DH485 Router/B

FTView (SE and ME) to SLC setup

Technical Application Note

A-DH485R

Document No. D120-021
Document Revision 1.3
01/2023

CONTENTS

1. Preface 2
1.1. Purpose of this Document 2
1.2. Additional Information 2
1.3. Support 2
2. Application Description 3
3. Setup 4
3.1. Module Layout 4
3.2. Serial Cable wiring 5
3.3. NET-ENI (CIP Encapsulated PCCC) Method 8
3.3.1. DH485 Router Setup 8
3.3.2. RSLogix 500 Setup 10
3.3.3. FTView Setup 10
3.4. Ethernet PCCC Method 18
3.4.1. DH485 Router Setup 18
3.4.2. RSLogix 500 Setup 20
3.4.3. FTView Setup 20

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1. PREFACE

1.1. PURPOSE OF THIS DOCUMENT

This document will assist the user to setup the DH485 Router/B (referred to as DH485 Router in this document) to allow an FTView / PanelView Plus application to communicate to an SLC device's DH485 port via EtherNet/IP.

1.2. ADDITIONAL INFORMATION

The following resources contain additional information that can assist the user with the module installation and operation.

Resource	Link
Slate Installation	http://www.aparian.com/software/slate
DH485 Router/B User Manual DH485 Router/B Datasheet Application Notes Example Code & UDTs	https://www.aparian.com/products/dh485routerb
Ethernet wiring standard	www.cisco.com/c/en/us/td/docs/video/cds/cde/cde205_220_420/installation/guide/cde205_220_420_hig/Connectors.html
CIP Routing	The CIP Networks Library, Volume 1, Appendix C:Data Management

1.3. SUPPORT

Technical support will be provided via the Web (in the form of user manuals, FAQ, datasheets etc.) to assist with installation, operation, and diagnostics.

For additional support the user can use either of the following:

Contact Us web link	https://www.prosoft-technology.com/Services-Support/Customer-Support
Support email	support@prosoft-technology.com

2. APPLICATION DESCRIPTION

The Aparian DH485 Router can be used to enable multiple modern Ethernet devices to communicate to legacy SLC500 devices via their DH485 ports. In the application example below, an FTView SE application and two PanelView Plus terminals can read and write data to an SLC500.

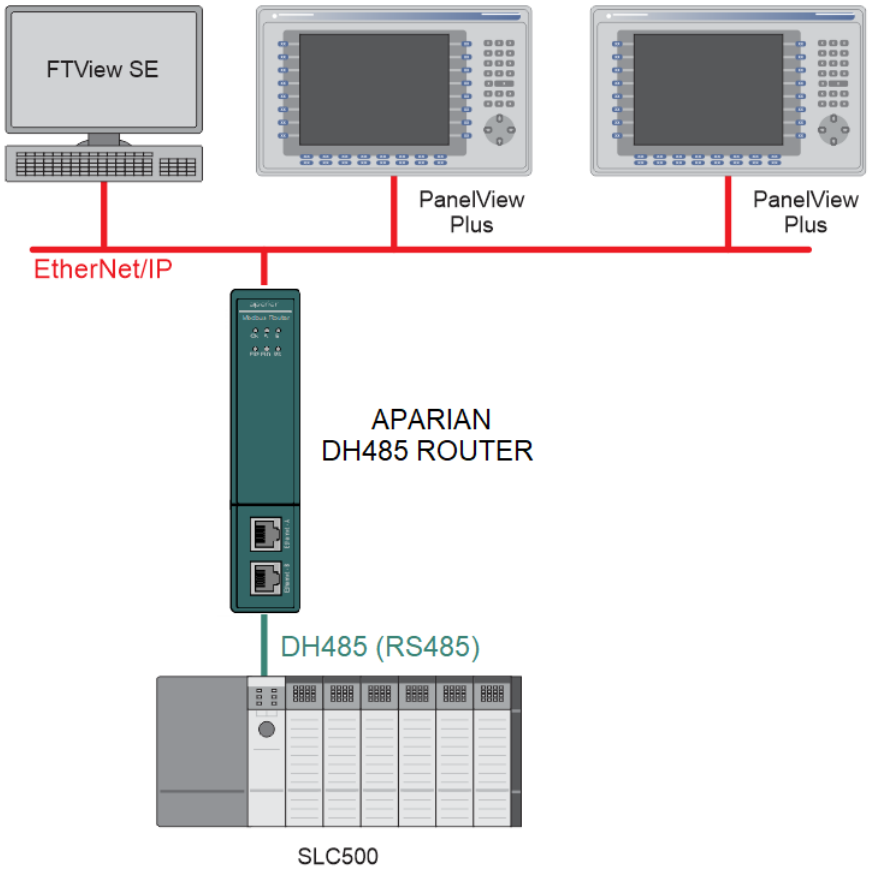


FIGURE 2.1. - EXAMPLE OF A TYPICAL NETWORK SETUP

3. SETUP

The following sections will describe the installation and configuration of all the required devices to assist the user with the initial setup.

3.1. MODULE LAYOUT

The module has two ports at the bottom and two ethernet ports on the front of the enclosure as shown in the figure below. The ports are used for Ethernet, RS232 or RS485 serial, and power. The power port uses a three-way connector which is used for the DC power supply positive and negative (or ground) voltage as well as the earth connection.

The Ethernet cable must be wired according to industry standards which can be found in the additional information section of this document.

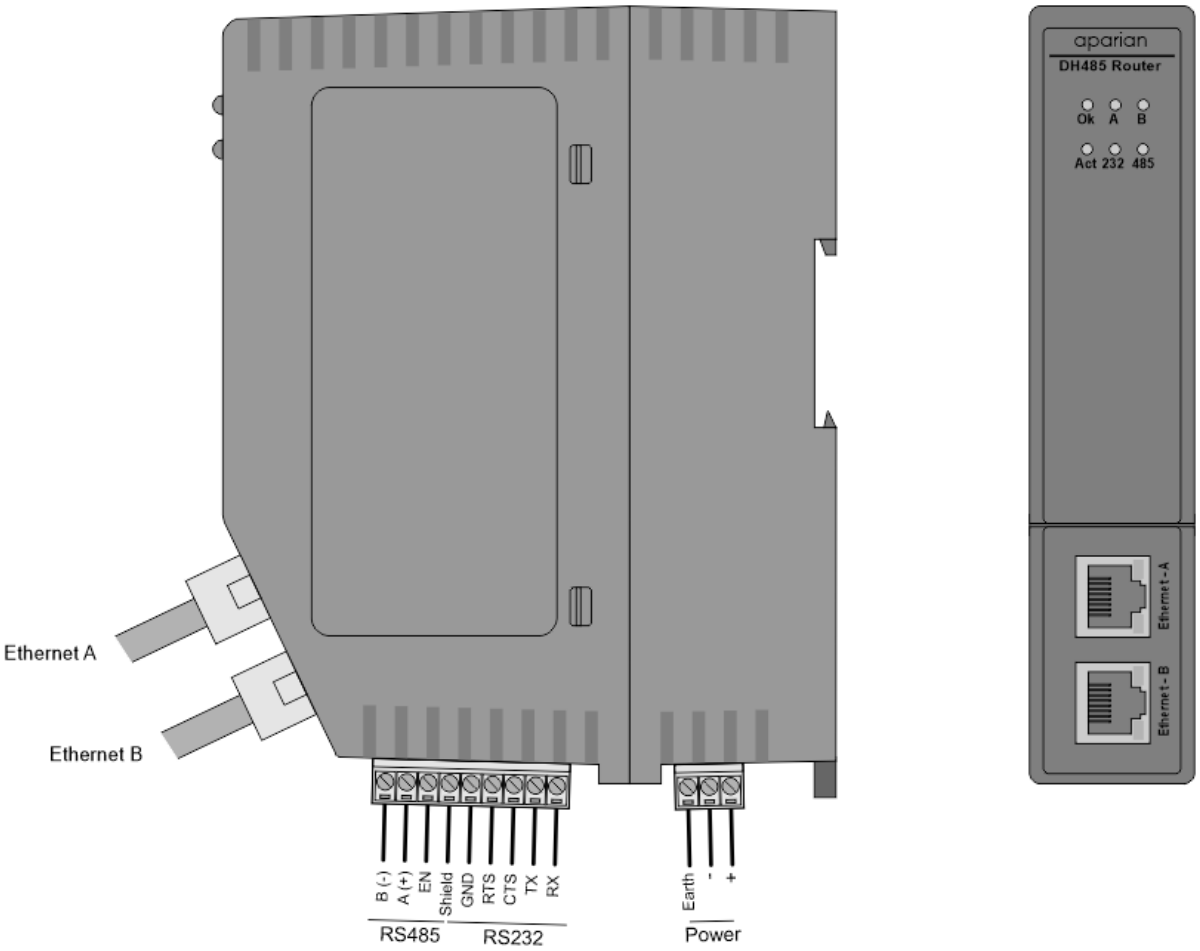


FIGURE 3.1. - DH485 ROUTER/B SIDE AND FRONT VIEW

3.2. SERIAL CABLE WIRING

The serial cable pinout is shown in the figure below:

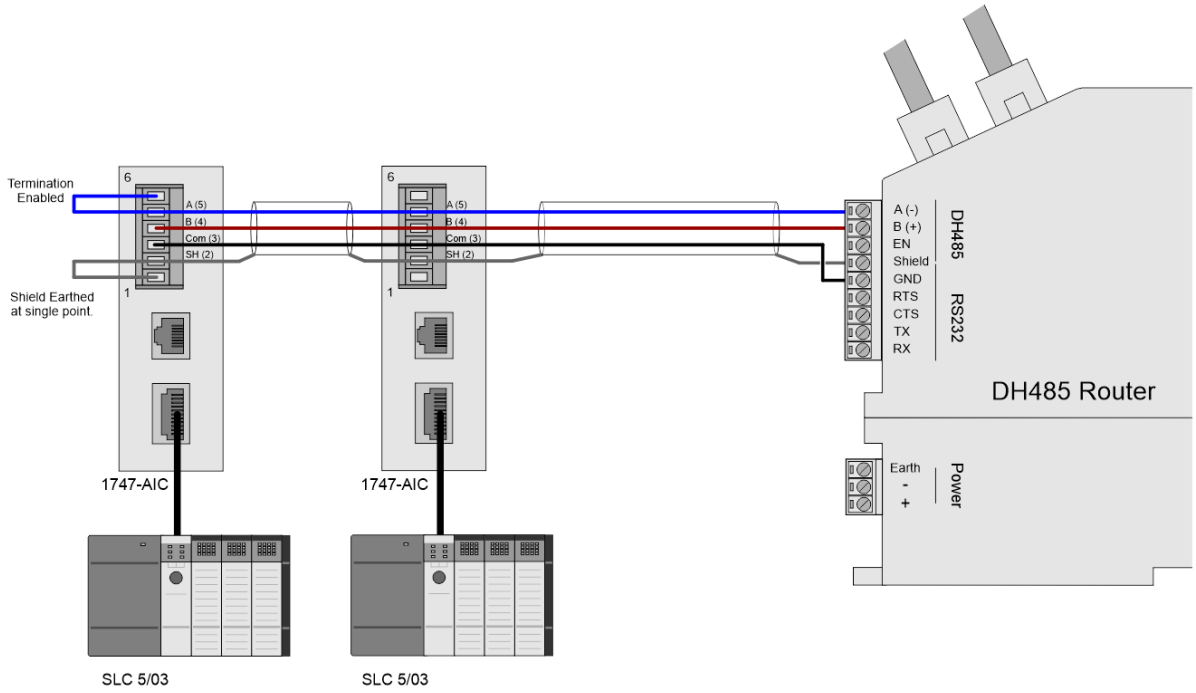


FIGURE 3.2. – SERIAL CABLE PINOUT – 1747-AIC

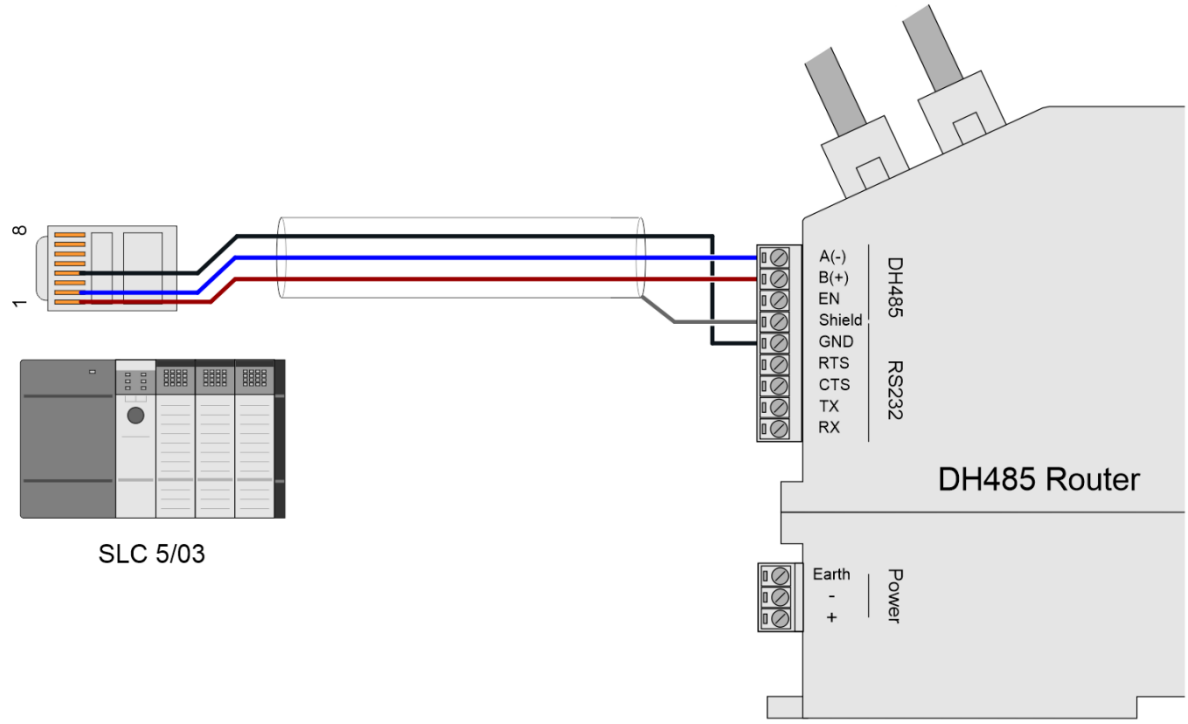


FIGURE 3.3. – SERIAL CABLE PINOUT – SLC DIRECT

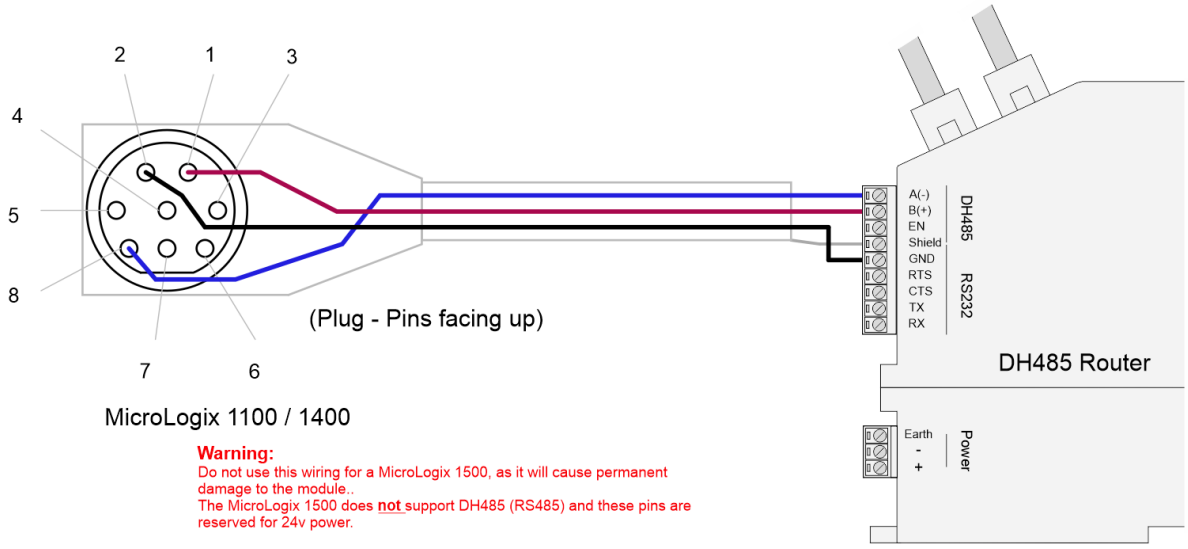


FIGURE 3.4. – SERIAL CABLE PINOUT – MICROLOGIX 1100 / 1400

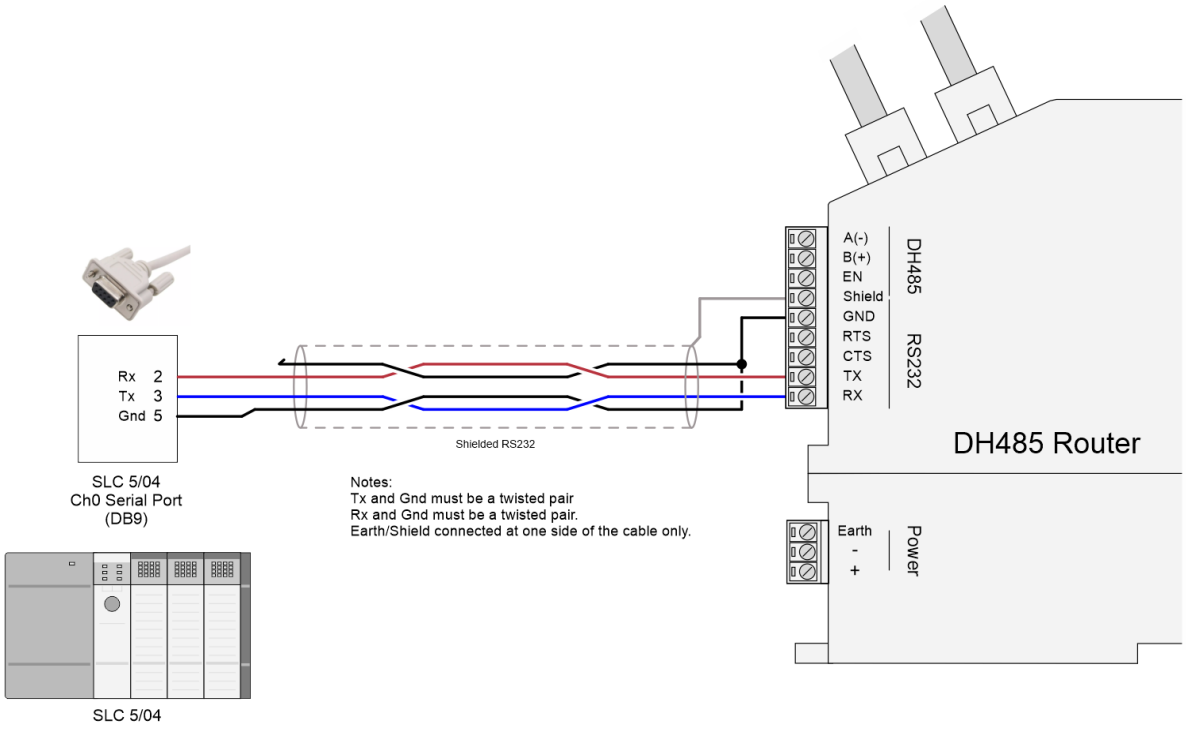


FIGURE 3.5. – SERIAL CABLE PINOUT – SLC5/04 (RS232)

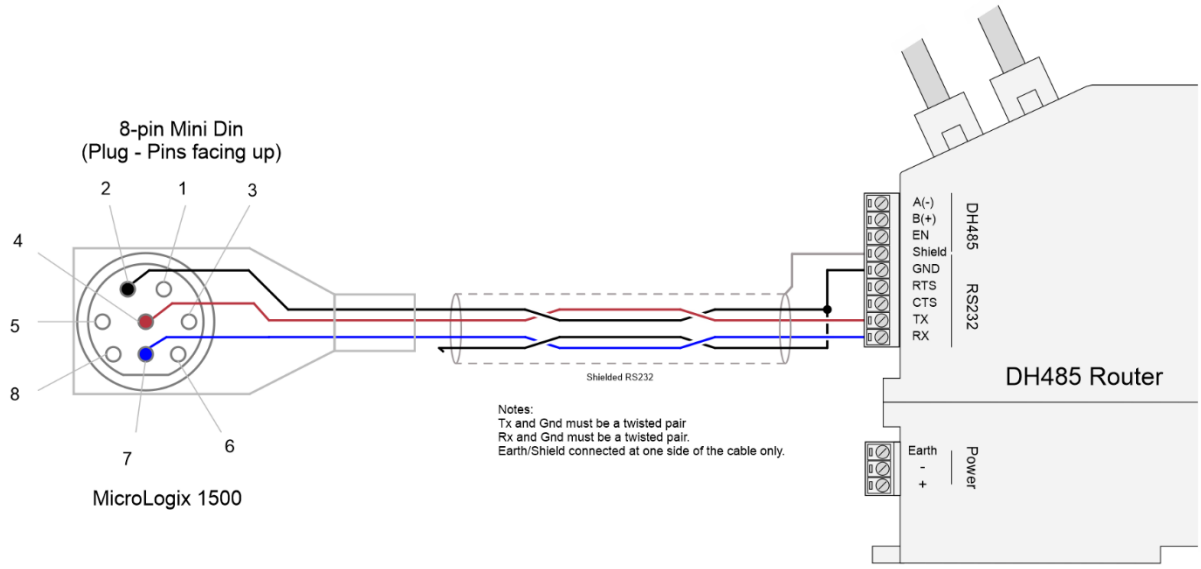


FIGURE 3.6. – SERIAL CABLE PINOUT – MICROLOGIX 1500 (RS232)

All RS485 networks need to be terminated at the extremities (start and end point) of the communication conductor. The termination is done by placing a resistor between the positive and negative communication conductor. The value of the resistor will depend on the characteristic impedance of the cable chosen, but generally ranges from 100 Ohm to 150 Ohm.

The DH485 Ground Bridge should be enabled and the user can also enable the DH485 Router internal RS485 terminator in the module configuration in Slate (see below):

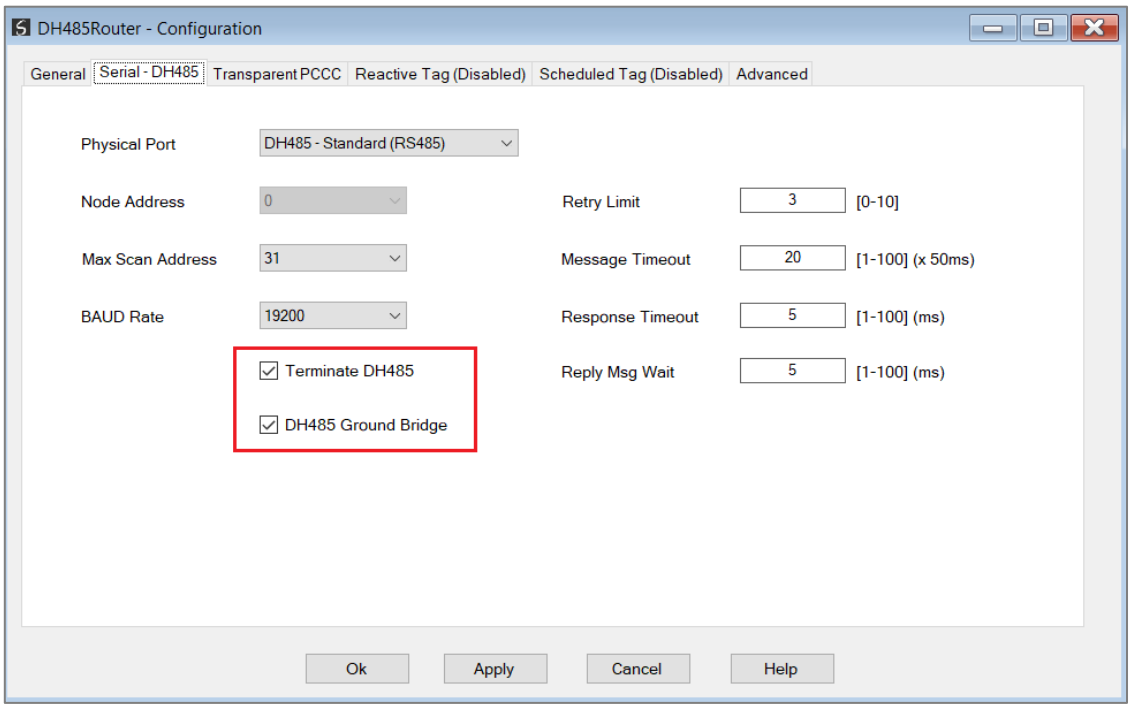


FIGURE 3.7. – INTERNAL RS485 TERMINATION

3.3. NET-ENI (CIP ENCAPSULATED PCCC) METHOD

3.3.1. DH485 ROUTER SETUP

The DH485 Router must be configured in Transparent PCCC mode, as shown below.

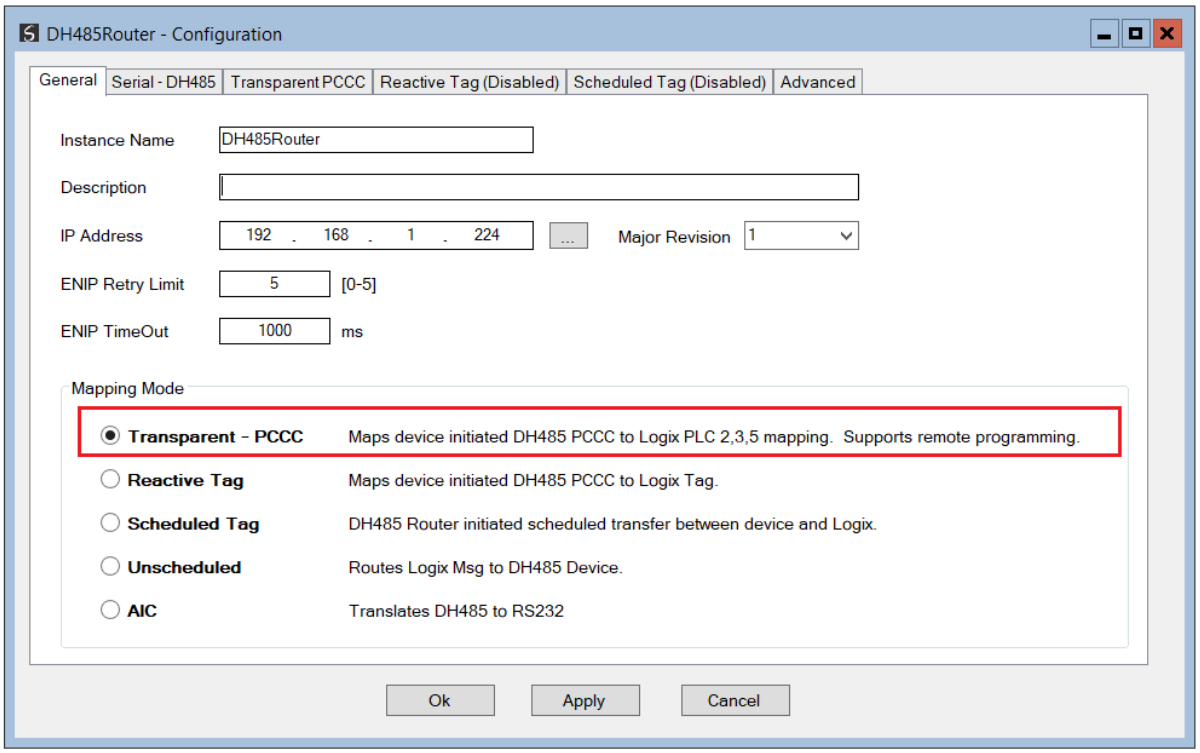


FIGURE 3.8. – DH485 GENERAL CONFIGURATION

In the Serial-DH485 settings, the BAUD Rate must match that of the SLC device (as configured using RSLogix 500).

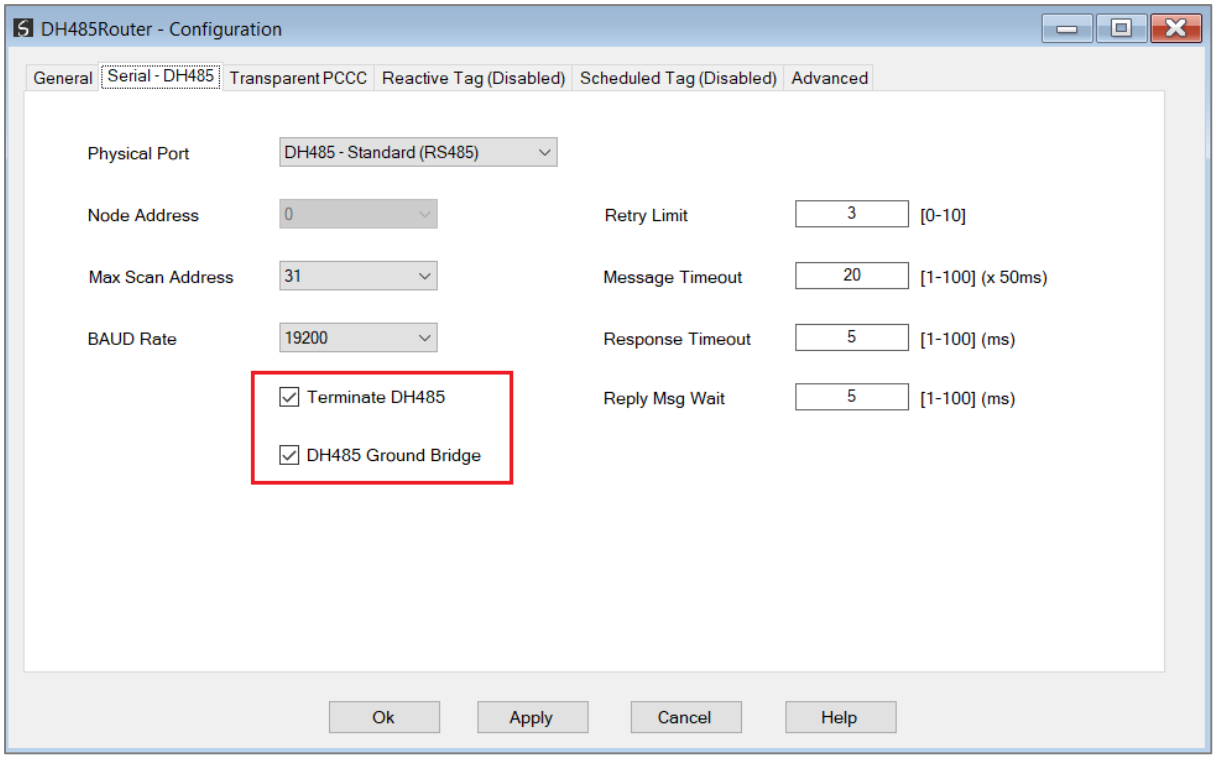


FIGURE 3.9. – DH485 SERIAL CONFIGURATION

NOTE: The physical port selected would depend on to which device the module is connected. See the Serial Cabling section for more details.

NOTE: At least one transparent mapped item must be added for the SLC500 programming to work on DH485. If the DH485 Router is used purely for communicating to the PanelView then the user can add a DH485 Node of zero with a IP address matching the PanelView connected. The reason for this is because the DH485 Router requires a node on the network.

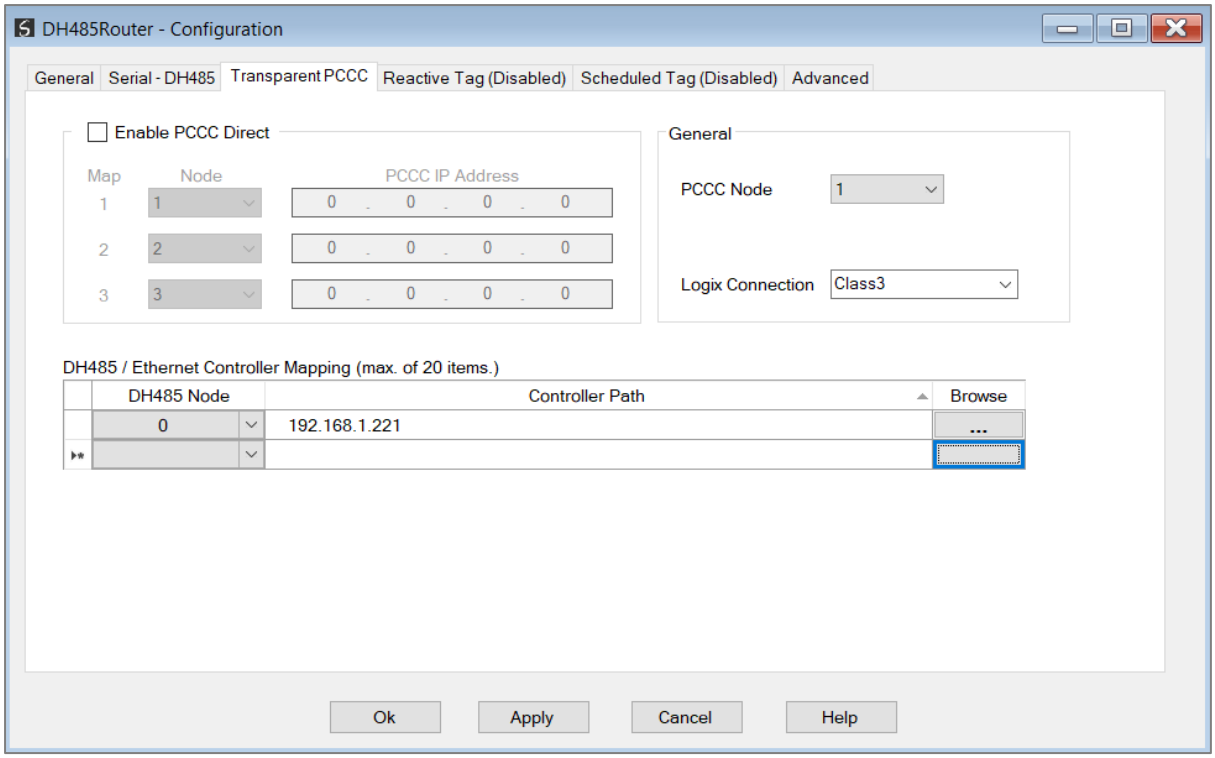


FIGURE 3.10. – TRANSPARENT PCCC CONFIGURATION

The PCCC Node allows the user to force the destination address of the DF1 message which is routed via the CIP embedded PCCC message.

NOTE: The RSLinx Enterprise driver does not allow the user to set the destination address to which the PanelView will communicate. The PCCC Node allows the user to set this address. The user can then have various PanelViews communicating to different SLC5xx controllers.

3.3.2. RSLOGIX 500 SETUP

Using RSLogix500, the DH485 port must be configured to match that of the DH485 Router's serial port settings with respect to BAUD rate.

3.3.3. FTVIEW SETUP

Open FTView Studio and create a new FTView project (SE or ME). The project explorer tree will appear on the left-hand side. Right-click on the newly created project and select the ***Add New Server*** option, followed by the *RSLinx Enterprise* option.

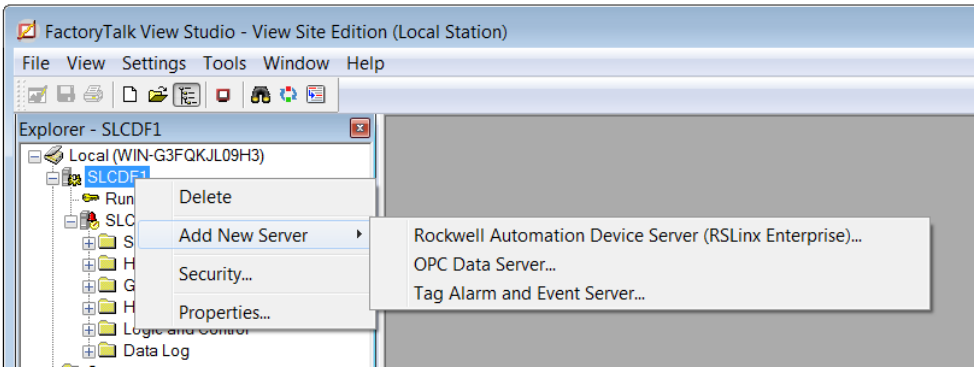


FIGURE 3.11. – FACTORY TALK SERVER ADD

The RSLinx Enterprise Server properties window will open. Select Ok.

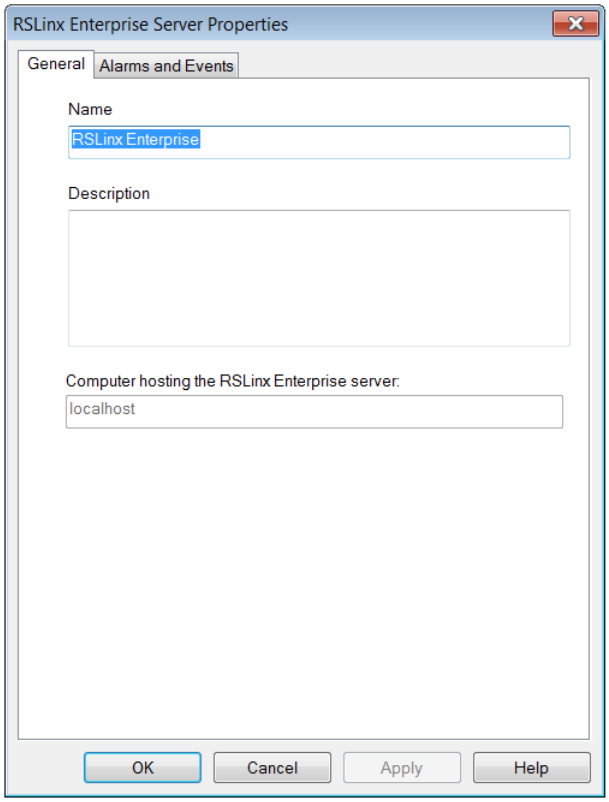


FIGURE 3.12. – FACTORY TALK SERVER GENERAL

The RSLinx Enterprise server will now appear in the project explorer tree. Double-click on the Communication Setup option below the RSLinx Enterprise server item.

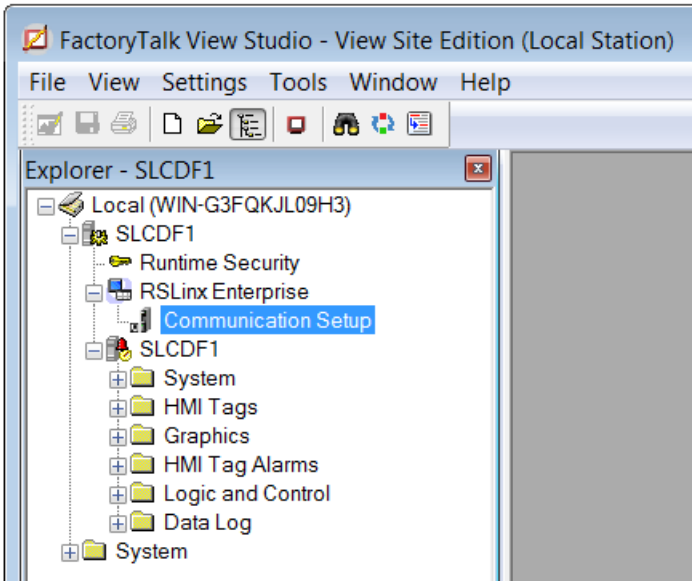


FIGURE 3.13. – FACTORY TALK COMMUNICATION SETUP

The DH485 Router will now be added using the NET ENI driver.

NOTE: It is recommended that the Ethernet cable be disconnect from your PC at this point. Otherwise the Ethernet driver will automatically detect and add the DH485 Router as an EtherNet/IP device.

In the Communication Setup window, right-click on the Ethernet driver and select ***Add Device***.

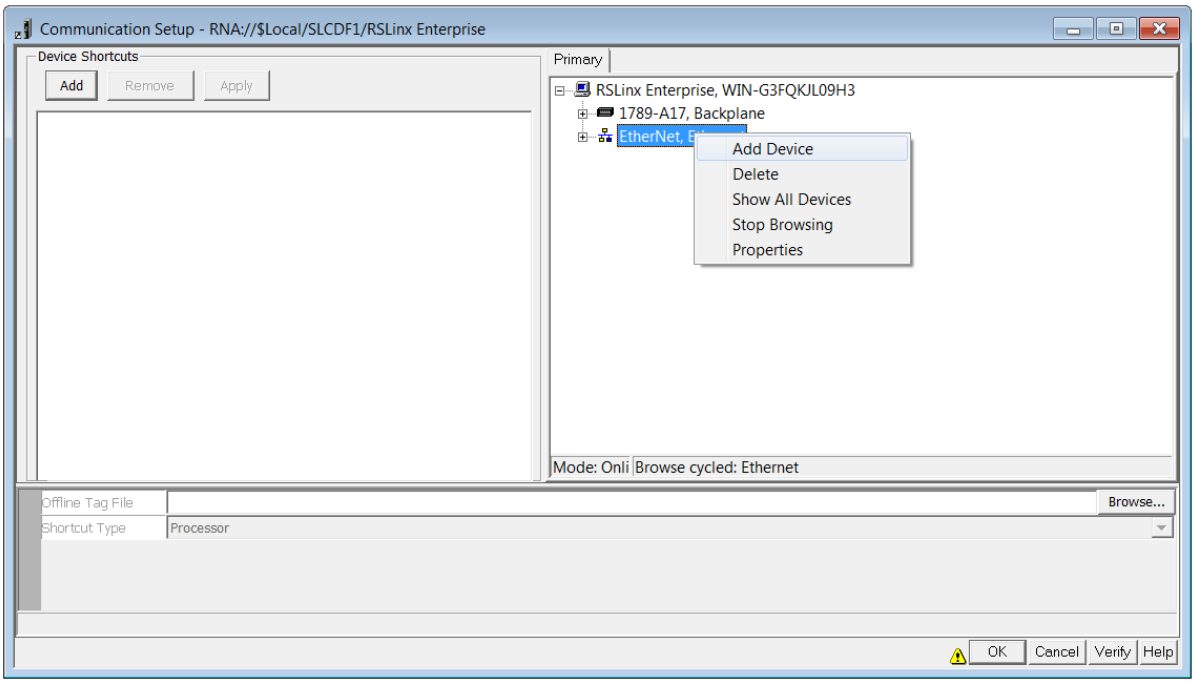


FIGURE 3.14. – FACTORY TALK RSLINX COMMUNICATION SETUP

In the Add Device Selection window, expand the NetENI-connected PCCC devices. Below that, expand the SLC and MicroLogix Processors.
Select the 1747-L541 SLC 5/03.

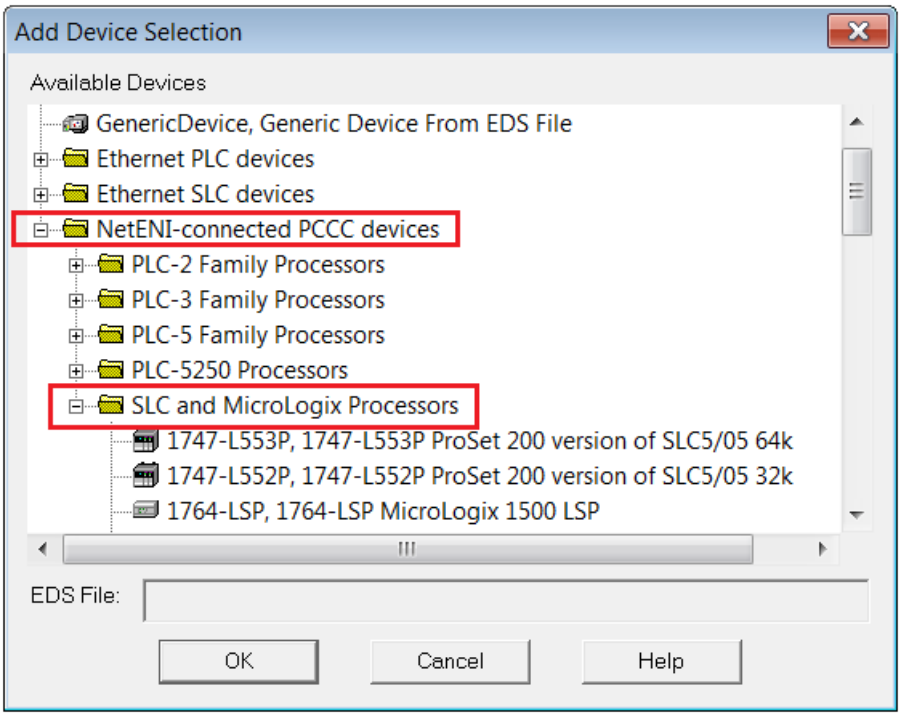


FIGURE 3.15. – FACTORY TALK DEVICE SELECTION

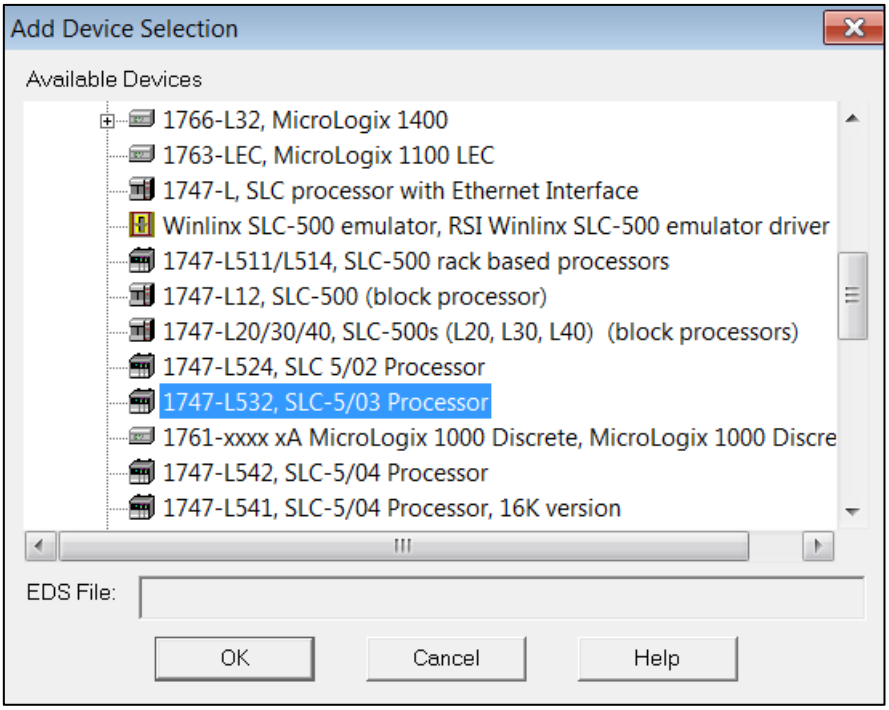


FIGURE 3.16. – FACTORY TALK DEVICE SELECTION

In the Device Properties window, enter the **IP Address of the DH485 Router** module and select Ok.

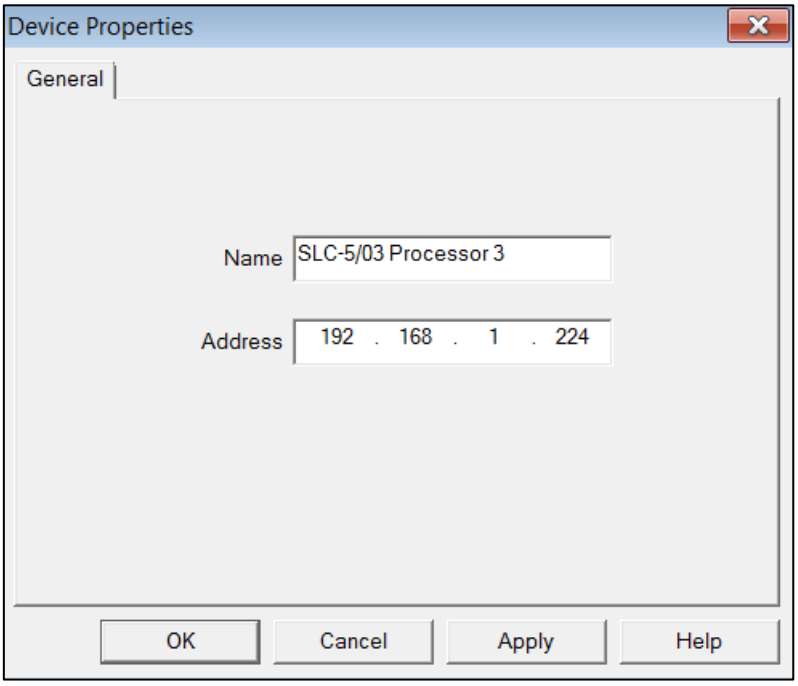


FIGURE 3.17. – FACTORY TALK DEVICE PROPERTIES

The newly added device will now appear in the Communication Setup tree under Ethernet devices. On the left side of the window, under Device Shortcuts, select the Add button and create a shortcut and give it a suitable name. Then select the SLC device on the right-hand side and select the Apply button (near the top under Device Shortcuts,) to associate the shortcut to the device.

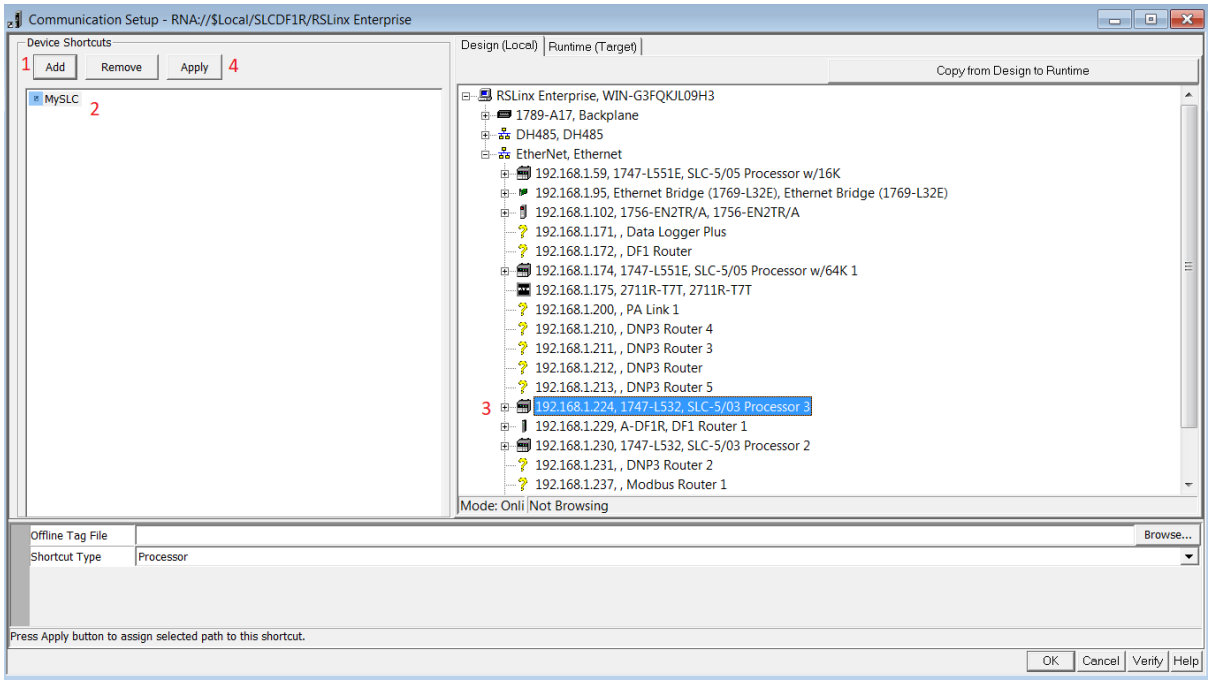


FIGURE 3.18. – FACTORY TALK RSLINX SETUP

The association will need to be confirmed by selecting ***Yes*** in the dialog window below.

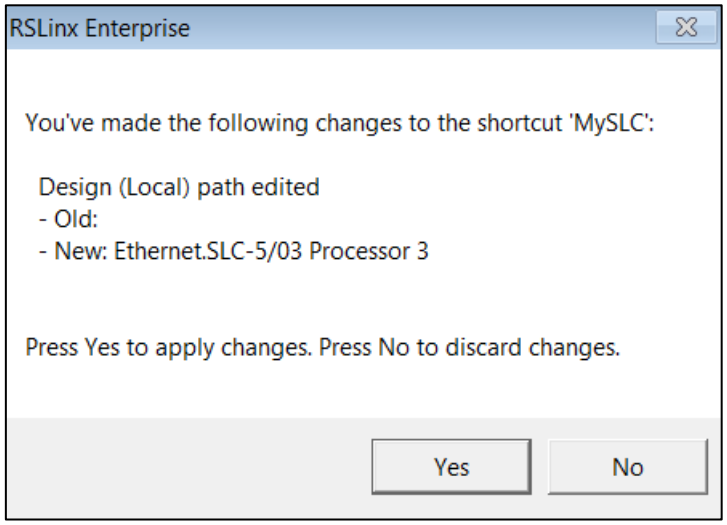


FIGURE 3.19. – FACTORY TALK RSLINX SETUP

The Communication Setup changes can then be accepted by selecting the ***Ok*** button at the bottom of the window.

NOTE: If the Ethernet cable was disconnected in the previous step, this would be a good time to reconnect it.

To test the communication, a new display can be created. Using the project explorer tree, under the ***Graphics*** section, right-click on the ***Display*** option and select ***New***.

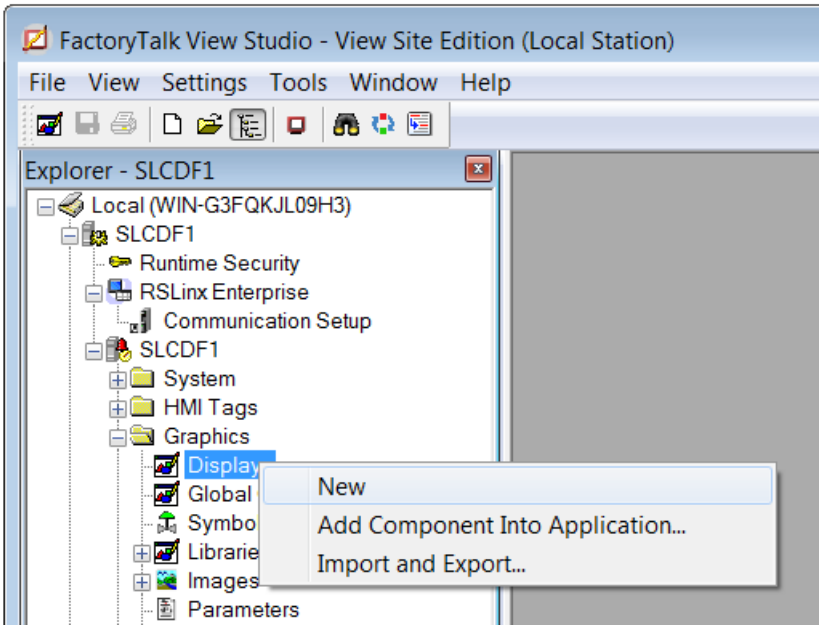


FIGURE 3.20. – FACTORY TALK NEW DISPLAY

Using the toolbar, add a Numeric Display object to the window.

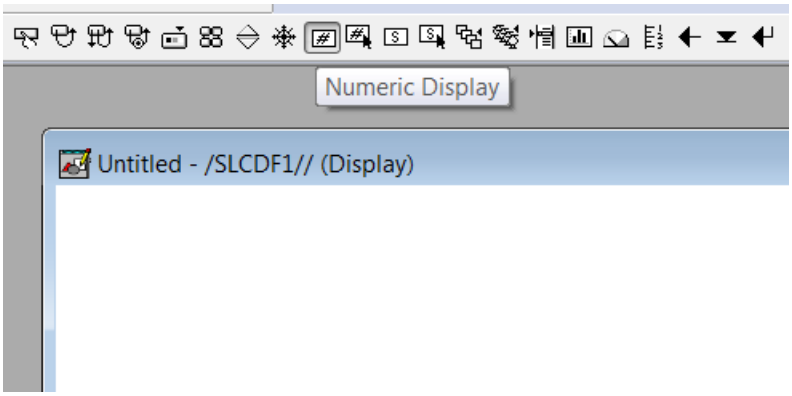


FIGURE 3.21. – FACTORY TALK NUMERIC DISPLAY

In the ***Numeric Display Properties*** window, select the ***Tags*** option.

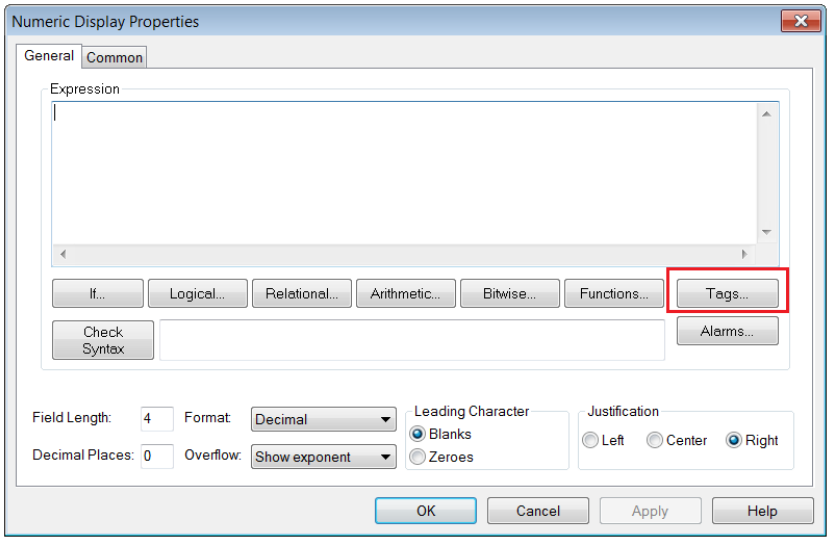


FIGURE 3.22. – FACTORY TALK DISPLAY PROPERTIES

The Tag Browser window will open. Since this is the first time the Tag Browser has been opened since the addition of the SLC device the tags must be refreshed. This is achieved by right-clicking at the folder tree and selecting the ***Refresh All Folders*** option.

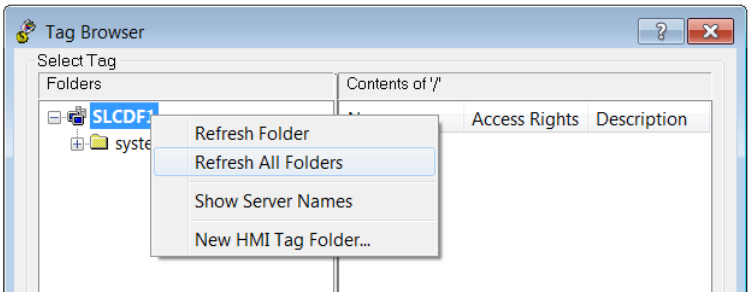


FIGURE 3.23 – FACTORY TALK TAG BROWSER

All the SLC data files will now be listed and can be selected for animation.

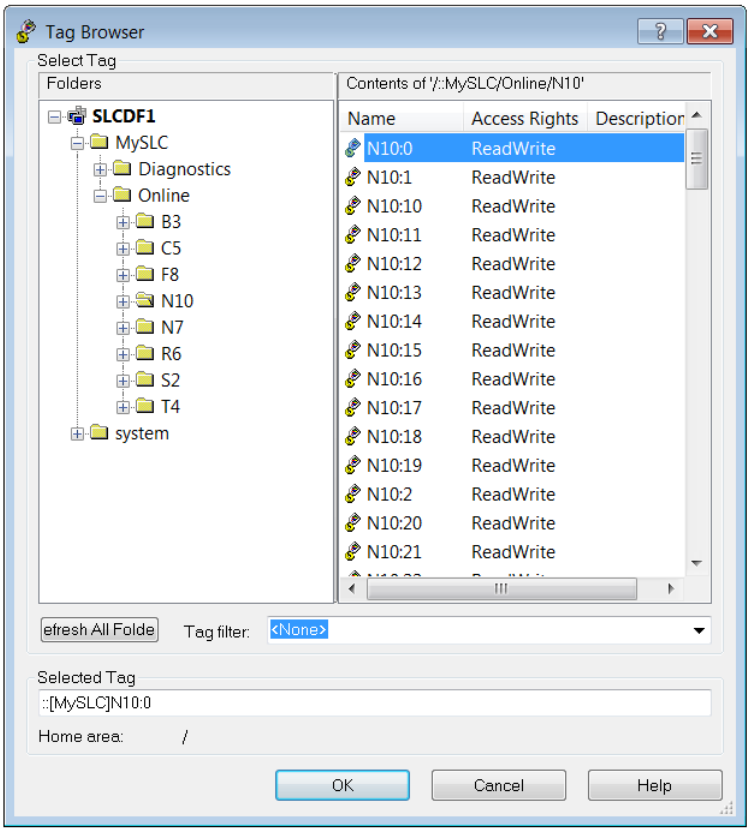


FIGURE 3.24. – FACTORY TALK FILE SELECTION

3.4. ETHERNET PCCC METHOD

3.4.1. DH485 ROUTER SETUP

The DH485 Router must be configured in Transparent PCCC mode, as shown below.

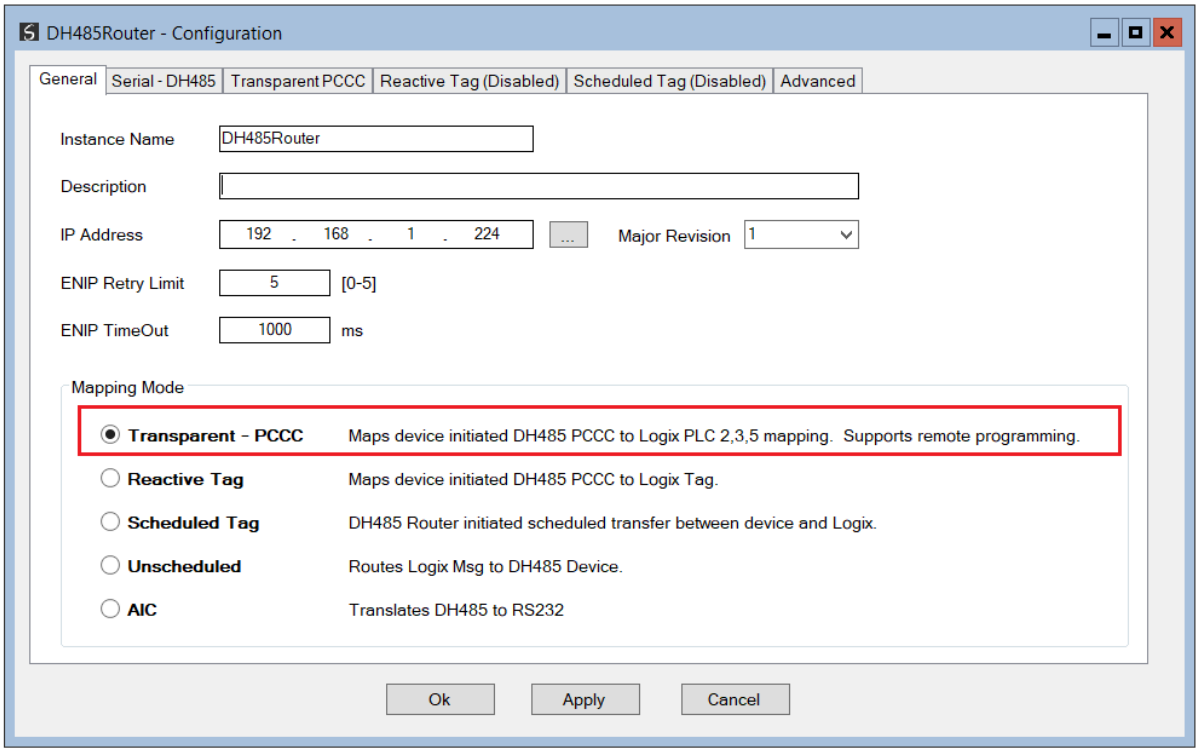


FIGURE 3.25. – DH485 GENERAL CONFIGURATION

In the Serial-DH485 settings, the BAUD Rate must match that of the SLC device (as configured using RSLogix 500).

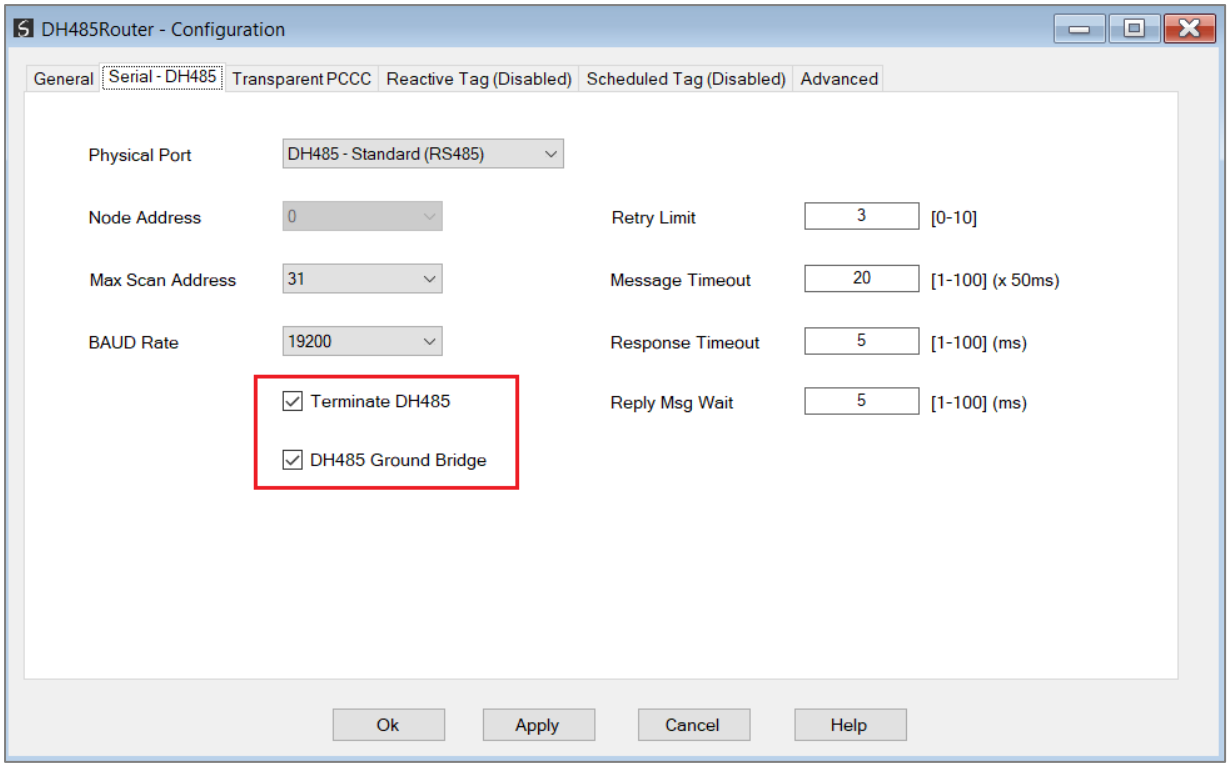


FIGURE 3.26. – DH485 SERIAL CONFIGURATION

NOTE: The physical port selected would depend on to which device the module is connected. See the Serial Cabling section for more details.

NOTE: At least one transparent mapped item must be added for the SLC500 programming to work on DH485. If the DH485 Router is used purely for communicating to the PanelView then the user can add a DH485 Node of zero with a IP address matching the PanelView connected. The reason for this is because the DH485 Router requires a node on the network.

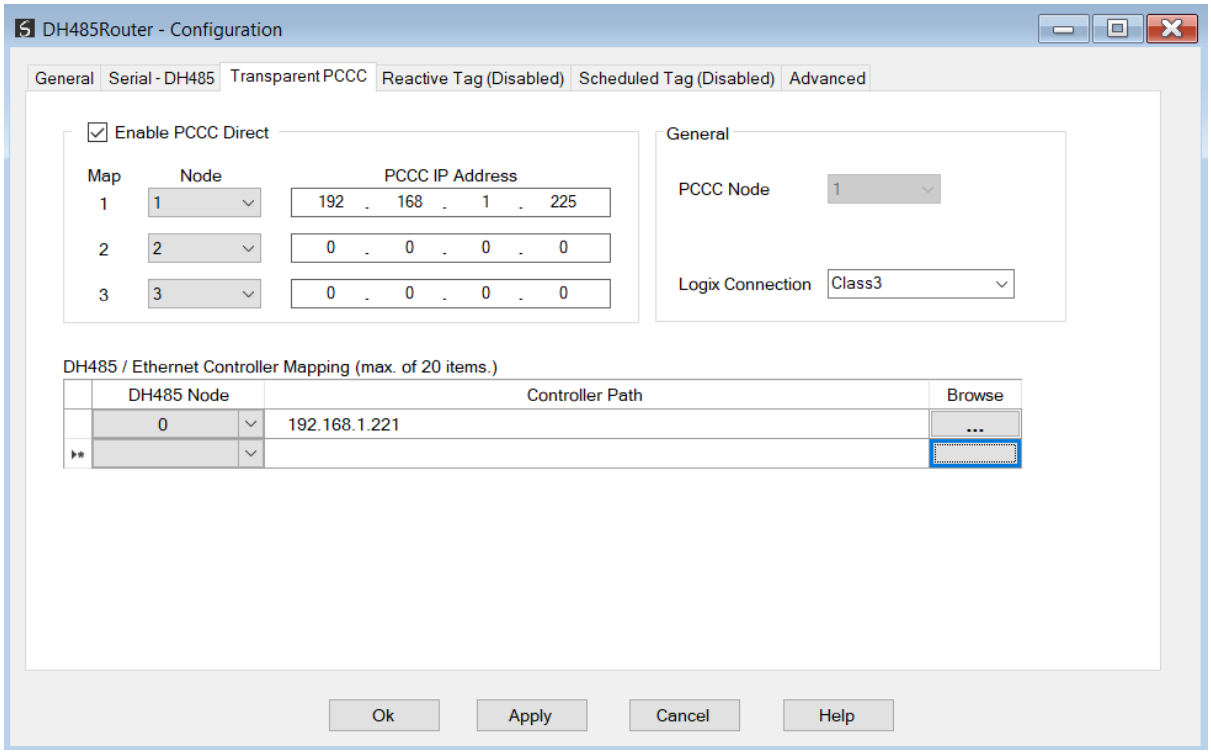


FIGURE 3.27. – TRANSPARENT PCCC CONFIGURATION

Up to three PCCC IP Address can be configured for the module, each with a matching DH485 node. This will allow the DH485 Router module to connect FTView applications to as many as three different SLC controllers. The *Node* parameter allows the user to force the destination address of the DF1 message sent to the matching IP address which is routed via the PCCC protocol.

NOTE: The RSLinx Enterprise driver does not allow the user to set the destination address to which the PanelView will communicate. The Node for each PCCC IP Address allows the user to set this address. The user can then have various PanelViews communicating to different SLC5/03 controllers.

3.4.2. RSLOGIX 500 SETUP

Using RSLogix500, the DH485 port must be configured to match that of the DH485 Router's serial port settings with respect to BAUD rate.

3.4.3. FTVIEW SETUP

Open FTView Studio and create a new FTView project (SE or ME). The project explorer tree will appear on the left-hand side. Right-click on the newly created project and select the ***Add New Server*** option, followed by the *RSLinx Enterprise* option.

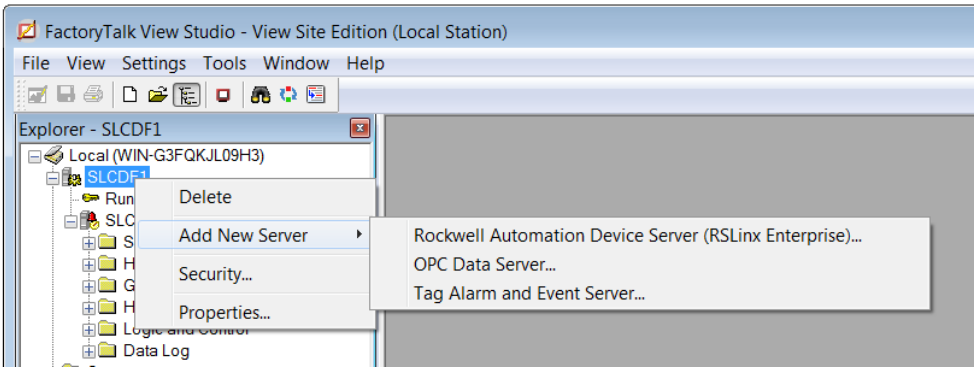


FIGURE 3.28. – FACTORY TALK SERVER ADD

The RSLinx Enterprise Server properties window will open. Select Ok.

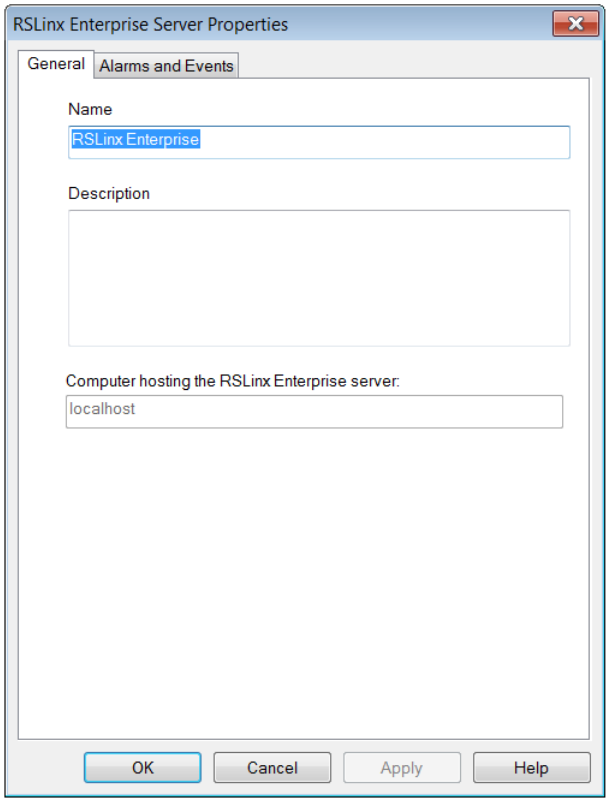


FIGURE 3.29. – FACTORY TALK SERVER GENERAL

The RSLinx Enterprise server will now appear in the project explorer tree. Double-click on the Communication Setup option below the RSLinx Enterprise server item.

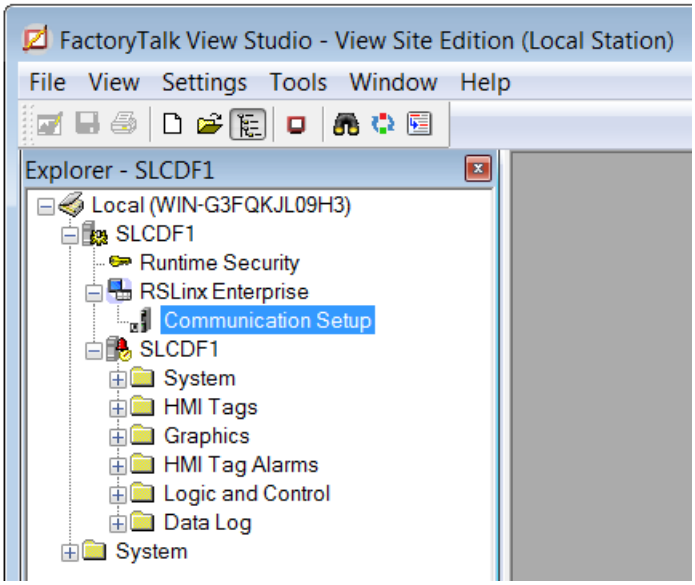


FIGURE 3.30. – FACTORY TALK COMMUNICATION SETUP

The DH485 Router will now be added using the Ethernet SLC driver.
In the Communication Setup window, right-click on the Ethernet driver and select ***Add Device***.

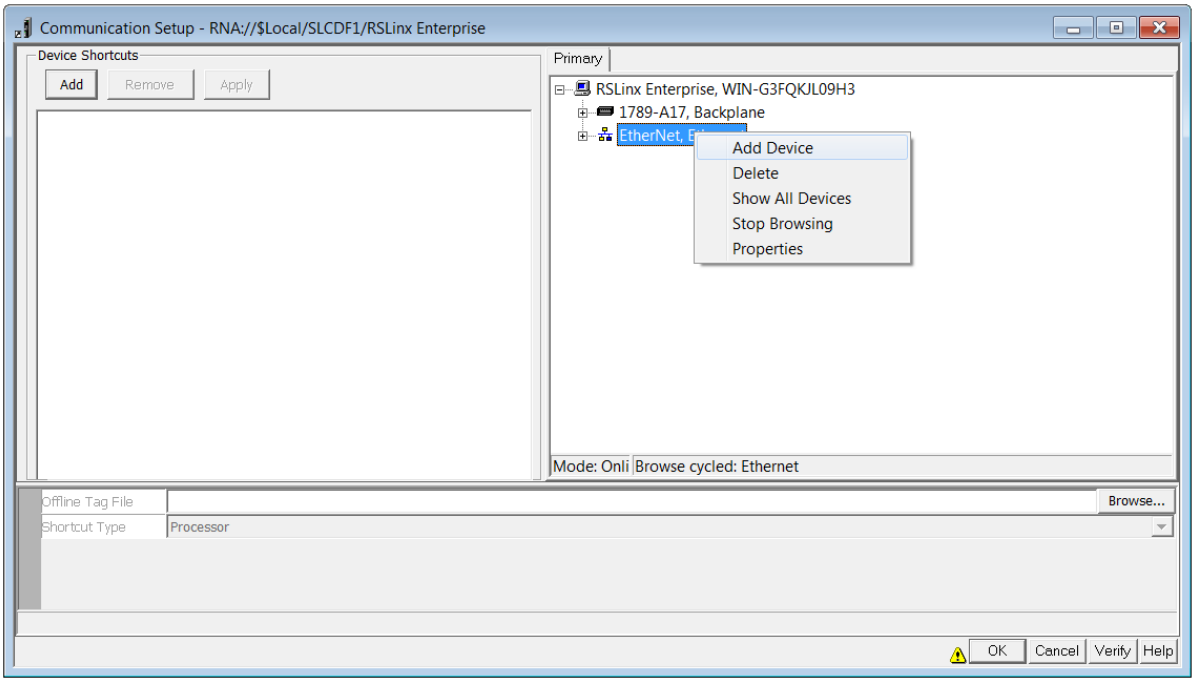


FIGURE 3.31. – FACTORY TALK RSLINX COMMUNICATION SETUP

In the Add Device Selection window, expand the *Ethernet SLC devices*.
Select the *1747-L551E, SLC 5/05 Processor w/16K*.

NOTE: Even if you are using a different SLC controller (e.g., SLC5/03), the *1747-L551E, SLC 5/05 Processor w/16K* device needs to be selected.

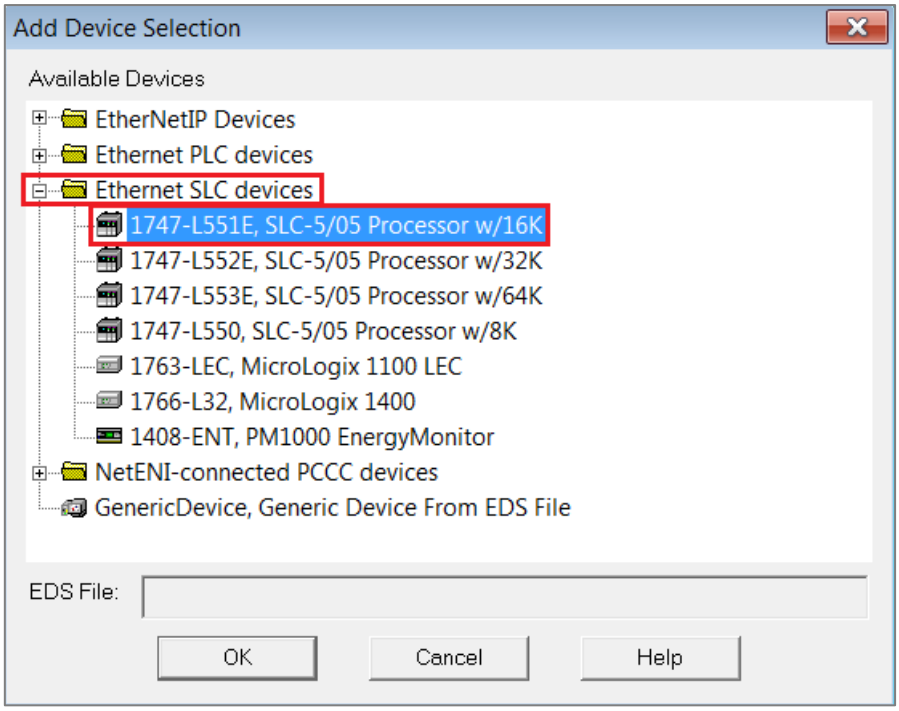
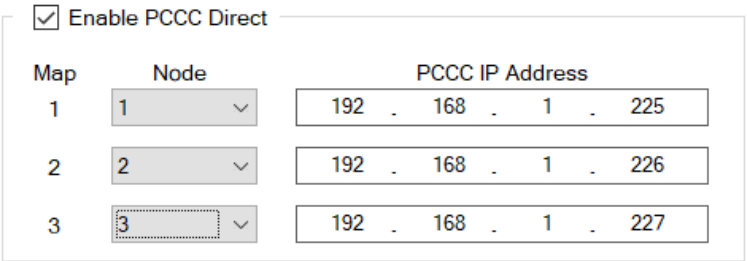


FIGURE 3.32. – FACTORY TALK DEVICE SELECTION

In the Device Properties window, enter one of the **PCCC IP Addresses in the PCCC Direct Map** and select Ok.

NOTE: The needed PCCC IP Address will be the one with the DH485 target address matching the desired SLC controller. For example, if the user has three SLCs on the network at DH485 Node address 1,2, and 3 and the mapping is as shown below:



Then if the FTView application must communicate with the SLC at DH485 node address 2, the IP Address 192.168.1.226 must be entered into the *Address* box of the Driver Device Properties.

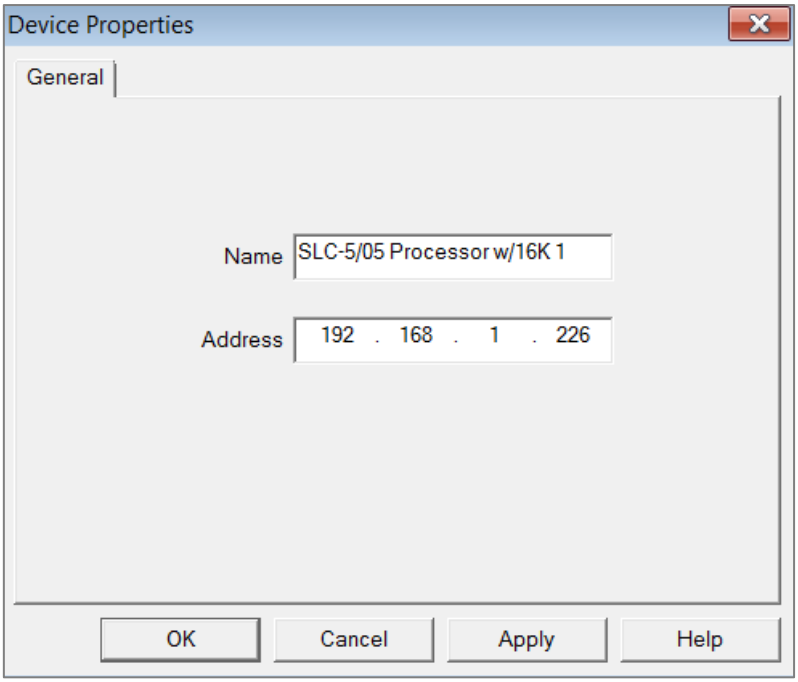


FIGURE 3.33. – FACTORY TALK DEVICE PROPERTIES

If the FTView application requires to communicate with more than one SLC, then another Device Driver must be added using the PCCC IP Address matching the DH485 node number of the target SLC.

The newly added device will now appear in the Communication Setup tree under Ethernet devices. On the left side of the window, under Device Shortcuts, select the Add button and create a shortcut and give it a suitable name. Then select the SLC device on the right-hand side and select the Apply button (near the top under Device Shortcuts,) to associate the shortcut to the device.

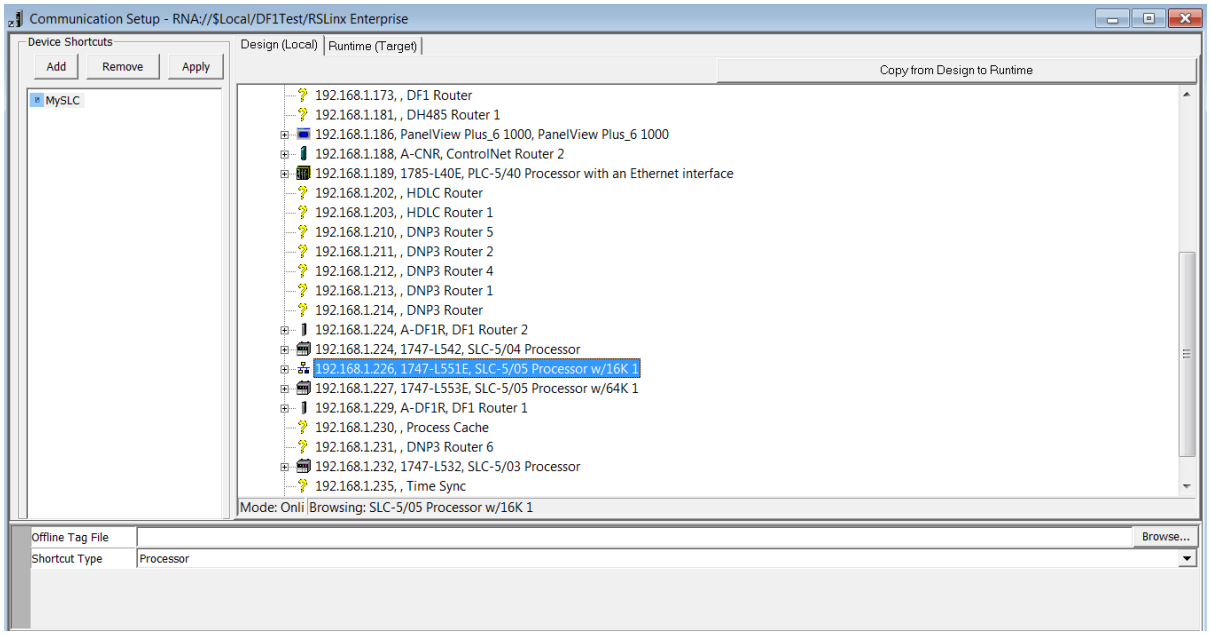


FIGURE 3.34. – FACTORY TALK RSLINX SETUP

The association will need to be confirmed by selecting ***Yes*** in the dialog window below.

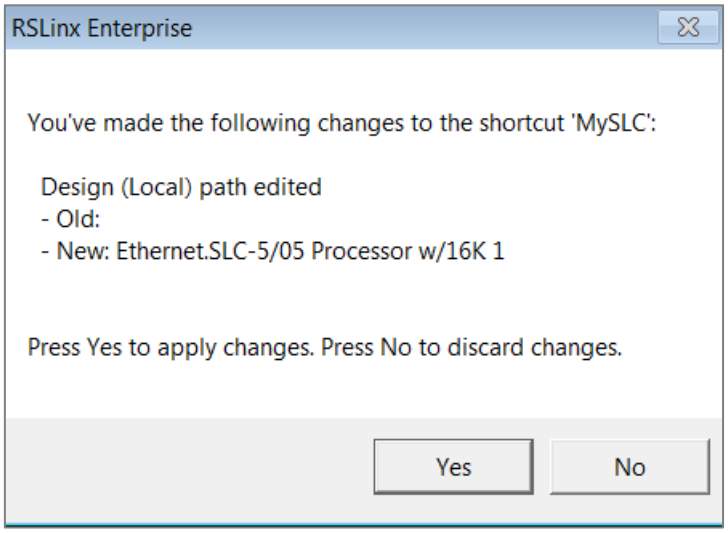


FIGURE 3.35. – FACTORY TALK RSLINX SETUP

The Communication Setup changes can then be accepted by selecting the ***Ok*** button at the bottom of the window.

NOTE: If the Ethernet cable was disconnected in the previous step, this would be a good time to reconnect it.

To test the communication, a new display can be created. Using the project explorer tree, under the ***Graphics*** section, right-click on the ***Display*** option and select ***New***.

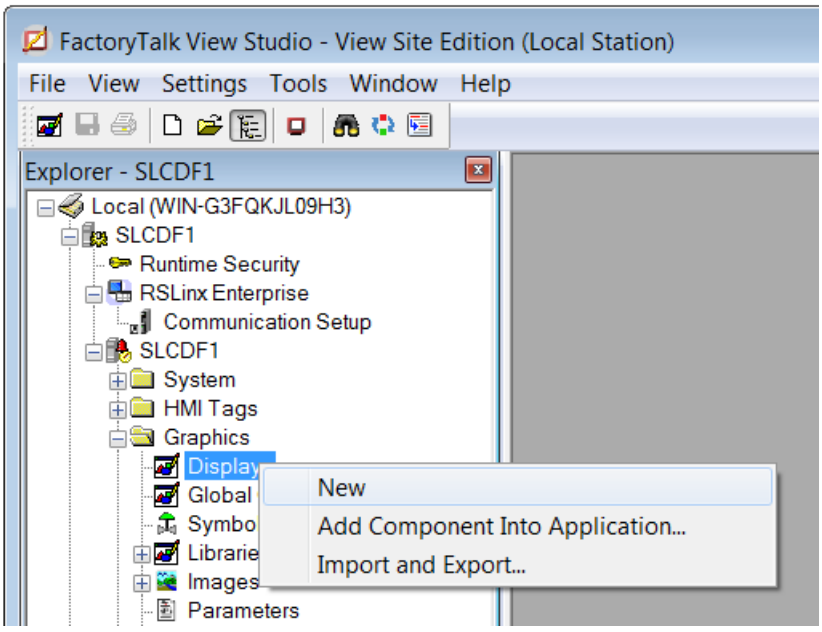


FIGURE 3.36. – FACTORY TALK NEW DISPLAY

Using the toolbar, add a Numeric Display object to the window.

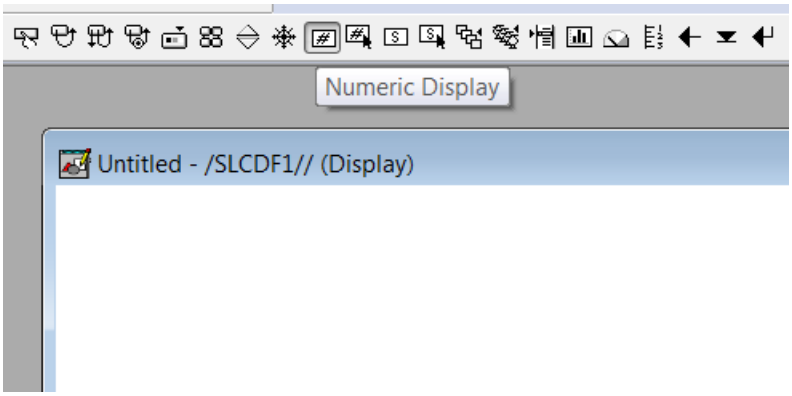


FIGURE 3.37. – FACTORY TALK NUMERIC DISPLAY

In the ***Numeric Display Properties*** window, select the ***Tags*** option.

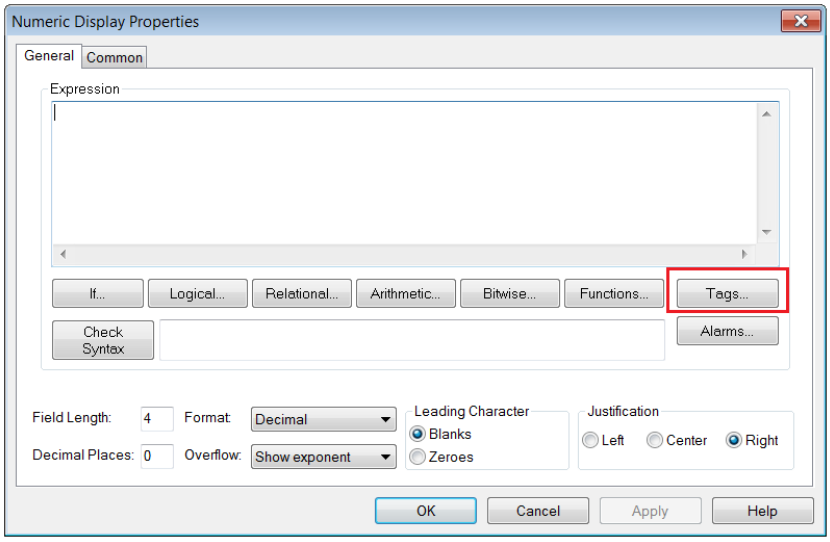


FIGURE 3.38. – FACTORY TALK DISPLAY PROPERTIES

The Tag Browser window will open. Since this is the first time the Tag Browser has been opened since the addition of the SLC device the tags must be refreshed. This is achieved by right-clicking at the folder tree and selecting the ***Refresh All Folders*** option.

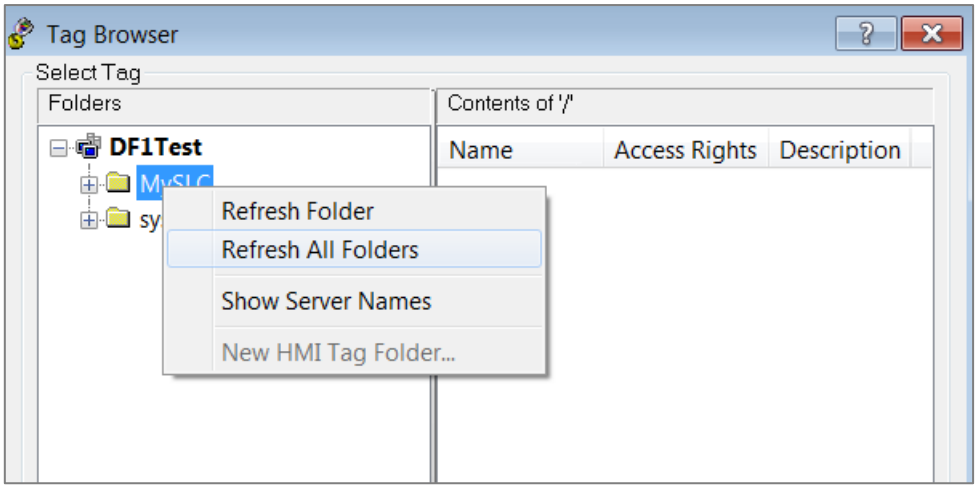


FIGURE 3.39 – FACTORY TALK TAG BROWSER

All the SLC data files will now be listed and can be selected for animation.

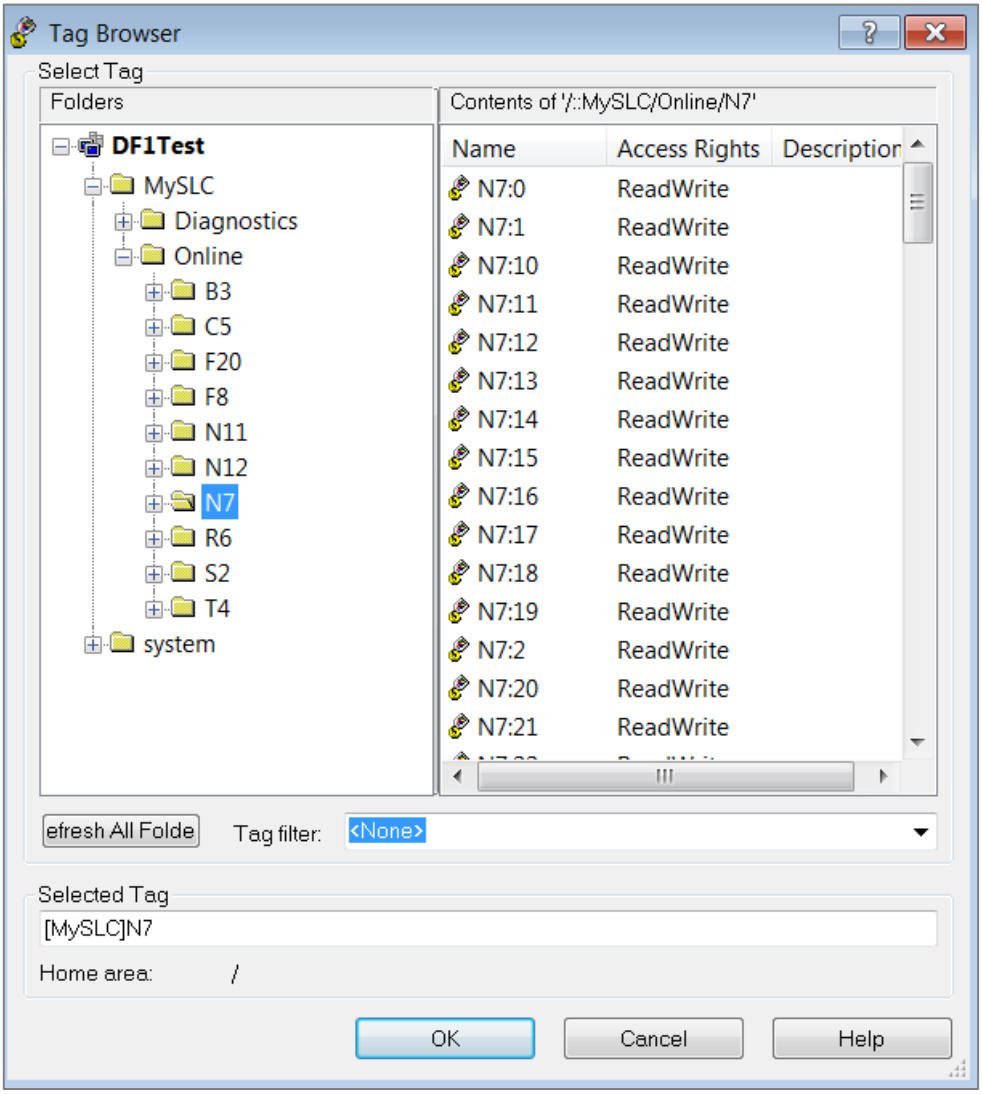


FIGURE 3.40. – FACTORY TALK FILE SELECTION