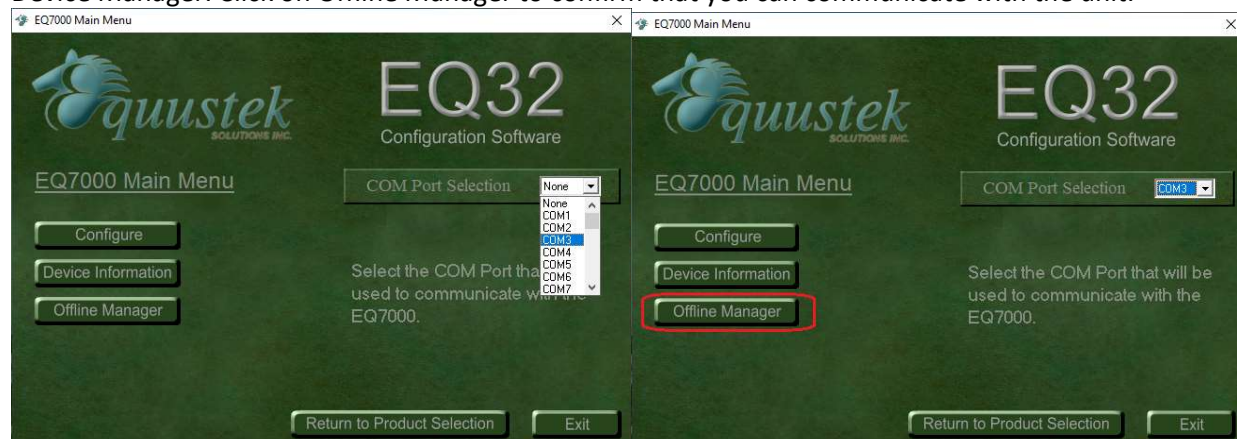


This application note includes configuring the EQ7000-EDH+ using Equustek EQ32 configuration software, going online using Allen Bradley RSLINX, RSLOGIX 5 to show that data read from PLC5 & SLC504 in both the RSLINX and the Moxel Ethernet IP are same.

Power on the EQ7000 and connect it to the PC using the USB cable then open Device Manager. In Device Manager under Ports (COM & LPT) find out the USB Serial Port, in our case here is COM3. Press the configure push button switch on the right-hand side of the EQ7000 to put it in offline configuration mode (Make sure the MOD STATUS LED is flashing green). Start EQ32 software, under products, select EQ7000.



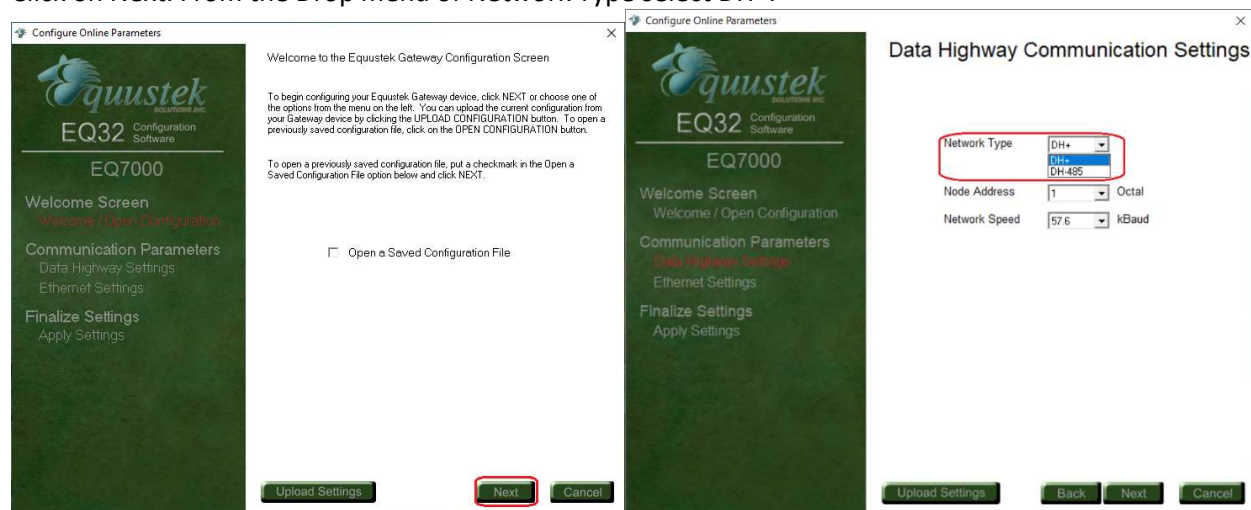
From the drop Menu of the COM Port Selection, select the USB comport previously found under the Device Manager. Click on Offline Manager to confirm that you can communicate with the unit.



Seeing the offline manager menu confirms that your USB connection is OK, click on Close. Click on Configure.



Click on Next. From the Drop menu of Network Type select DH+.



From the Drop Menu of Node Address select a node address for the EQ7000, any node address that doesn't exist. Select the DH+ Baud rate of the Data Highway Plus network (Network Speed), then click on Next

The left screenshot shows the 'Data Highway Communication Settings' window. The 'Node Address' dropdown menu is open, showing a list of addresses from 1 to 10. The 'Network Speed' dropdown menu is also open, showing a list of speeds from 57.6 to 230.4. The right screenshot shows the same window, but the 'Network Speed' dropdown menu is now closed, and the '57.6' value is selected.

Type the IP address for the EQ7000 then the Subnet Mask and the Default Gateway and click on Next.

The left screenshot shows the 'Ethernet Communication Settings' window. The 'IP Address' field is filled with '192.168.2.50', the 'Subnet Mask' field is filled with '255.255.255.0', and the 'Default Gateway' field is filled with '192.168.2.1'. The right screenshot shows the same window, but the 'Next' button is highlighted.

Select Download Configuration and click on Finish. Warning message will ask to press the configure push button, you don't need to, since it was done earlier, just click on OK

Once you see the Success message click on OK.

The left screenshot shows the 'Apply Configuration Settings' window. The 'Download Configuration' radio button is selected. The right screenshot shows a 'Success!' message box with the text 'Configuration has been downloaded to the EQ7000'.

In case you encounter any error message, press the RESET push button switch on left hand side of the EQ7000 then press the Configure push button switch on the right-hand side of EQ7000 and click on Finish again in EQ32.

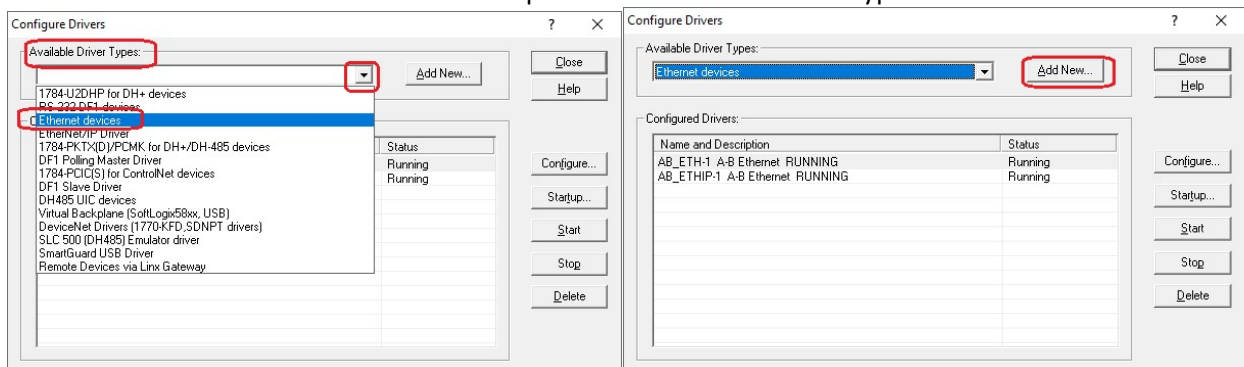
After Success configuring the unit, click on Exit to close the EQ32 software and press the Reset push button switch on the EQ7000 to put it in online operating mode.



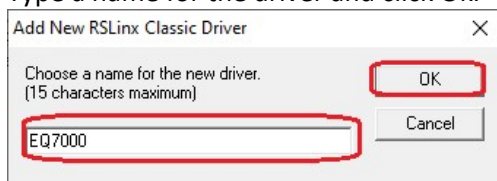
Start RSLINX and click on Configure Drivers icon



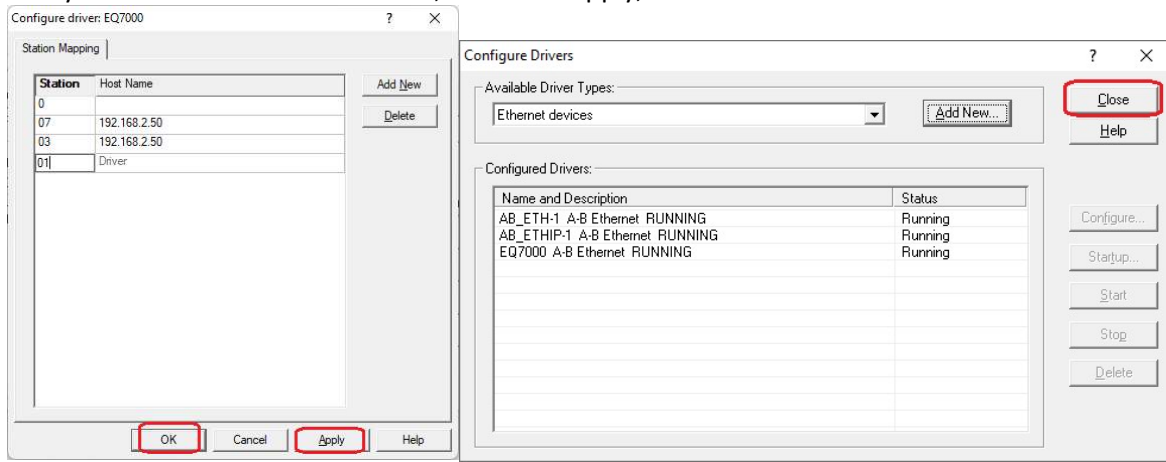
Select Ethernet Devices Driver from the drop menu of Available Driver Types. And click on Add New.



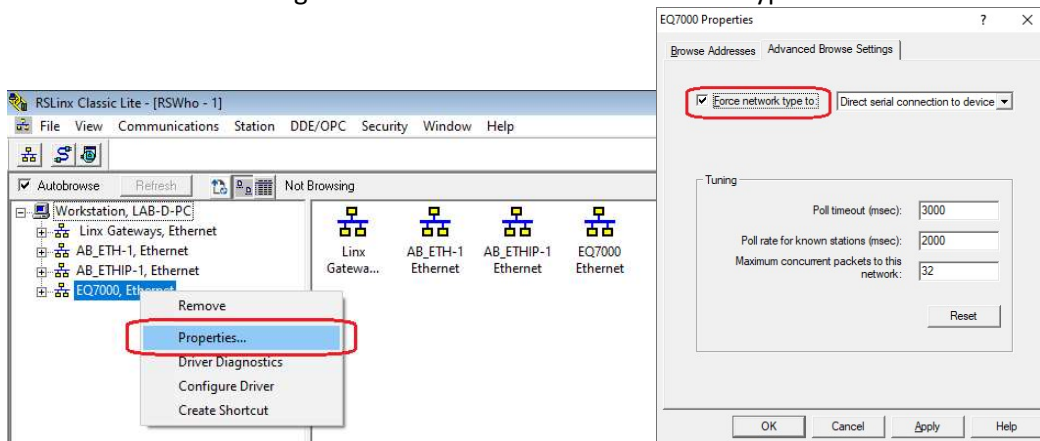
Type a name for the driver and click Ok.



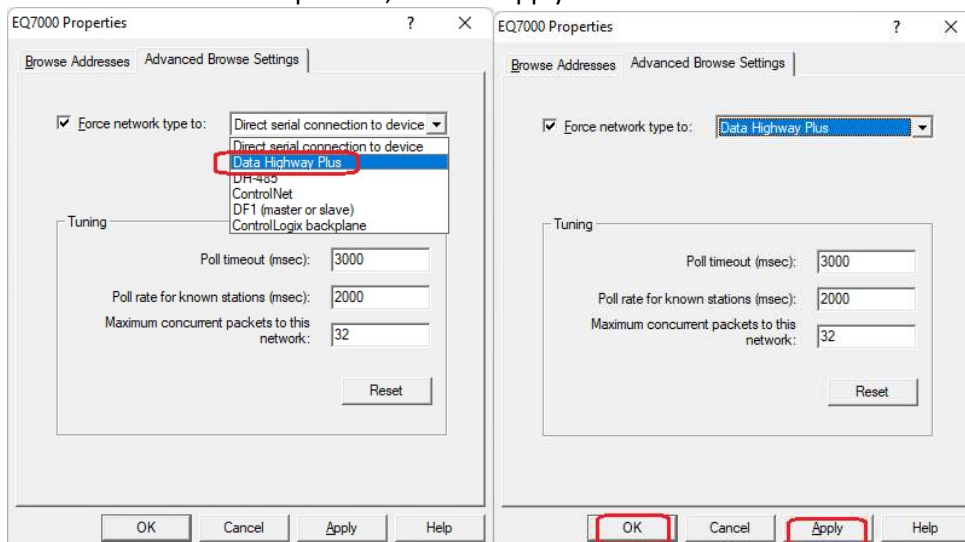
To map all the PLCs that you need to communicate with, type the Node address numbers of the SLC504 & PLC5 under Station in decimal and the IP address of the EQ7000 under the Host name, as for Driver enter the node address number of the EQ7000 under Station. Click on Apply, please map only the PLCs that you want to communicate with, then click Apply, OK then Click on close.



Open RSWHO in RSLINX, right click on the driver that was created and click on Properties. Click on Advanced Browse settings tab and check mark Force network type to

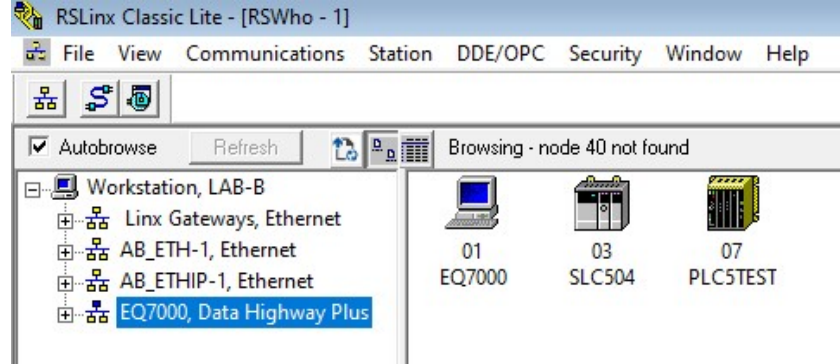


Select DH+ from the drop menu, Click on Apply then on Ok.

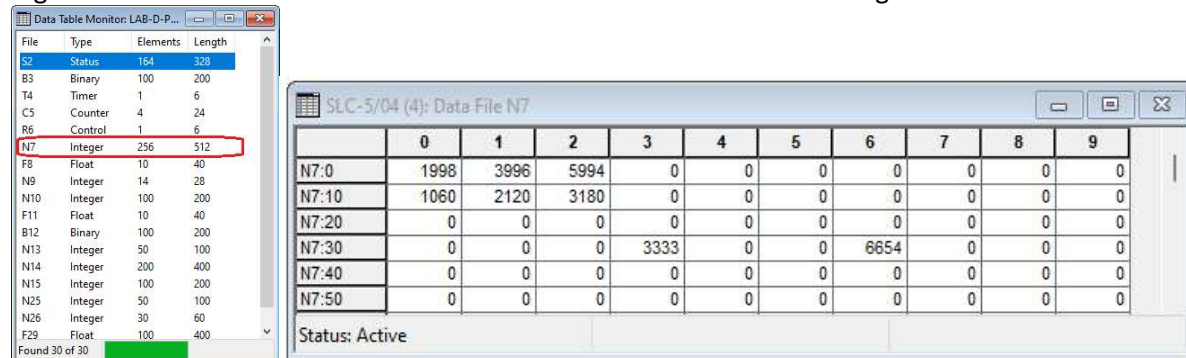


In RSLinx RSWho click on the driver that was created to browse the DH+ network.

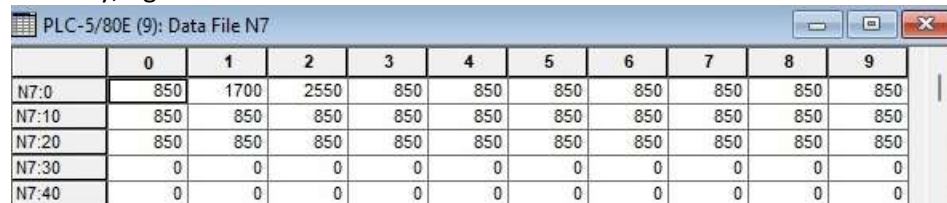
Here you can see SLC504, and the PLC5, those that we mapped when we created the Ethernet driver.



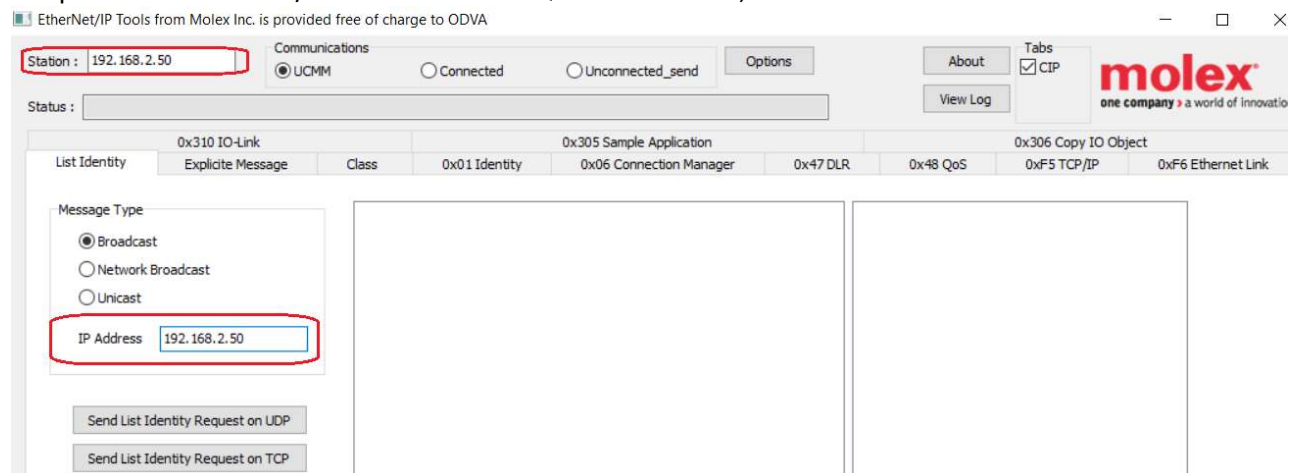
Right click on SLC504 and click on Data Monitor then double click on integer file N7.



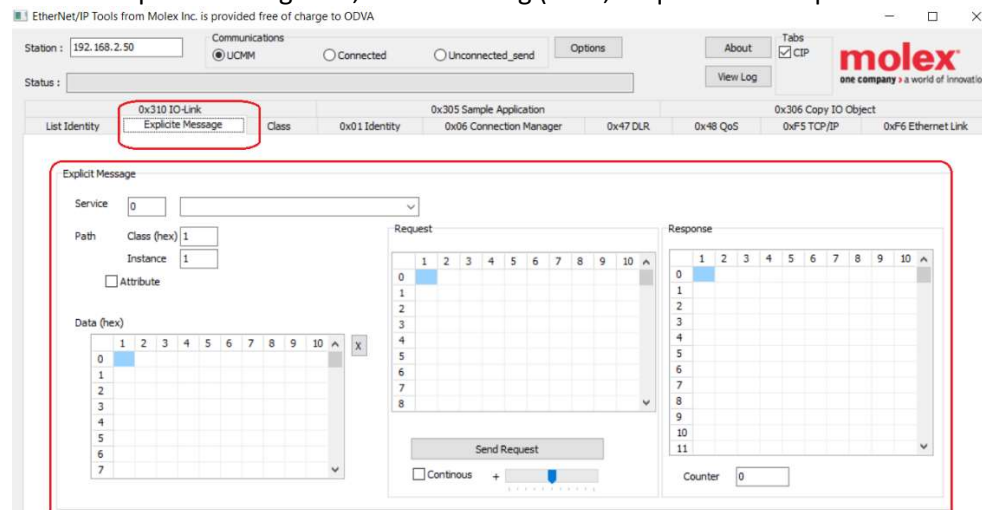
Similarly, right click on PLC5 and click on Data Monitor then double click on integer file N7.



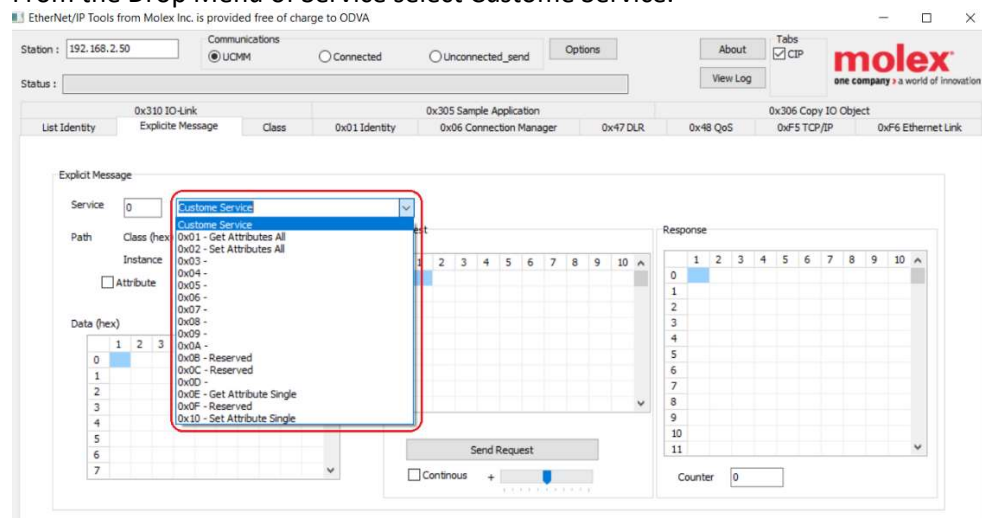
Now to show that we can request same data files from those PLCs using Molex Ethernet IP Tool we need to open Molex Ethernet/IP Tool and enter EQ7000 IP address, select UCMM under Communications.



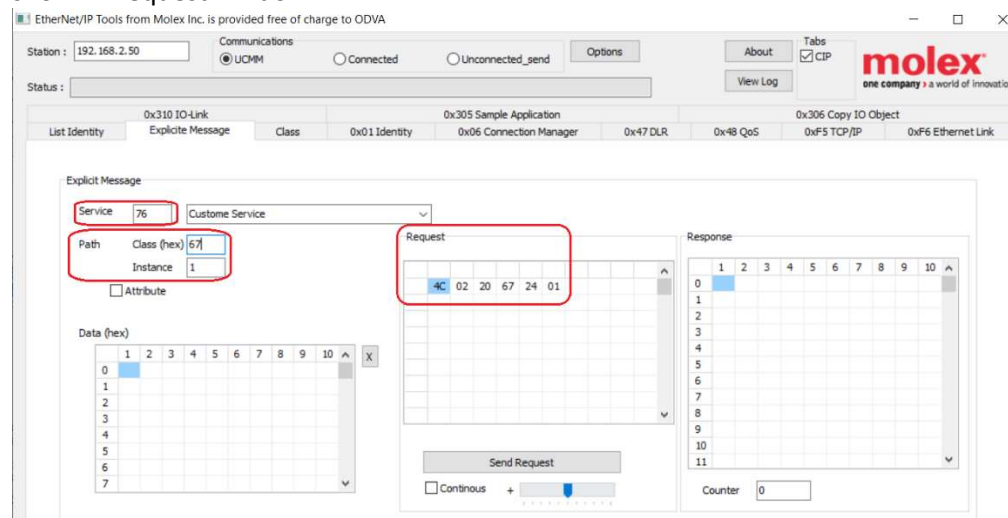
Click on Explicit Message tab, that will bring (Data, Request and Response windows) to show.



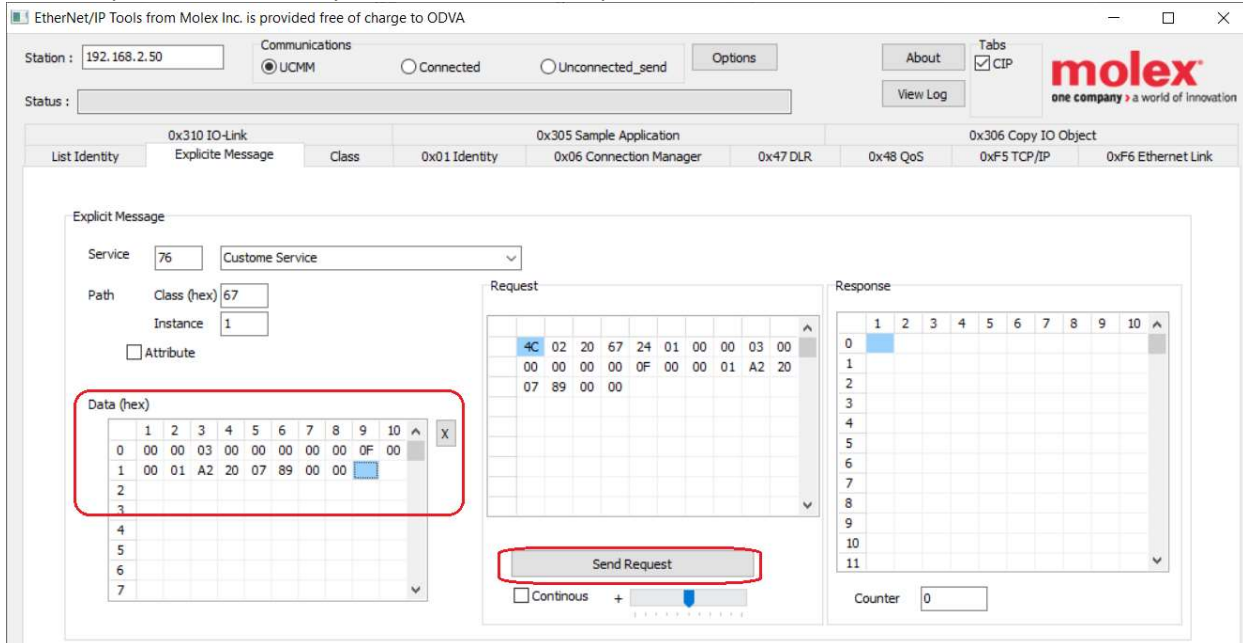
From the Drop Menu of Service select Custom Service.



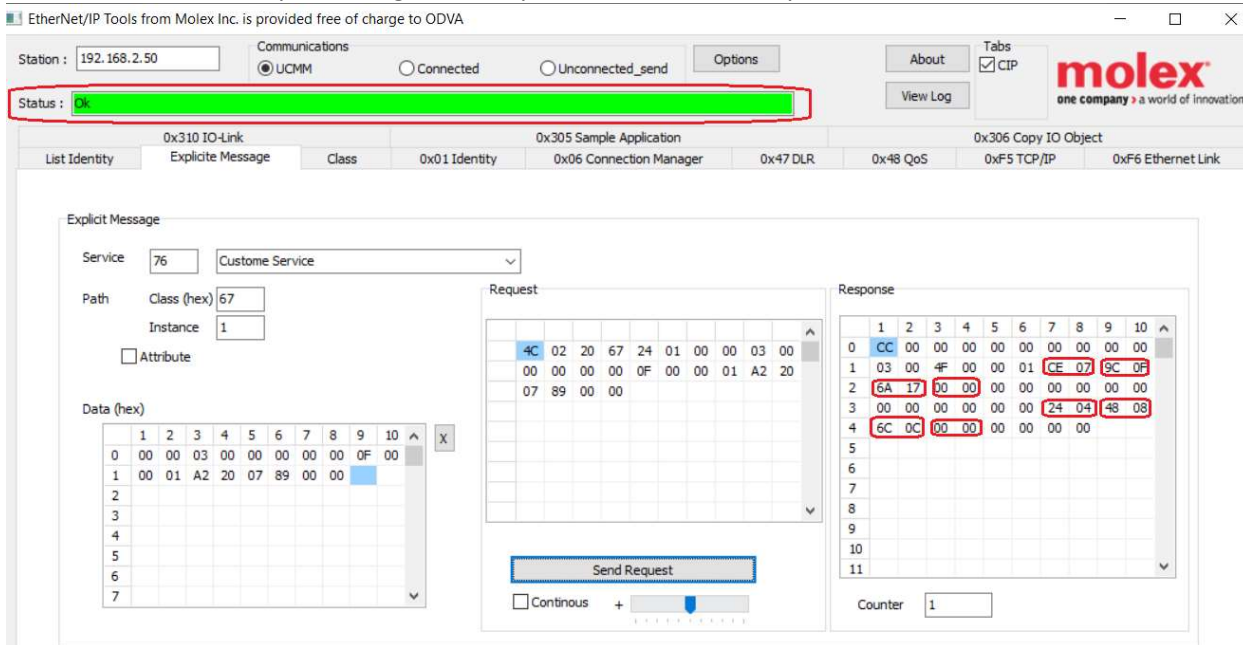
Enter Service 76 which is 4C in Hex and Class 67 Instance 1 then the HEX value for the main request will show in Request window.



Here we need to enter the data in Hex in Data windows, to read data from the SLC504, then click on Send Request, those data bytes entered will be explained later in details.



After we click Send Request, we get the response as shown in Response window below.



SLC-5/04 (4): Data File N7

	0	1	2	3	4	5	6	7	8	9
N7:0	1998	3996	5994	0	0	0	0	0	0	0
N7:10	1060	2120	3180	0	0	0	0	0	0	0
N7:20	0	0	0	0	0	0	0	0	0	0
N7:30	0	0	0	3333	0	0	6654	0	0	0
N7:40	0	0	0	0	0	0	0	0	0	0
N7:50	0	0	0	0	0	0	0	0	0	0

Status: Active

Comparing the response data with those read from RSLINX we can see that they are exact same, for example 07CE= 1998, 0F9C=3996,176A=5994 and so on.

Now to explain the data sent in the request window:

Destination Link(Lower)=00, Destination Link (upper)=00 Destination Node= 03 which is our SLC504 node address number, 0=00, Source Link (lower)=00, Source Link (upper)=00, Source Node=00, 0=00, Command= 0F, Status=00, Transaction Code (upper)=00, Transaction Code (Lower)=01, Function Code=A2, Data Size = 20, File number=07, File Type=89 for Integer file, Element Number=00, Sub Element Number=00, for more details on all these bytes, please refer to Ethernet IP Protocol and Allen Bradley DF1 protocol (DF1 Command 0F Function A2 is Protected Typed Logical read, Reference page 7-17 of the AB DF1 manual).

CMD	STS	TNS	FNC	Byte	File	File	Ele.	S/Ele.
0F			A2	Size	No.	Type	No.	No.

The reason we had the Destination link 0 and the Source link 0 as well is that the EQ7000 does not have the back plane and DH+ module that the Control Logix does.

SLC504 also does support Typed Read command (CMD 0F and function 68) Reference page 7-28 of AB DF1 Manual

CMD	STS	TNS	FNC	Packet	Total	PLC-5 sys. address	Size
0F			68	Offset	Trans		

To read the same data from SLC504 integer file 7, we need to change the command function and the system address and the elements size, here we get the same data seen in RSLINX or the previous command.

EtherNet/IP Tools from Molex Inc. is provided free of charge to ODVA

Station : 192.168.2.50 Communications: ☒ UCCMM ☐ Connected ☐ Unconnected_send Options About Tabs: ☒ CIP View Log **molex** one company > a world of innovation

Status : OK

0x310 IO-Link 0x305 Sample Application 0x306 Copy IO Object

List Identity Explicit Message Class 0x01 Identity 0x06 Connection Manager 0x47 DLR 0x48 QoS 0xF5 TCP/IP 0xF6 Ethernet Link

Explicit Message

Service: 76 Custom Service:

Path: Class (hex): 67 Instance: 1 ☐ Attribute

Data (hex):

0	00	00	03	00	00	00	00	0F	00
1	00	01	68	00	00	00	01	07	00
2	00	10	00						
3									
4									
5									
6									
7									

Request

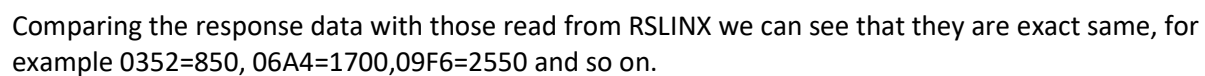
4C	02	20	67	24	01	00	00	03	00
00	00	00	00	0F	00	00	01	68	00
00	00	01	07	00	07	00	10	00	

Response

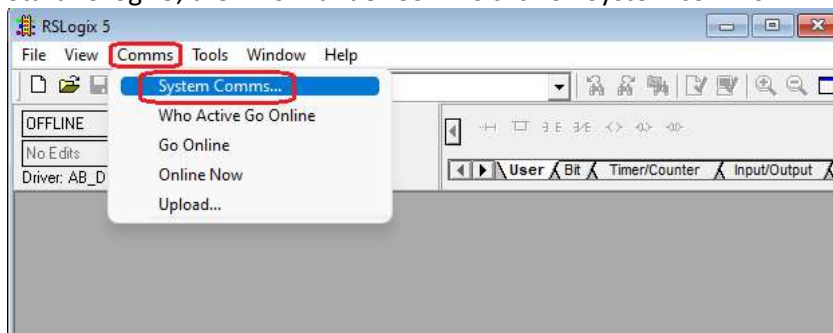
0	CC	00	00	00	00	00	00	00	00
1	03	00	4F	00	00	01	99	09	21
2	CE	07	9C	0F	6A	17	00	00	00
3	00	00	00	00	00	00	00	00	00
4	24	04	48	08	6C	0C	00	00	00
5	00	00							
6									
7									
8									
9									
10									
11									

Send Request ☐ Continuous Counter: 2

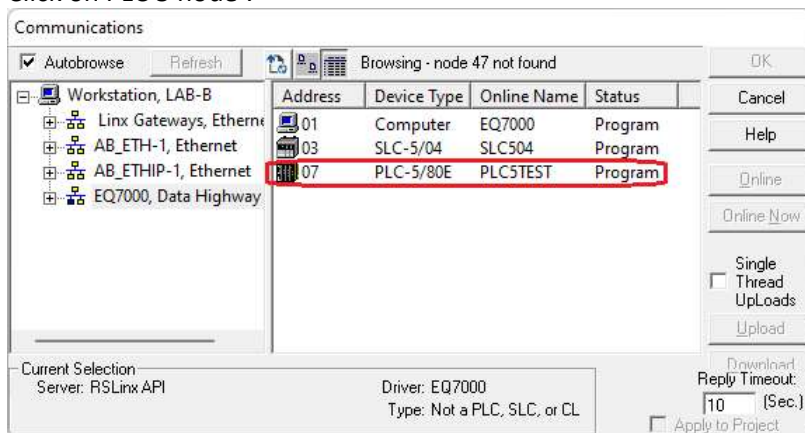
Here we can see that we are getting exact same data we found in RSLINX or RSLOGIX 5.



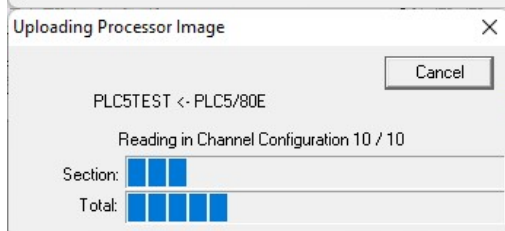
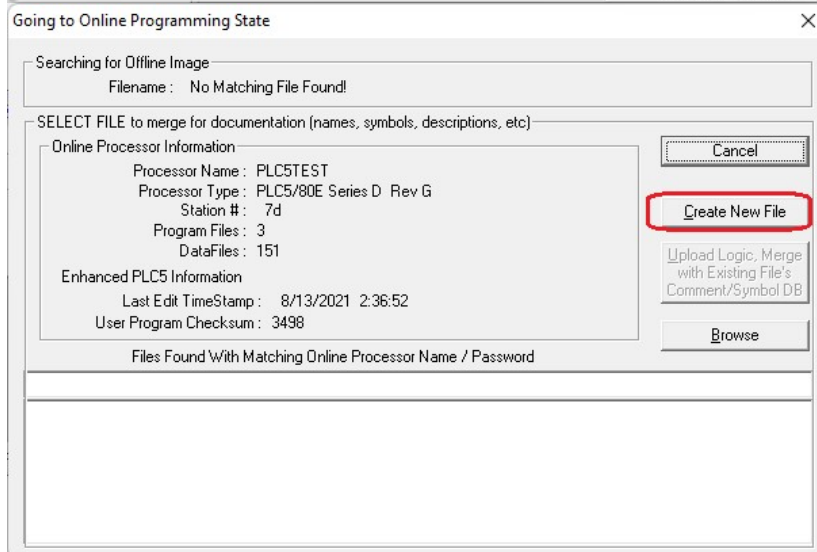
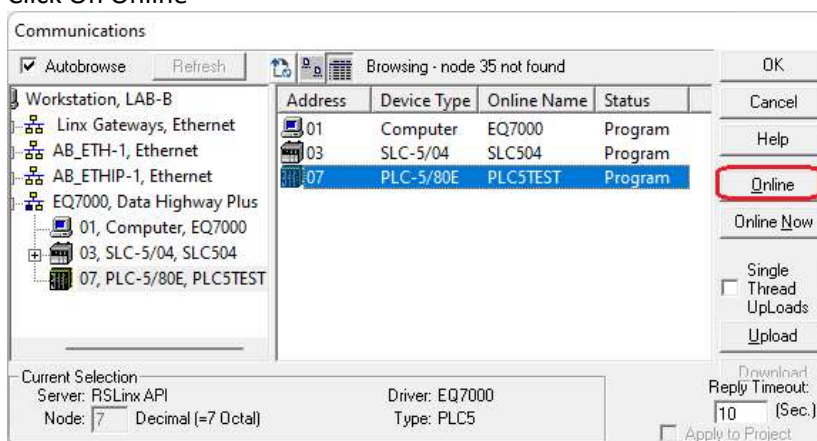
Start RSLogix5, then from under Comms click on System comms...

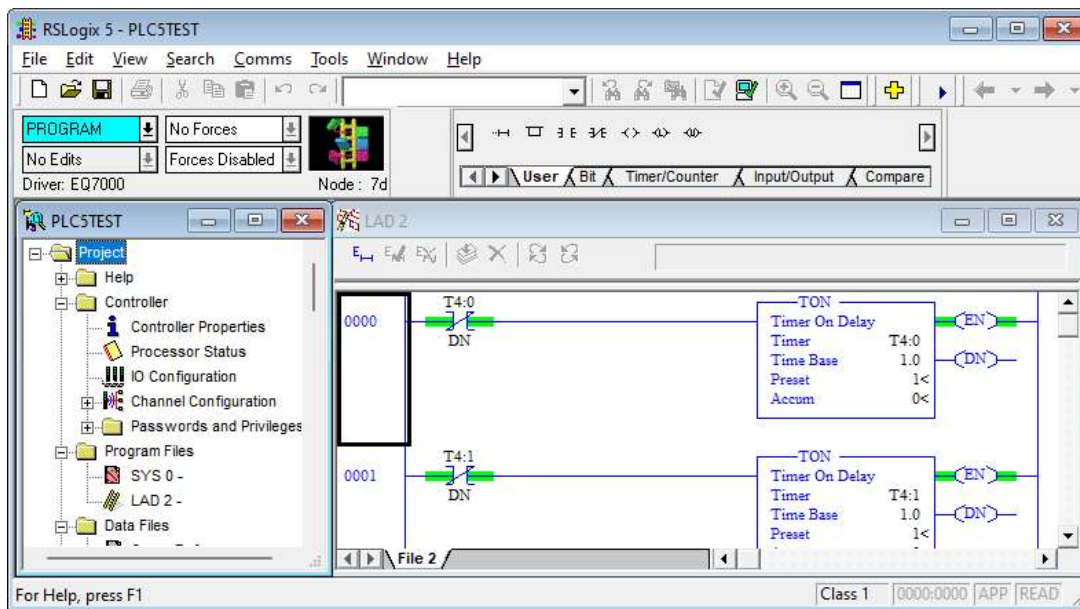


Click on PLC 5 node 7

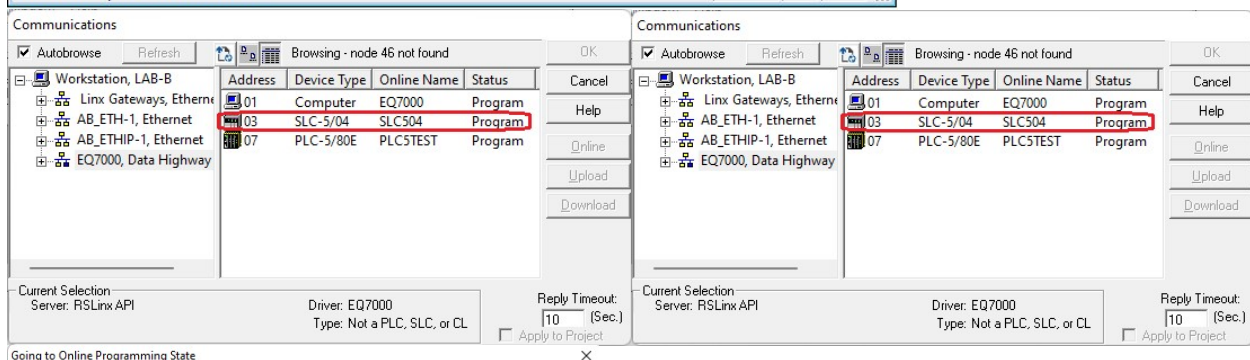
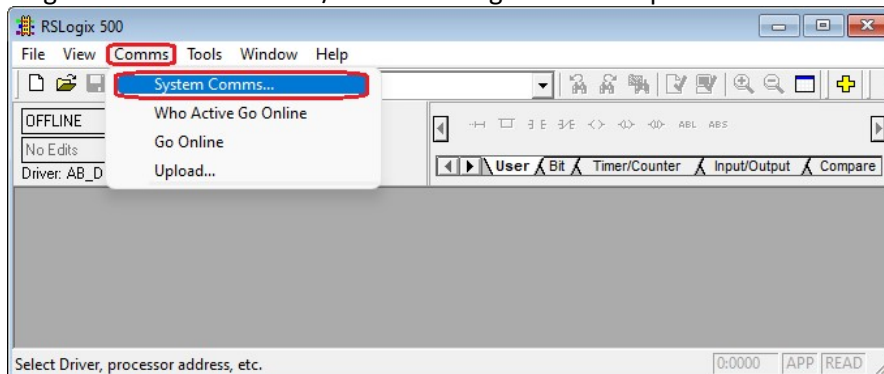


Click On Online

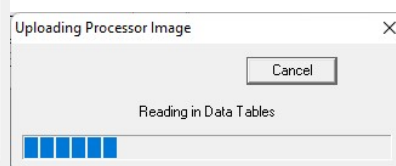
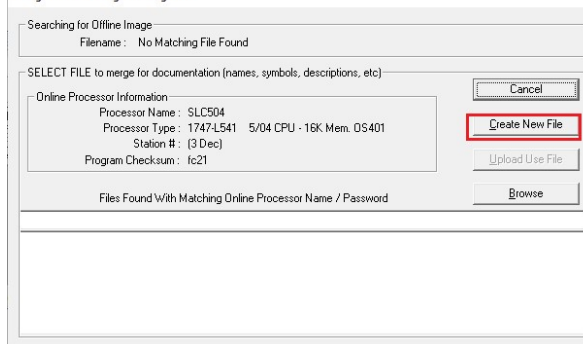


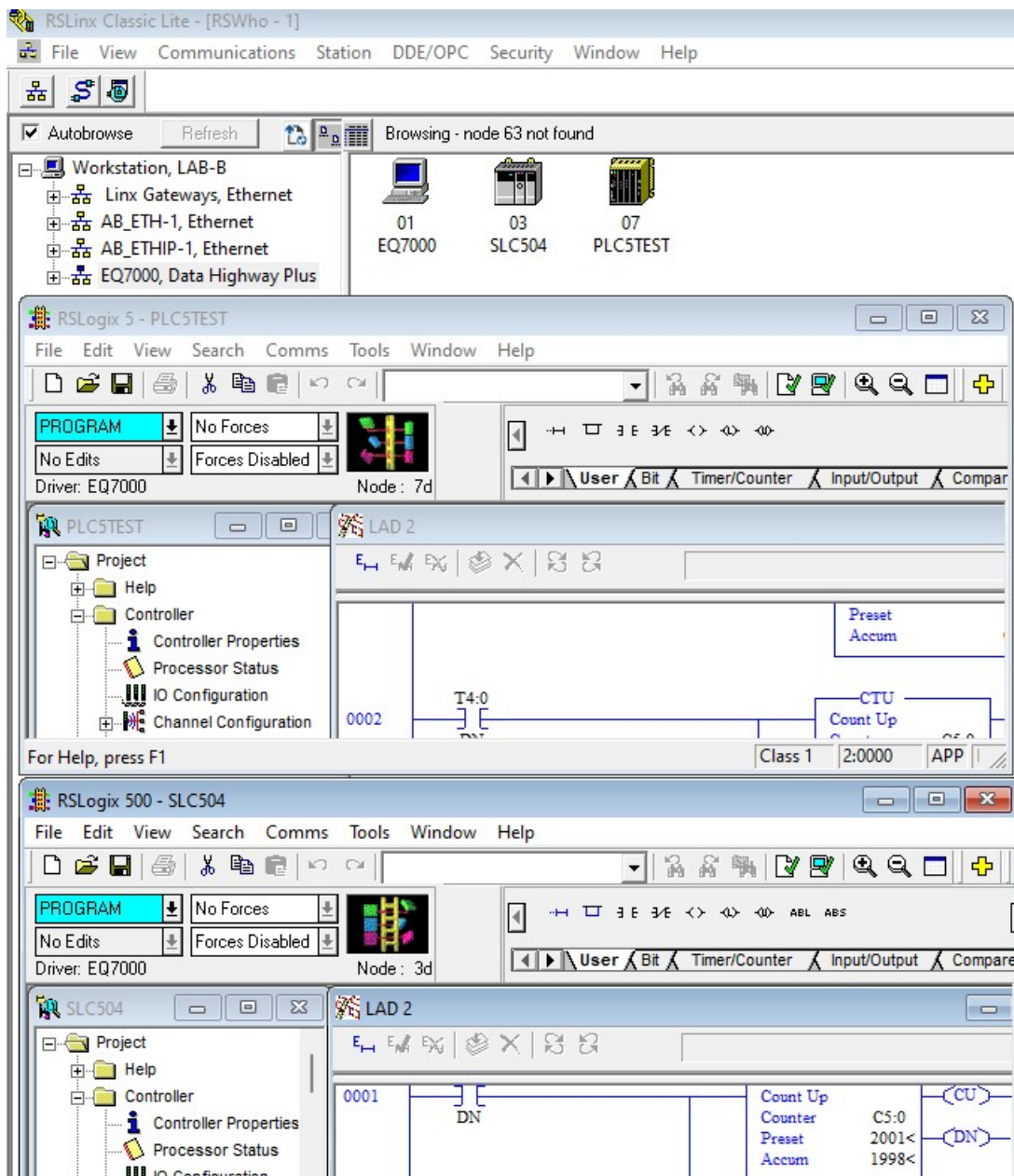


To go online with the SLC5/04 start RSLogix500 and repeat same similar steps done above for PLC5



Going to Online Programming State





If you have any questions in regard this application or for more details please contact

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