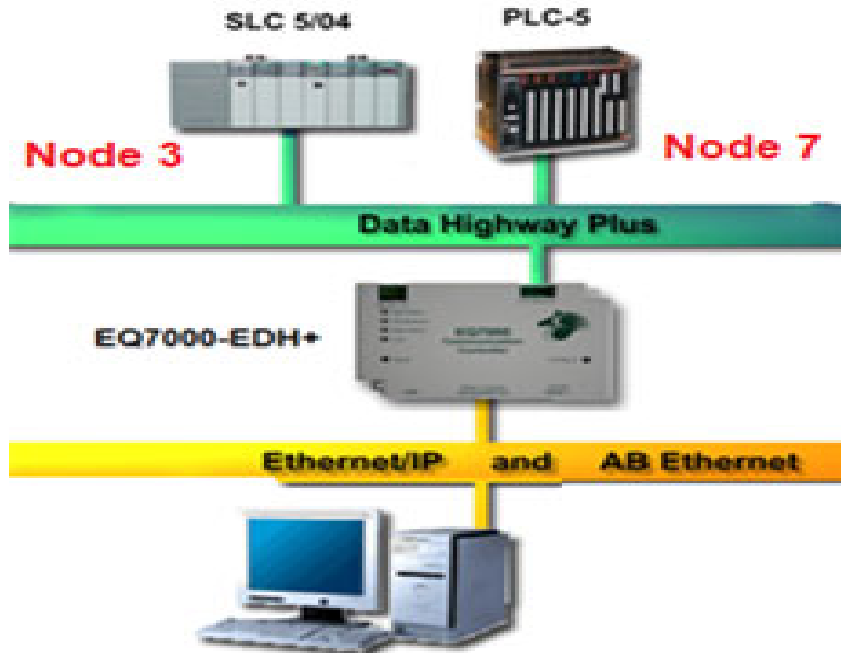


Trihedral VTSCADA Accessing Allen Bradley SLC 500 & PLC5 on DH+ Network with Equustek EQ7000 using AB Ethernet/IP Driver

Setup for this application note, had a PLC5 & SLC/504 on DH+ network with Equustek EQ7000-EDH+ connected to a PC running Trihedral VTSCADA & Rslinx.



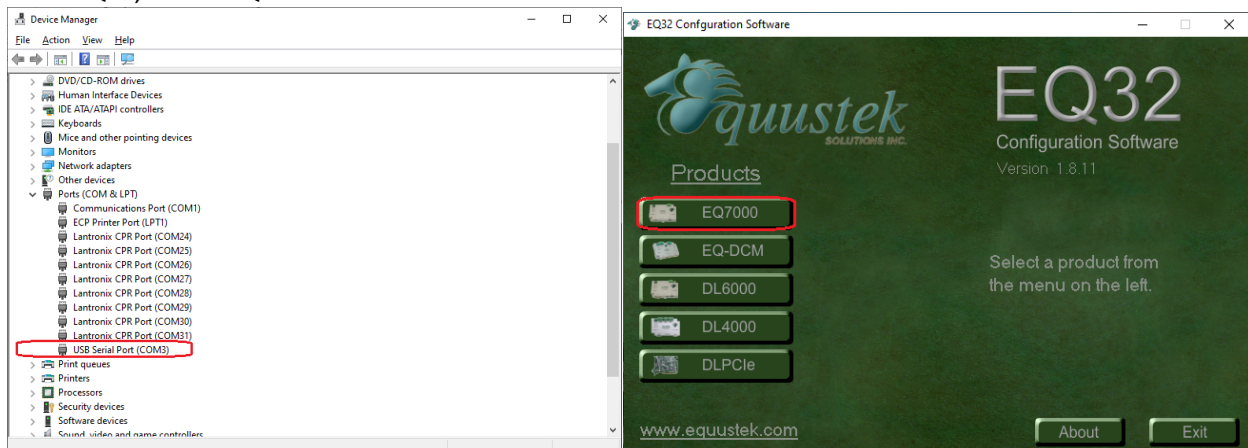
PC Running VTSCADA & RsLinx

In this application we included configuring the EQ7000-EDH+ & Allen Bradley RSLINX setup to show that data read from PLC5 & SLC504 in both the RSLINX and VTSCADA IP driver are same.

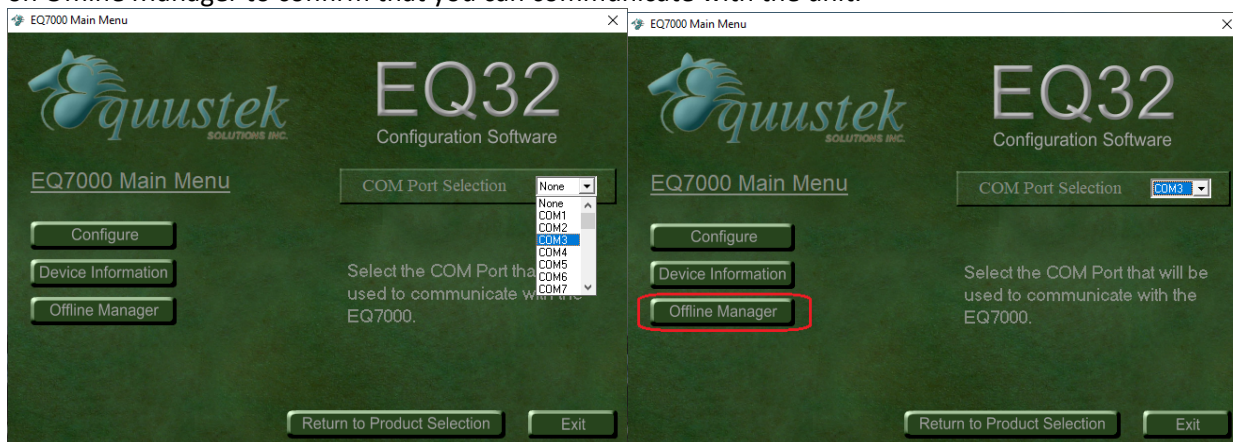
Power up the EQ7000, connect to the PC using USB cable, then look in Device Manager under Ports (COM & LPT) find out the USB Serial Port, in our case here is COM3.

Press the configure push button switch on the right-hand side of the EQ7000 to put it in configuration mode (Make sure the MOD STATUS LED is flashing green).

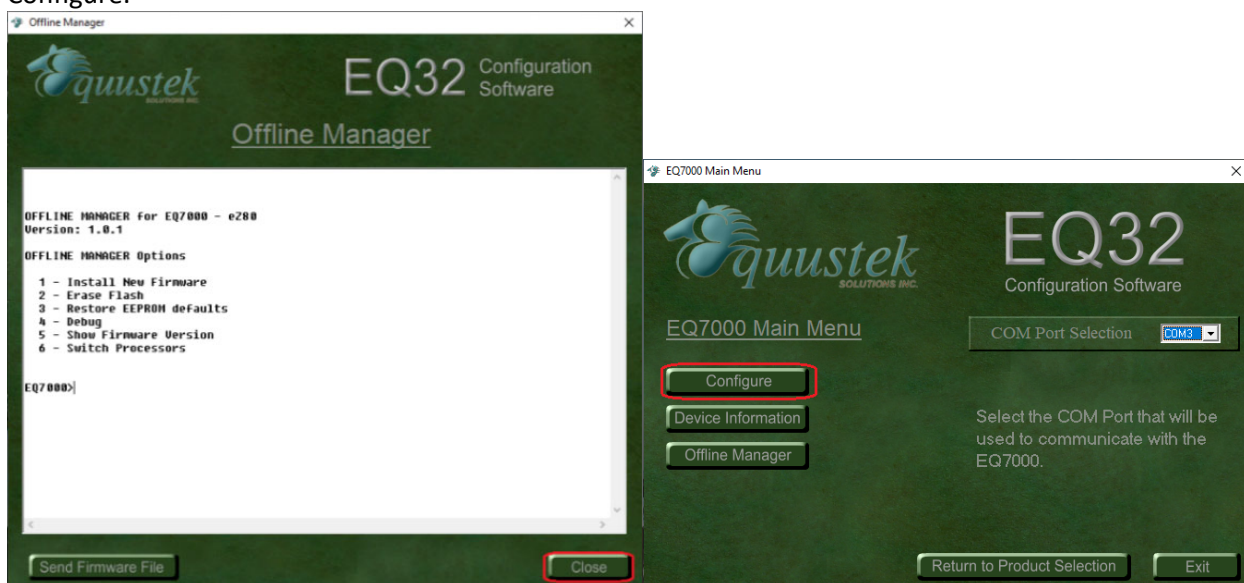
Start EQ32, select EQ7000.



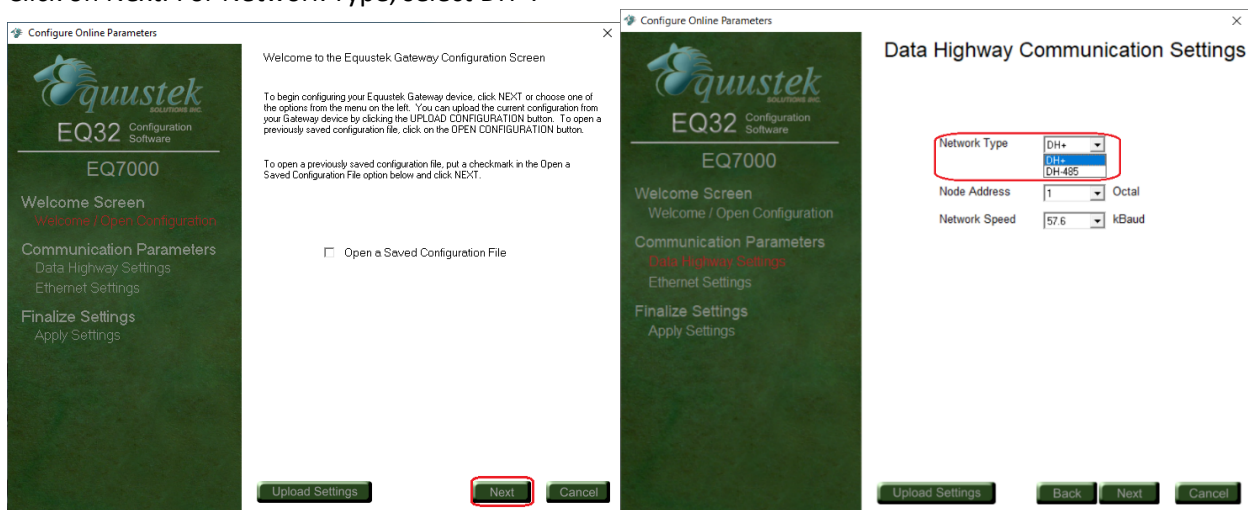
For COM Port Selection, select the USB comport previously found under the Device Manager, then click on Offline Manager to confirm that you can communicate with the unit.



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



Click on Next. For Network Type, select DH+.



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

The screenshots show the 'Data Highway Communication Settings' window for the EQ7000. The left window shows the 'Node Address' dropdown set to 1 and the 'Network Speed' dropdown set to 57.6 kBaud. The right window shows the 'Network Speed' dropdown set to 57.6 kBaud. Both windows show the 'Next' button highlighted.

Type the IP address for the EQ7000, Subnet Mask and the Default Gateway & click Next.

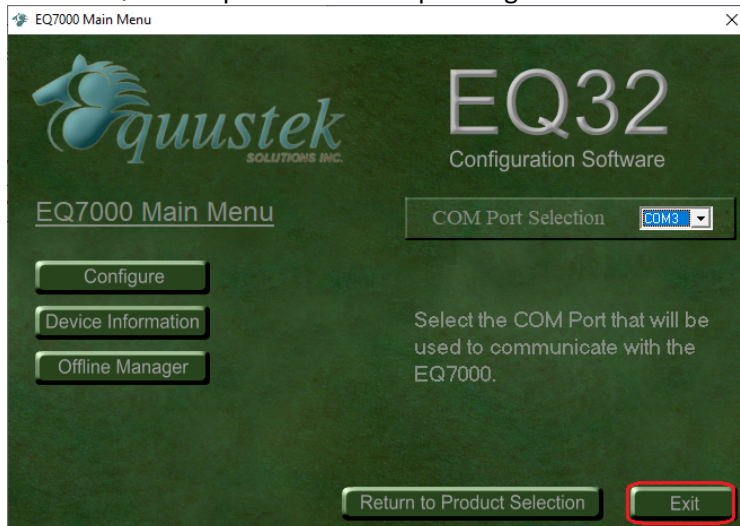
The screenshots show the 'Ethernet Communication Settings' window for the EQ7000. The left window shows the 'IP Address' field set to 192.168.2.50, the 'Subnet Mask' field set to 255.255.255.0, and the 'Default Gateway' field set to 192.168.2.1. The right window shows the 'Next' button highlighted.

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.

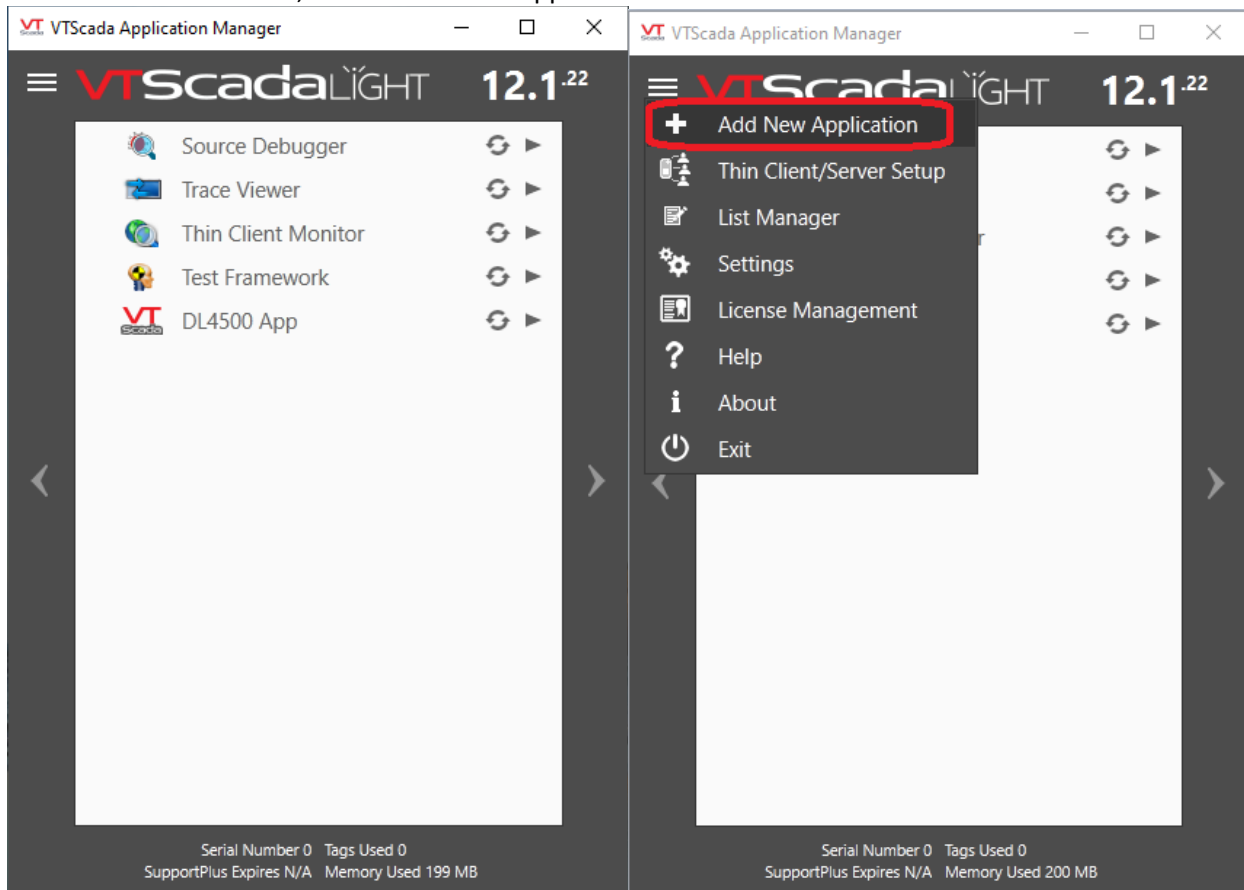
The screenshots show the final steps of the configuration process. The first window shows the 'Apply Configuration Settings' window with the 'Download Configuration' option selected. The second window shows a warning message about pressing the Configure button. The third window shows a success message stating '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.

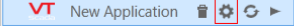
After Successfully configuring the unit, Click Exit to close EQ32, then press the Reset push button switch on the EQ7000 to put it in online operating mode.



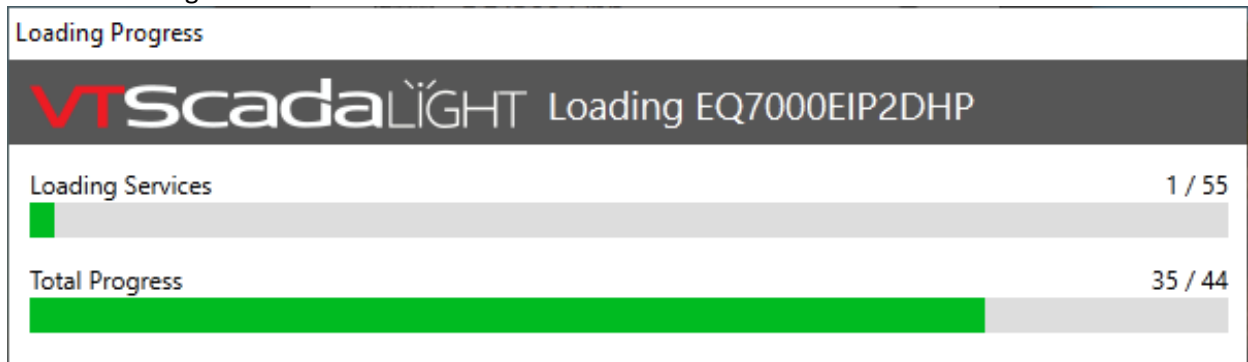
Start Trihedral VTSCADA, click to Add New Application



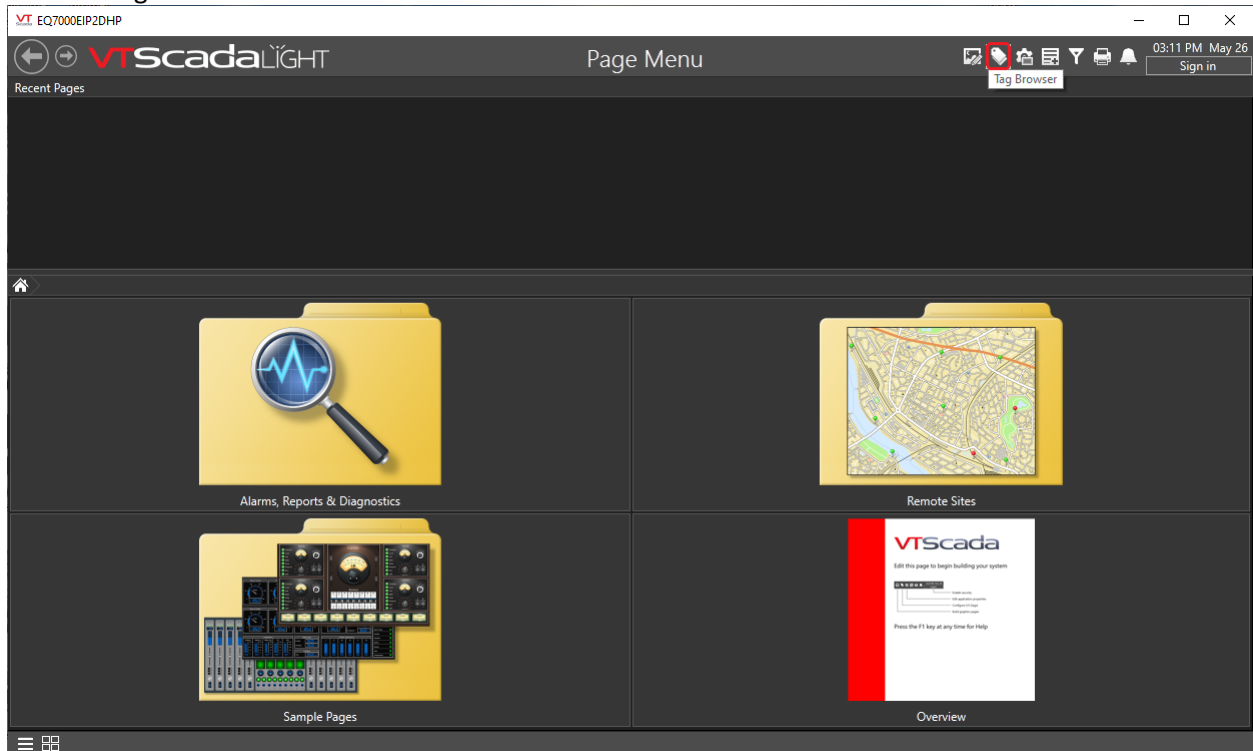
Type the name of the project, click on Next, then check mark Start application & click on Finish.

| Add Application Wizard | |
|--|--|
| <p>Add application Create a new standard application or take a more advanced option</p> <hr/> <p><input checked="" type="radio"/> Quick add Add a new standard application with the most common settings and the following name: <input type="text" value="EQ7000EIP2DHP"/></p> <p><input type="radio"/> Advanced Add a non-standard application (e.g., based on an OEM layer) or add an existing application (from a ChangeSet file, from application files on disk, or from a workstation on your network).</p> | <p>Quick add Ready to add application</p> <hr/> <p>Press Finish to create an application using these settings:</p> <p>Application Name: EQ7000EIP2DHP</p> <p>Application Path: C:\VTScada\EQ7000EIP2DHP\</p> <p>To specify application display options, access the Edit Properties panel from the Application Configuration dialog:</p>  <p align="right"><input checked="" type="checkbox"/> Start application now</p> |
| < Back Next > Cancel | < Back Finish Cancel |

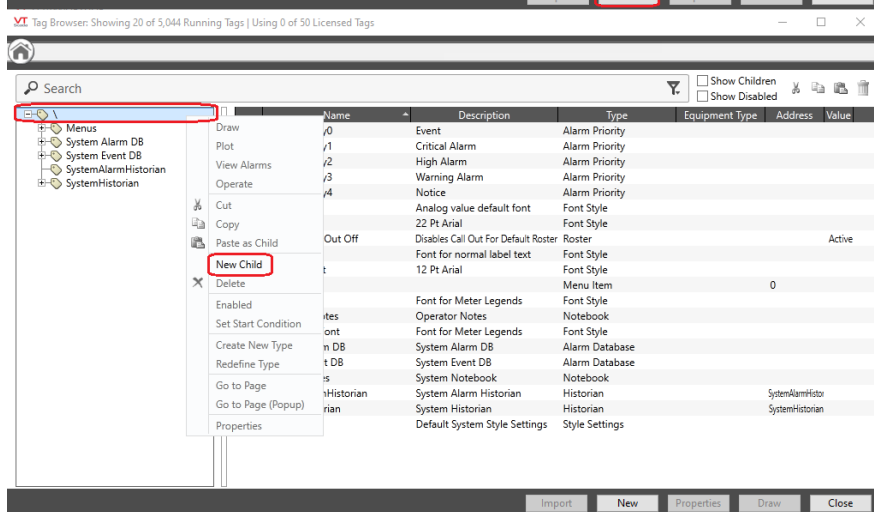
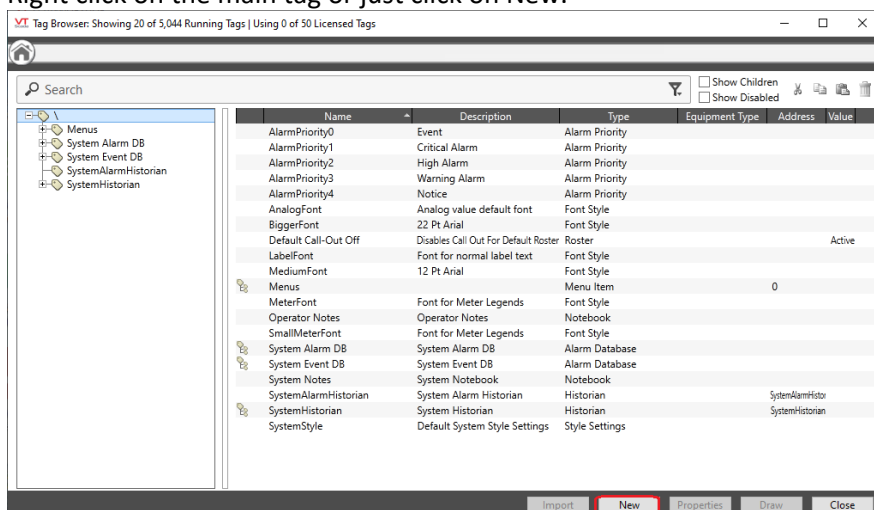
Wait for loading.



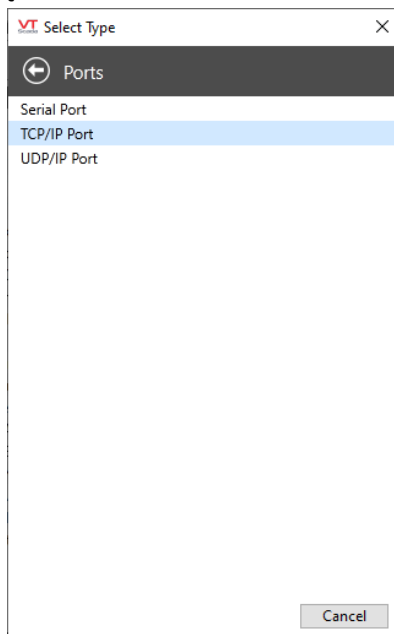
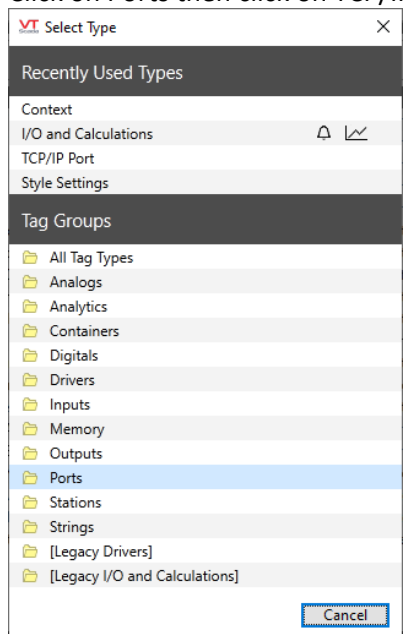
Click on Tag Browser.



Right click on the main tag or just click on New.



Click on Ports then click on TCP/IP Port



For ID Connection tab, Type the name of the port, it's description & click on Apply, then click on Connection tab & type EQ7000 IP address under TCP/IP Name/Address, as for TCP/IP Port Number, type 44818 which is used for Ethernet/IP, click on Apply then OK.

The first screenshot shows the 'New TCP/IP Port Properties' dialog box with the 'ID' tab selected. The 'Name' field is 'EQ7000EIPDH+', 'Area' is 'System', and 'Description' is 'EQ7000 Ethernet IP to DH+'. The 'Apply' button is highlighted.

The second screenshot shows the 'TCP/IP Port (EQ7000EIPDH+) Properties' dialog box with the 'Connection' tab selected. The 'TCP/IP Name/Address' is '192.168.2.50' and the 'TCP/IP Port Number' is '44818'. The 'Disconnect Delay (sec)' is '30' and 'Maximum connections' is '5'. The 'Echo' checkbox is unchecked. The 'Apply' button is highlighted.

Right Click on the created port & click on New Child.

The screenshot shows the 'Tag Browser' window. A right-click context menu is open over the 'EQ7000EIPDH+' port. The 'New Child' option is highlighted in the menu. The background table lists various tags with columns for Name, Description, Type, Equipment Type, Address, and Value.

Click on Drivers then click Rockwell Driver (Allen Bradley Devices)

The first screenshot shows the 'Select Type' dialog box with the 'Tag Groups' list on the left. The 'Drivers' group is selected. The 'Cancel' button is highlighted.

The second screenshot shows the 'Select Type' dialog box with the 'Drivers' list on the right. The 'Rockwell Driver (Allen Bradley Devices)' is selected. The 'Cancel' button is highlighted.

Type a name for the driver and it's description, in our application, we have EQ7000 EIP to PLC5 on DH+, click on Apply then click on Configuration tab.

The left window is titled "New Rockwell Driver (Allen Bradley Devices) Properties". It has tabs for ID, Configuration, Communications, and PCCC/DF1. The Name field contains "EQ7000EIPDH+" and the Description field contains "EQ7000 EIP to PLC5 on DH+". The right window is titled "Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+\EQ7000EDHP2PLC5) Properties". It also has tabs for ID, Configuration, Communications, and PCCC/DF1. In the Configuration tab, the PLC Mode is set to "CompactLogix/ControlLogix (Logical Addressing)" and the CIP Connection Target is set to "Message Router, Connection Point 1".

For PLC mode select **DH+ routed through Logix PLC/DHRIO card (data File Addressing)**. Port Segment Path doesn't matter since the EQ7000 doesn't care for it, set maximum number of CIP Sessions.

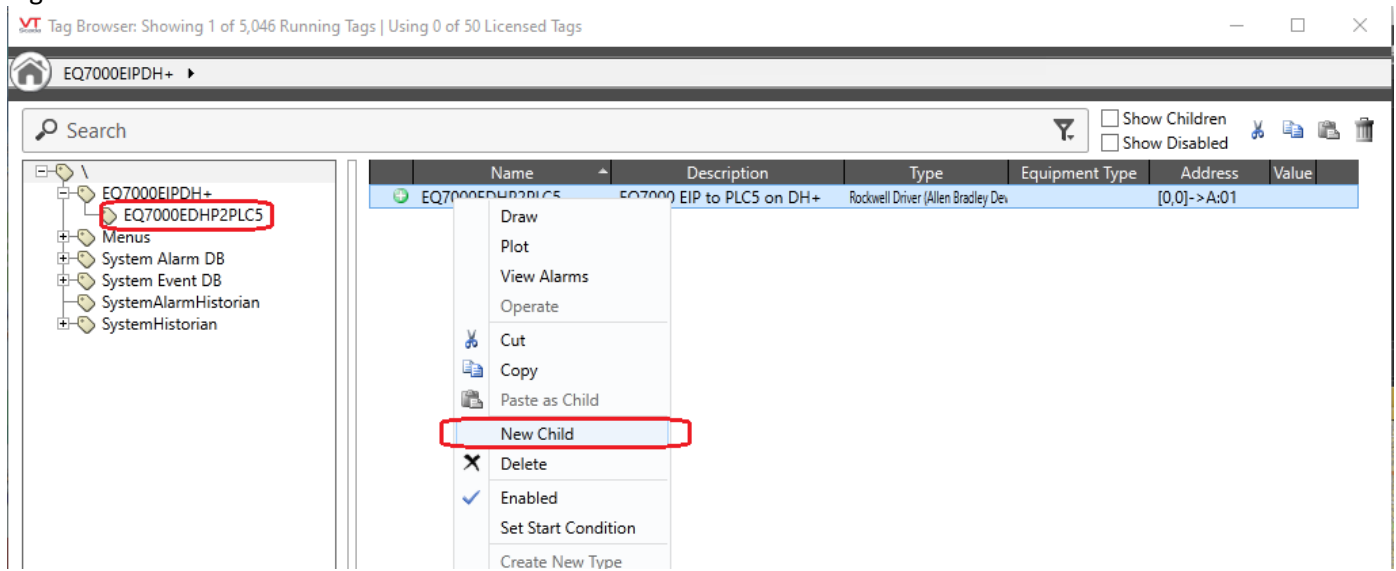
The left window is titled "Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+\EQ7000EDHP2PLC5) Properties". In the Configuration tab, the PLC Mode is set to "DH+ routed through Logix PLC/DHRIO card (Data File Addressing)". The right window is titled "Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+\EQ7000EDHP2PLC5) Properties". In the Configuration tab, the PLC Mode is set to "DH+ routed through Logix PLC/DHRIO card (Data File Addressing)".

Click on Communication tab, make sure port is set properly, click Apply.

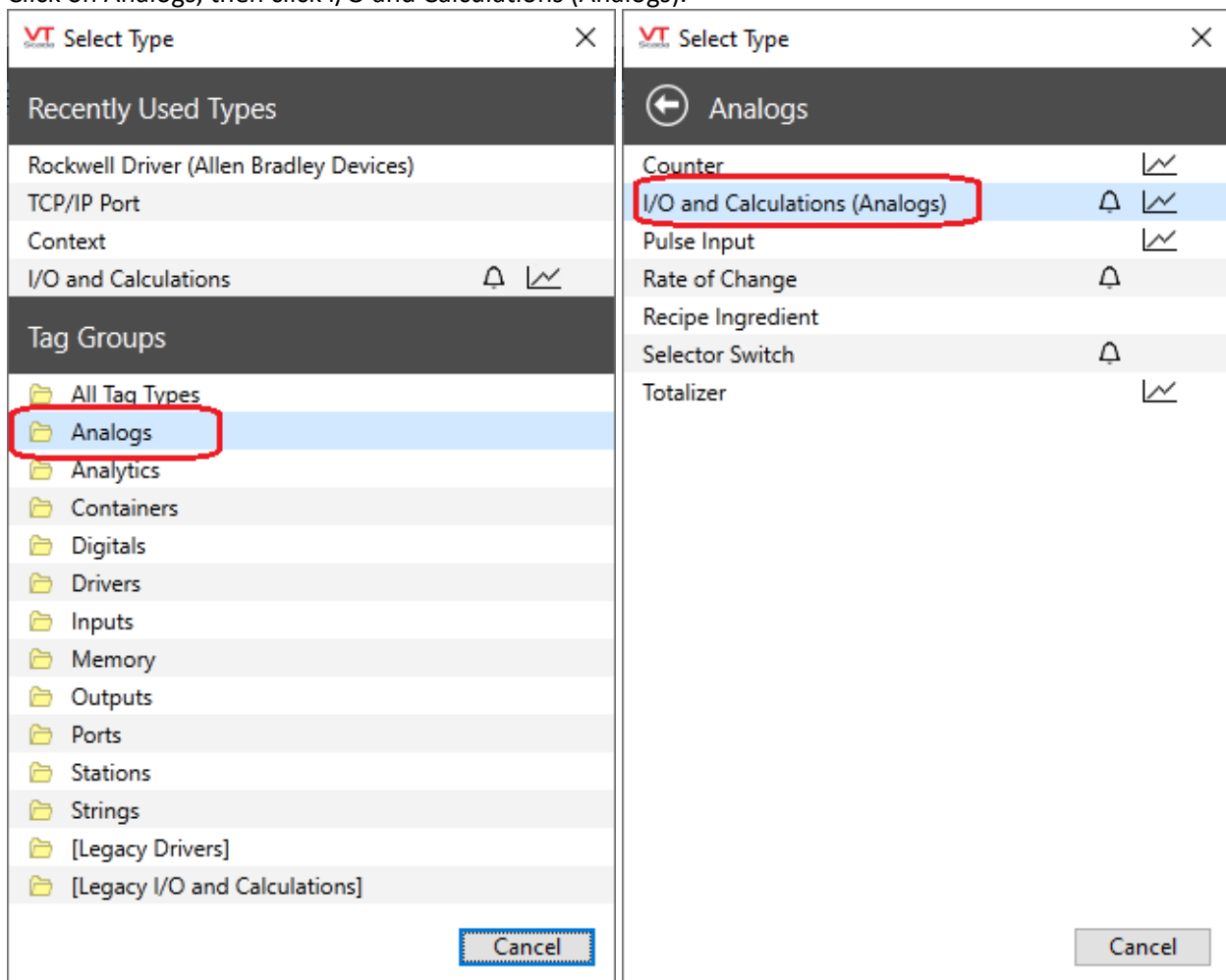
Click PCCC/DF1 tab here select PLC5 & enter its node address number in octal, our PLC5 node was 7, click Apply then click on OK

The left window is titled "Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+\EQ7000EDHP2PLC5) Properties". In the Communications tab, the Port is set to "EQ7000 Ethernet IP to DH+". The right window is titled "Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+\EQ7000EDHP2PLC5) Properties". In the PCCC/DF1 tab, the PLC Type is set to "PLC-5" and the DF1 Mode is set to "Full Duplex (Serial)".

Right click on the device created & click on New Child.



Click on Analogs, then click I/O and Calculations (Analog).



Type a Name for the word trying to read and its description, here we are trying to read word 0 of integer file N7, click on Apply then click on I/O tab.

The image shows two side-by-side screenshots of the 'New I/O and Calculations Properties' dialog box. The left screenshot shows the 'Name' field with the text 'EQ7000EIPDH+\EQ7000EDHP2PLC5 Word0Intf7' and the 'Description' field with the text 'Word Integer file 7'. The right screenshot shows the same dialog box with the 'Name' field containing 'EQ7000EIPDH+\EQ7000EDHP2PLC5 Word0Intf7' and the 'Description' field containing 'Word Integer file 7'. Both screenshots show the 'I/O' tab selected.

Entered N7:0 for Read Address then clicked on Apply, continue with other tabs as needed & click on Ok.

The image shows two side-by-side screenshots of the 'I/O and Calculations (EQ7000EIPDH+\EQ7000EDHP2PLC5\Word0Intf7) Properties' dialog box. The left screenshot shows the 'I/O' tab with the 'Read Address' field set to 'N7:0', 'Scan Interval' set to '1', and 'Deadband' set to '0.1'. The right screenshot shows the same dialog box with the 'Read Address' field set to 'N7:0', 'Scan Interval' set to '1', and 'Deadband' set to '0.1'. Both screenshots show the 'I/O' tab selected.

Here we can see the value of word 0 of integer file N7 from our PLC5 which is 850.

Tag Browser: Showing 2 of 5,047 Running Tags | Using 1 of 50 Licensed Tags

EQ7000EIPDH+ ▶

Search

EQ7000EIPDH+
EQ7000EDHP2PLC5
Menus
System Alarm DB
System Event DB
SystemAlarmHistorian
SystemHistorian

| Name | Description | Type | Equipment Type | Address | Value |
|-----------------|---------------------------|------------------------------------|----------------|-------------|-------|
| EQ7000EDHP2PLC5 | EQ7000 EIP to PLC5 on DH+ | Rockwell Driver (Allen Bradley Dev | | [0,0]->A:07 | 0 |
| .\Word0Intf7 | Word Integer file 7 | Analog [In] | | N7:0 | 850 ? |

Below all details are shown, EQ7000 IP address, the Ethernet IP port and the value of word 0 in integer file 7.

Tag Browser: Showing 25 of 5,047 Running Tags | Using 1 of 50 Licensed Tags

EQ7000EIPDH+ ▶

Search

EQ7000EIPDH+
EQ7000EDHP2PLC5
Menus
System Alarm DB
System Event DB
SystemAlarmHistorian
SystemHistorian

| Name | Description | Type | Equipment Type | Address | Value |
|----------------------|--------------------------------------|------------------------------------|----------------|--------------------|--------|
| AlarmPriority0 | Event | Alarm Priority | | | |
| AlarmPriority1 | Critical Alarm | Alarm Priority | | | |
| AlarmPriority2 | High Alarm | Alarm Priority | | | |
| AlarmPriority3 | Warning Alarm | Alarm Priority | | | |
| AlarmPriority4 | Notice | Alarm Priority | | | |
| AnalogFont | Analog value default font | Font Style | | | |
| BiggerFont | 22 Pt Arial | Font Style | | | |
| Default Call-Out Off | Disables Call Out For Default Roster | Roster | | | Active |
| EQ7000EIPDH+ | EQ7000 Ethernet IP to DH+ | TCP/IP Port | | 192.168.2.50:44818 | 0 |
| .\EQ7000EDHP2PLC5 | EQ7000 EIP to PLC5 on DH+ | Rockwell Driver (Allen Bradley Dev | | [0,0]->A:07 | 0 |
| .\Word0Intf7 | Word Integer file 7 | Analog [In] | | N7:0 | 850 ? |
| LabelFont | Font for normal label text | Font Style | | | |
| MediumFont | 12 Pt Arial | Font Style | | | |
| MeterFont | Font for Meter Legends | Font Style | | | |

Now we can repeat same procedure of adding a new device, adding a SLC504 node address 3.

Tag Browser: Showing 2 of 5,047 Running Tags | Using 1 of 50 Licensed Tags

EQ7000EIPDH+ ▶

Search

EQ7000EIPDH+
EQ7000EDHP2PLC5
Menus
System Alarm DB
System Event DB
SystemAlarmHistorian
SystemHistorian

| Name | Description | Type | Equipment Type | Address | Value |
|---------------------|---------------------------|------------------------------------|----------------|-------------|-------|
| EQ7000EDHP2PLC5 | EQ7000 EIP to PLC5 on DH+ | Rockwell Driver (Allen Bradley Dev | | [0,0]->A:07 | 0 |
| Word Integer file 7 | | Analog [In] | | N7:0 | 850 ? |

Context Menu:

- Draw
- Plot
- View Alarms
- Operate
- Cut
- Copy
- Paste as Child
- New Child
- Delete

Add new Driver, select Rockwell Driver (Allen Bradley Devices).

The image displays four sequential screenshots of a software configuration interface for adding a new driver.

Screenshot 1: Select Type
This window shows a list of driver types. Under the "Tag Groups" section, "Drivers" is selected. In the "Drivers" list, "Rockwell Driver (Allen Bradley Devices)" is highlighted.

Screenshot 2: New Rockwell Driver (Allen Bradley Devices) Properties
This window shows the "ID" tab. The "Name" field is set to "EQ7000EIPDH+ EQ7000EIP2SLC504". The "Description" field is set to "EQ70000 EIP to SLC504 on DH+".

Screenshot 3: Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+EQ7000EIP2SLC504) Prop...
This window shows the "Configuration" tab. The "PLC Mode" is set to "DH+ routed through Logix PLC/DHRIO card (Data File Addressing)". The "Port Segment Path to DHRIO Card" is set to "[0,0]". The "CIP Connection Target" is set to "DH+ Interface, Channel A".

Screenshot 4: Rockwell Driver (Allen Bradley Devices) (EQ7000EIPDH+EQ7000EIP2SLC504) Prop...
This window shows the "Communications" tab. The "Port" is set to "EQ7000 Ethernet IP to DH+". The "Operation Timeout" is set to 10 seconds, and the "CIP Session Timeout" is set to 20 seconds. The "PLC Type" is set to "SLC-500". The "PLC Address (Octal)" is set to "03".

VT EQ7000EIP2DHP

← →

VTScadaLIGHT

Page Menu

Recent Pages

VT Tag Browser: Showing 0 of 5,048 Running Tags | Using 1 of 50 Licensed Tags

EQ7000EIPDH+ ▶ EQ7000EIP2SLC504

Search

☒ Show Children
☐ Show Disabled

EQ7000EIPDH+

- EQ7000EIP2SLC504
- Menus
- System Alarm DB
- System Event DB
- SystemAlarmHistorian
- SystemHistorian

Draw

Plot

View Alarms

Operate

Cut

Copy

Paste as Child

New Child

Delete

| Name | Description | Type | Equipment Type | Address | Value |
|--|-------------|------|----------------|---------|-------|
| There are no tags that match the current selection | | | | | |

VT Select Type

Recently Used Types

Rockwell Driver (Allen Bradley Devices)

I/O and Calculations

TCP/IP Port

Context

Tag Groups

All Tag Types

Analogs

Analytics

Containers

Digitals

Drivers

Inputs

Memory

Outputs

Ports

Stations

Strings

[Legacy Drivers]

[Legacy I/O and Calculations]

Cancel

VT Select Type

← Analogs

Counter

I/O and Calculations (Analogs)

Pulse Input

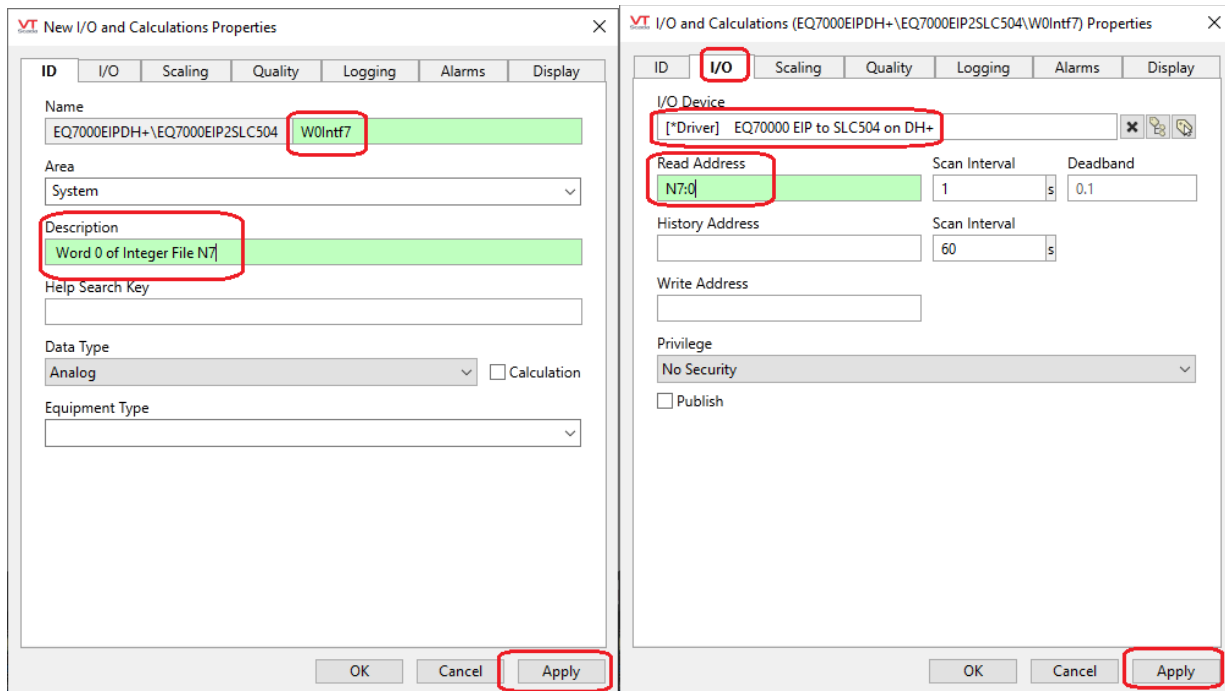
Rate of Change

Recipe Ingredient

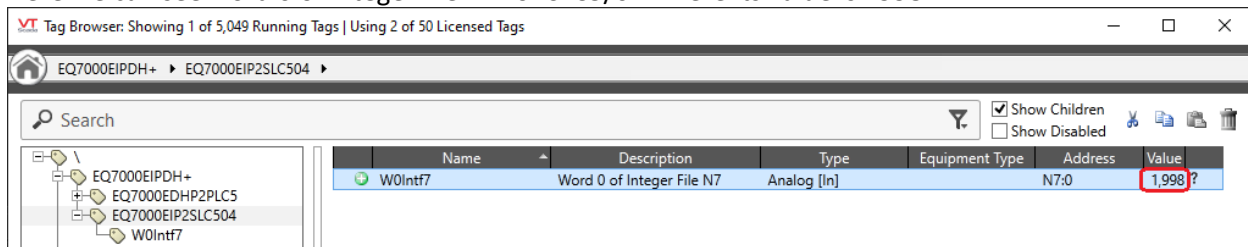
Selector Switch

Totalizer

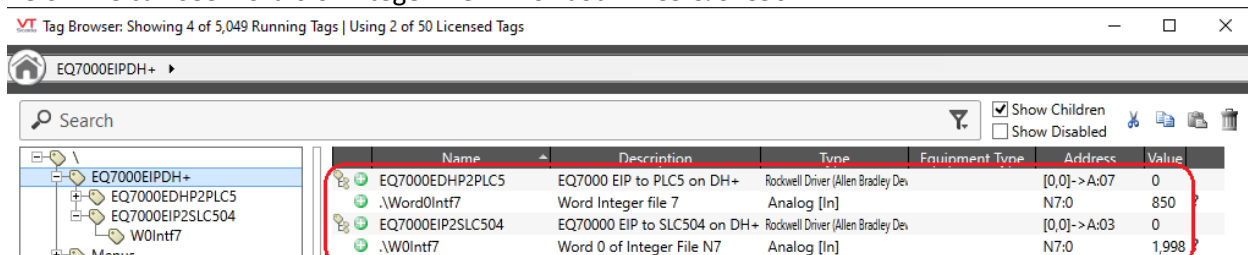
Cancel



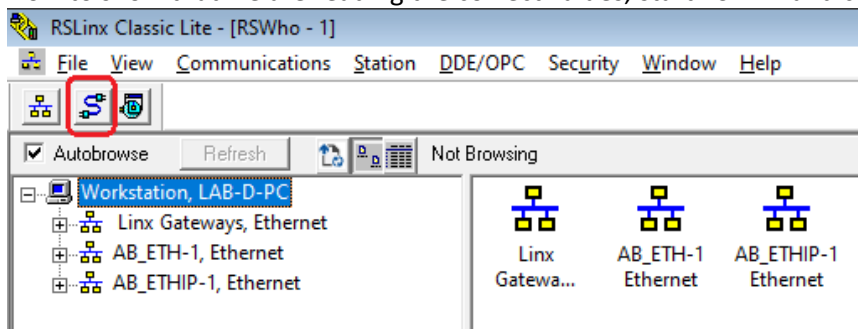
Here we can see word 0 of integer file N7 for SLC5/04 where its value is 1998.



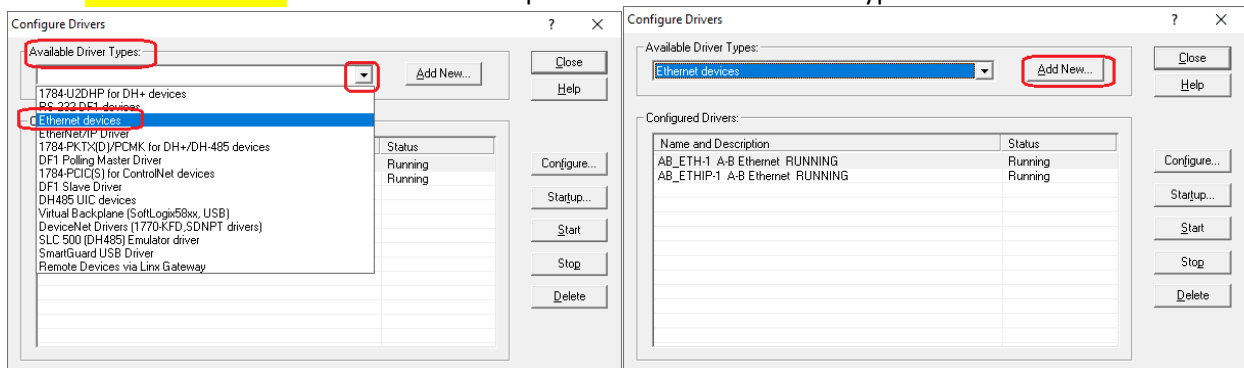
Below we can see word 0 of integer file N7 for both PLC5 & SLC504



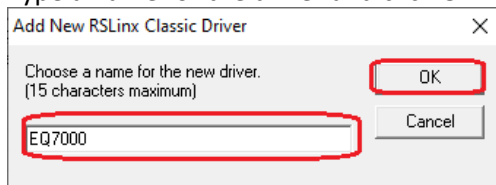
Now to show that we are reading the correct values, start RSLINX and click on Configure Drivers icon



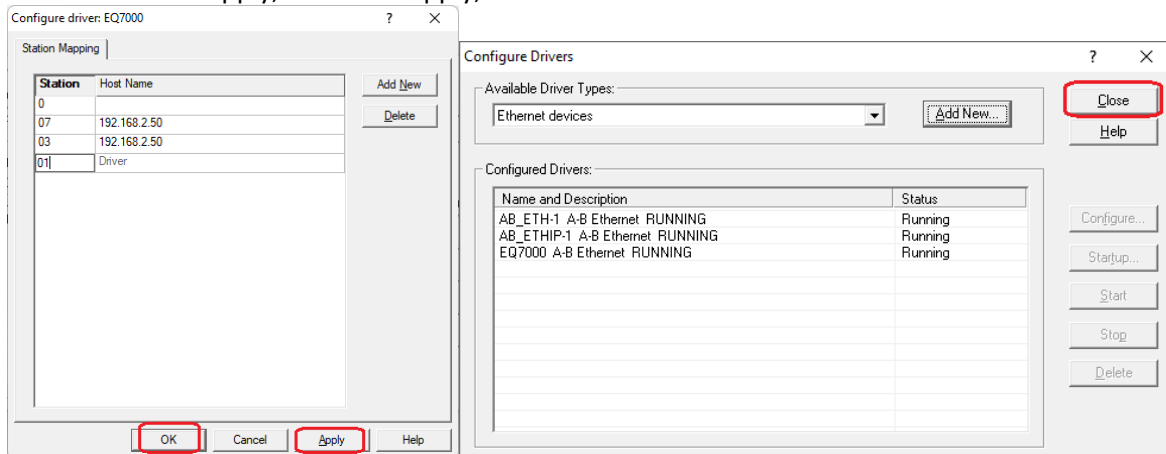
Select **Ethernet Devices** Driver from the drop menu of Available Driver Types. And click on Add New.



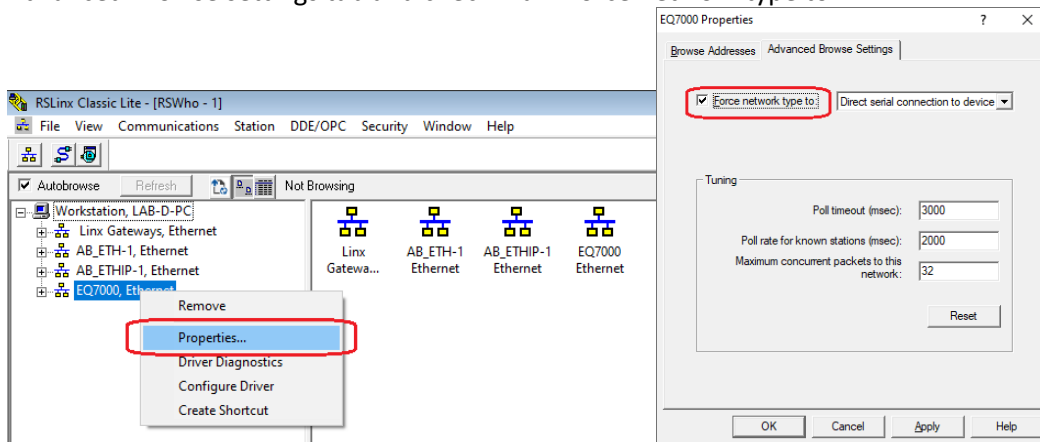
Type a name for the driver and click Ok.



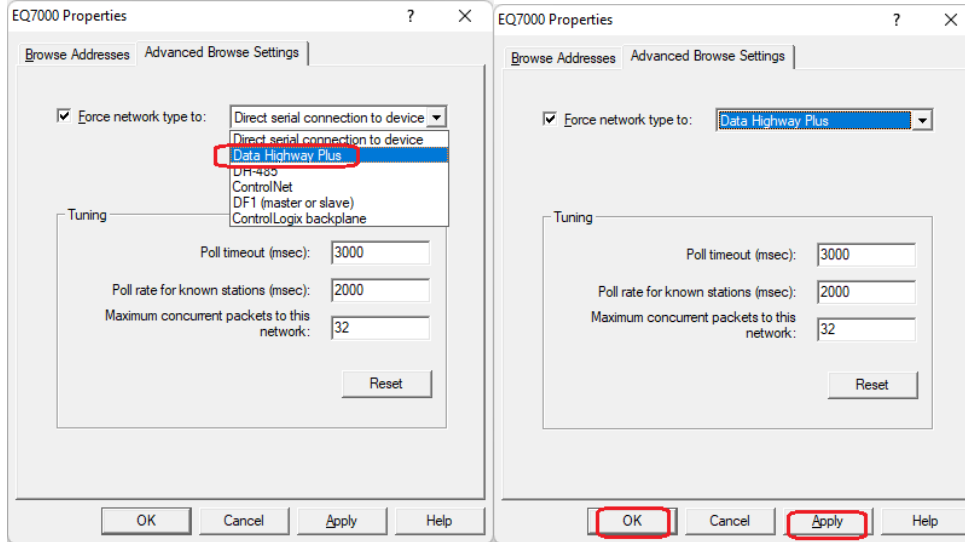
Type the Node address numbers of the SLC504 & PLC5 under Station in decimal and the IP address of the EQ7000 under the Host name, as for Driver enter the node address number of the EQ7000 under Station. Click on Apply, then click Apply, OK then Click on close.



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

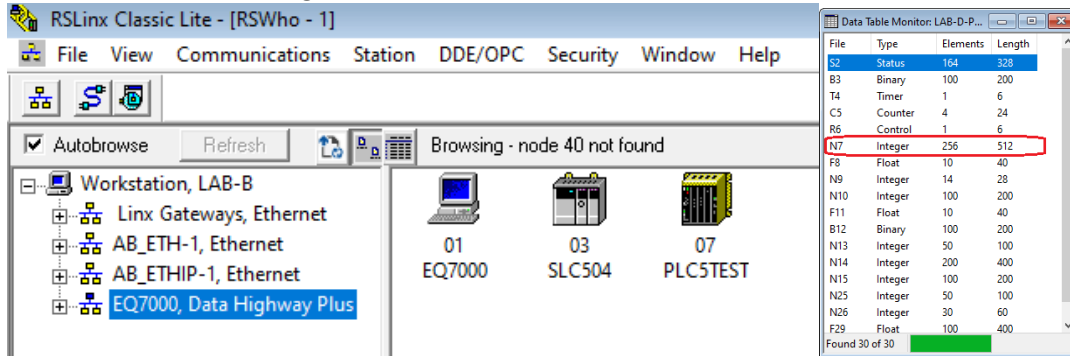


Select DH+ from the drop menu, Click on Apply then on Ok.



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

Here you can see SLC504, and the PLC5. Right click on SLC504 later on PLC5 and click on Data Monitor then double click on integer file N7 to see both files.



Both Values 850 and 1998 are seen similar to those for VTSCADA

PLC-5/80E (21): Data File N7

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| N7:0 | 850 | 1700 | 2550 | 850 | 850 | 850 | 850 | 850 | 850 | 850 |
| N7:10 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 |
| N7:20 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 |
| N7:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:50 | 1551 | 3102 | 4653 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:90 | | | | | | | | | | |

Status: Active Selection: N7:0

SLC-5/04 (16): 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 |
| N7:60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| N7:90 | | | | | | | | | | |

Status: Active Selection: N7:0