DH485 Router/B

FTView Interface to Logix via DH485

Technical Application Note

A-DH485R

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1. PREFACE

1.1. PURPOSE OF THIS DOCUMENT

This document will assist the user to setup two DH485 Router/B (referred to as DH485 Router 1 and Router 2 in this document) to allow an FTView / PanelView Plus application to communicate with Logix tags mapped to SLC file types.

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	www.aparian.com/contact-us
Support email	support@aparian.com

2. APPLICATION DESCRIPTION

By using two Aparian DH485 Routers you are able to communicate with a ControlLogix or CompactLogix controller which has been configured to map a Logix tag to an SLC data file.

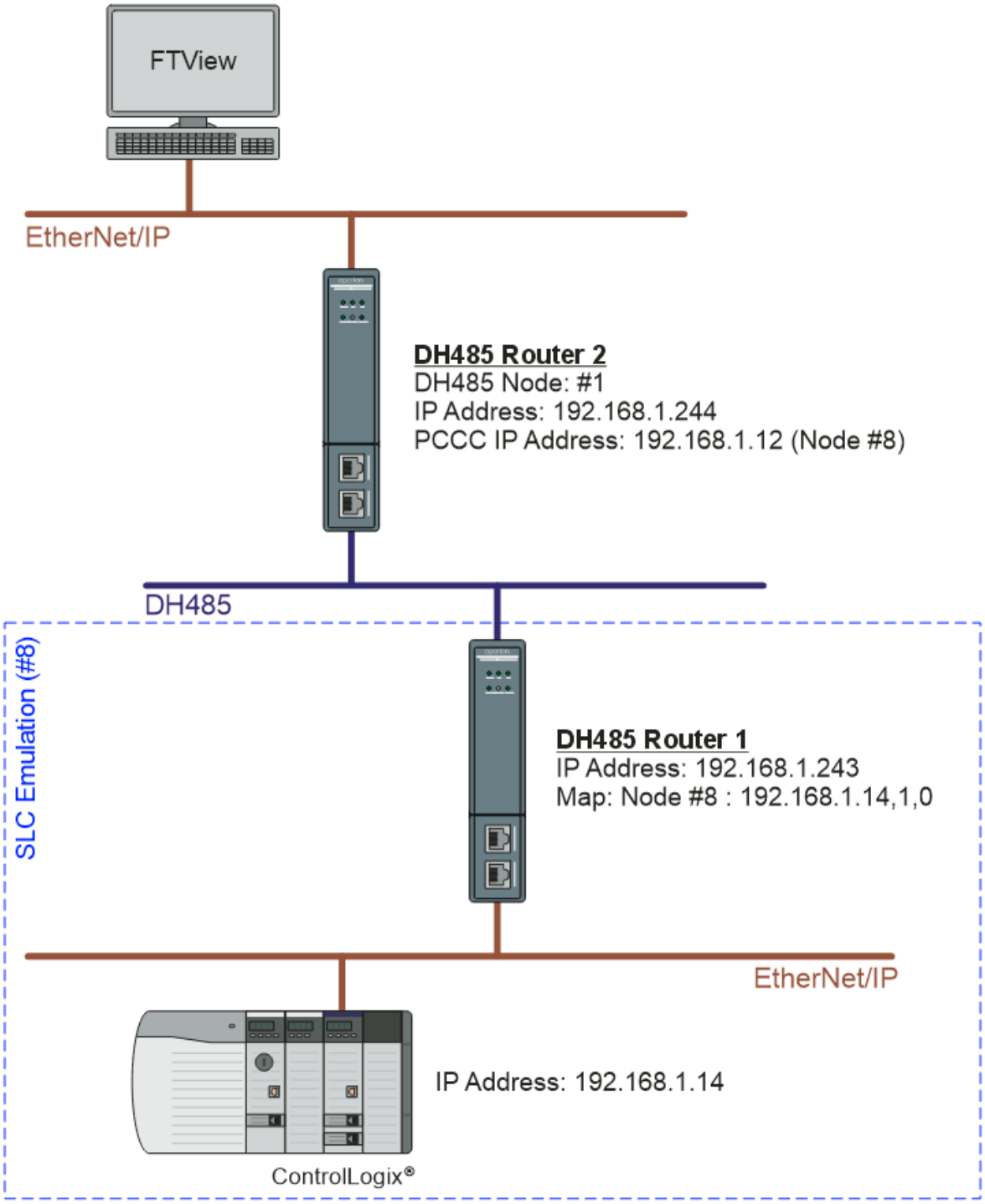


FIGURE 2.1. - EXAMPLE OF NETWORK SETUP

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.

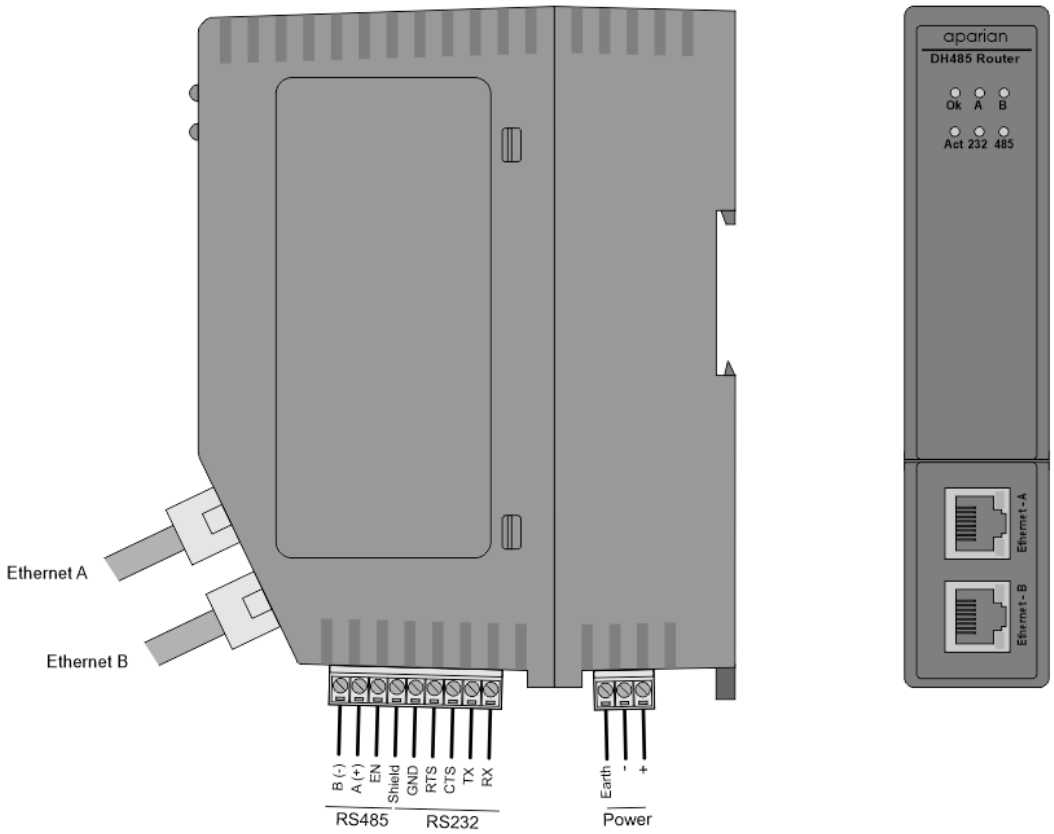


FIGURE 3.1. - DH485 ROUTER/B SIDE AND FRONT VIEW

3.2. DH485 CABLE WIRING

The two DH485 Routers should be connected as shown in the figure below:

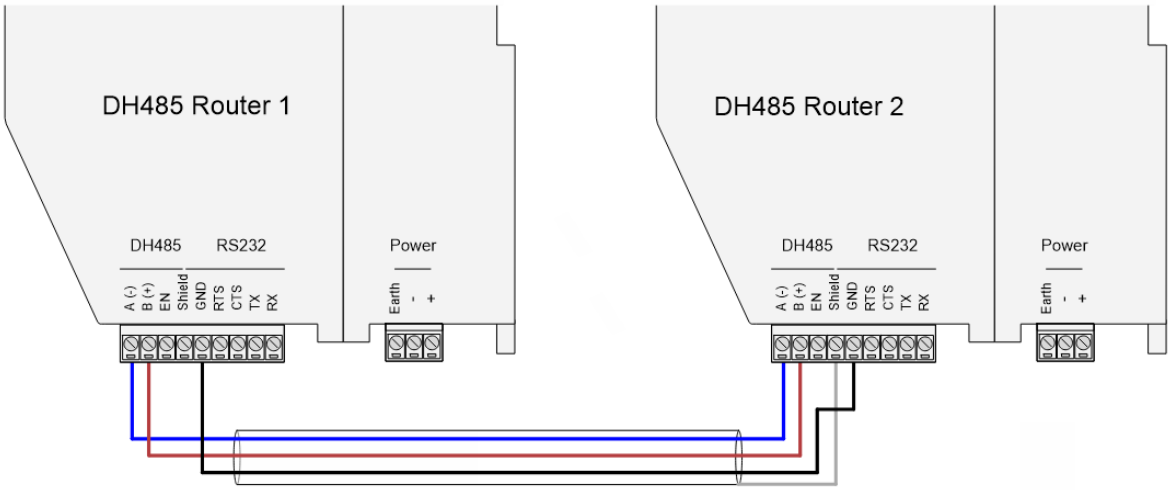


FIGURE 3.2. – DH485 CABLE WIRING

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 user can also enable the DH485 Router internal RS485 terminator in the module configuration in Slate (see below):

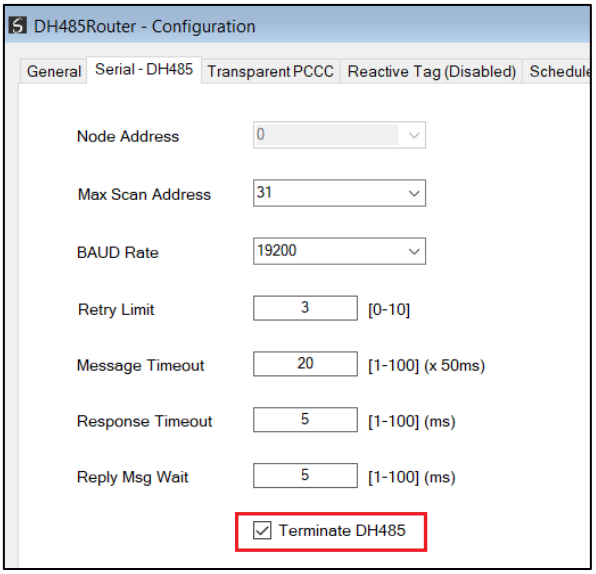


FIGURE 3.3. – INTERNAL RS485 TERMINATION

3.3. DH485 ROUTERS SETUP

Both DH485 Routers must be configured in Transparent PCCC Mode.

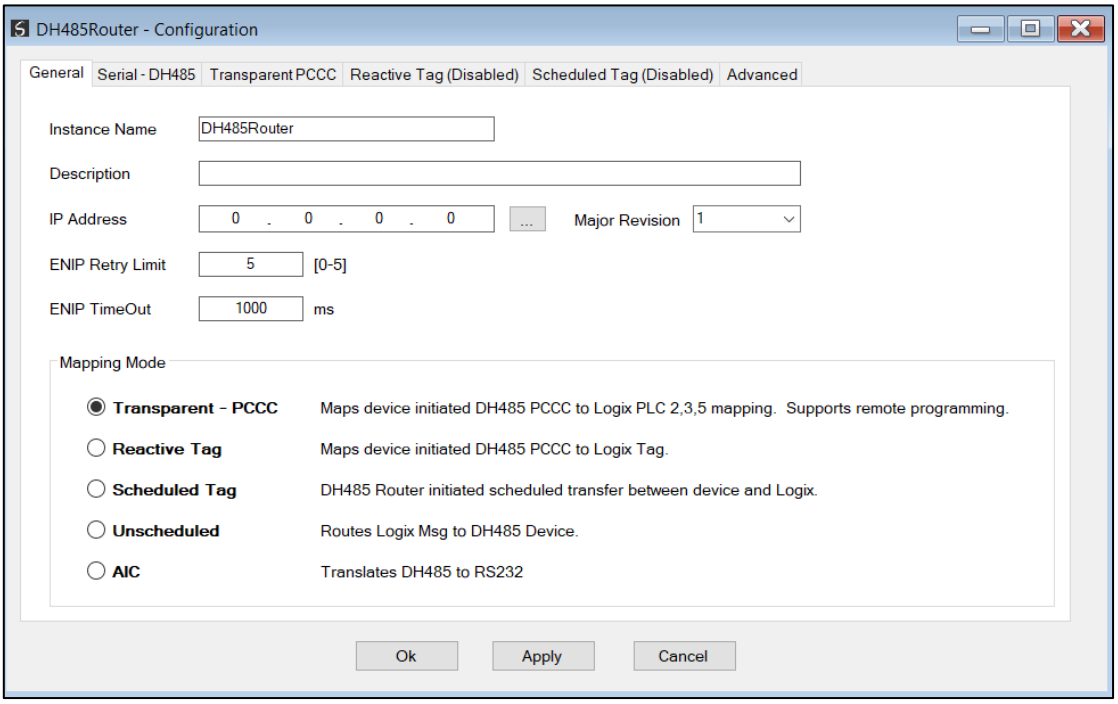


FIGURE 3.4. – DH485 GENERAL CONFIGURATION

3.3.1. ROUTER 1 – TRANSPARENT PCCC CONFIGURATION

Configure Router 1 to represent the connected Logix controller as a node on the DH485 network.

In the Transparent PCCC configuration, add the Ethernet/IP path to the Logix controller and assign a DH485 Node Address to the controller.

NOTE: If you do not know your exact controller path use the browse functionality to open Target Browser and select your exact controller.

The selected node address will be used by Router 2 when routing PCCC messages to the Logix controller.

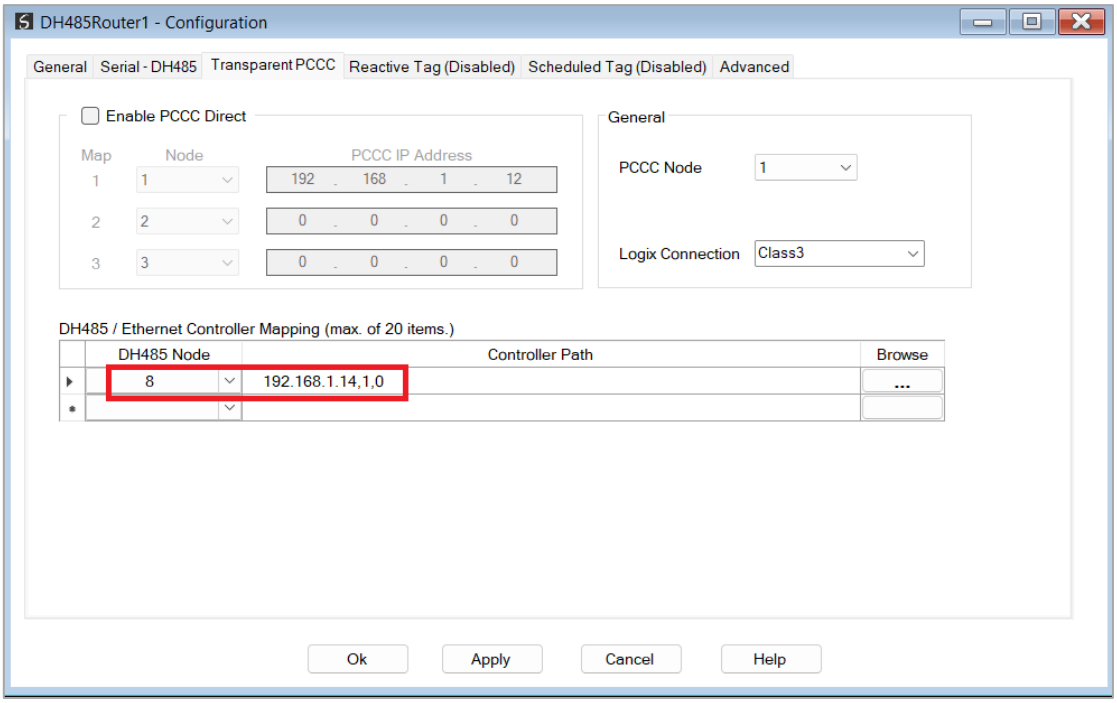


FIGURE 3.5. – ROUTER 1 LOGIX CONTROLLER PATH

3.3.2. ROUTER 2 – PCCC DIRECT CONFIGURATION

Router 2 provides the interface between the Ethernet-based PCCC client (e.g. FTView) and the DH485 network.

In Router 2's Transparent PCCC configuration:

1. Enable PCCC Direct
2. Enter the same DH485 Node Address configured for the Logix controller in Router 1.
3. Assign a unique PCCC Direct IP Address.

The PCCC Direct IP Address is used by the PCCC client to communicate with the controller represented by the selected DH485 node.

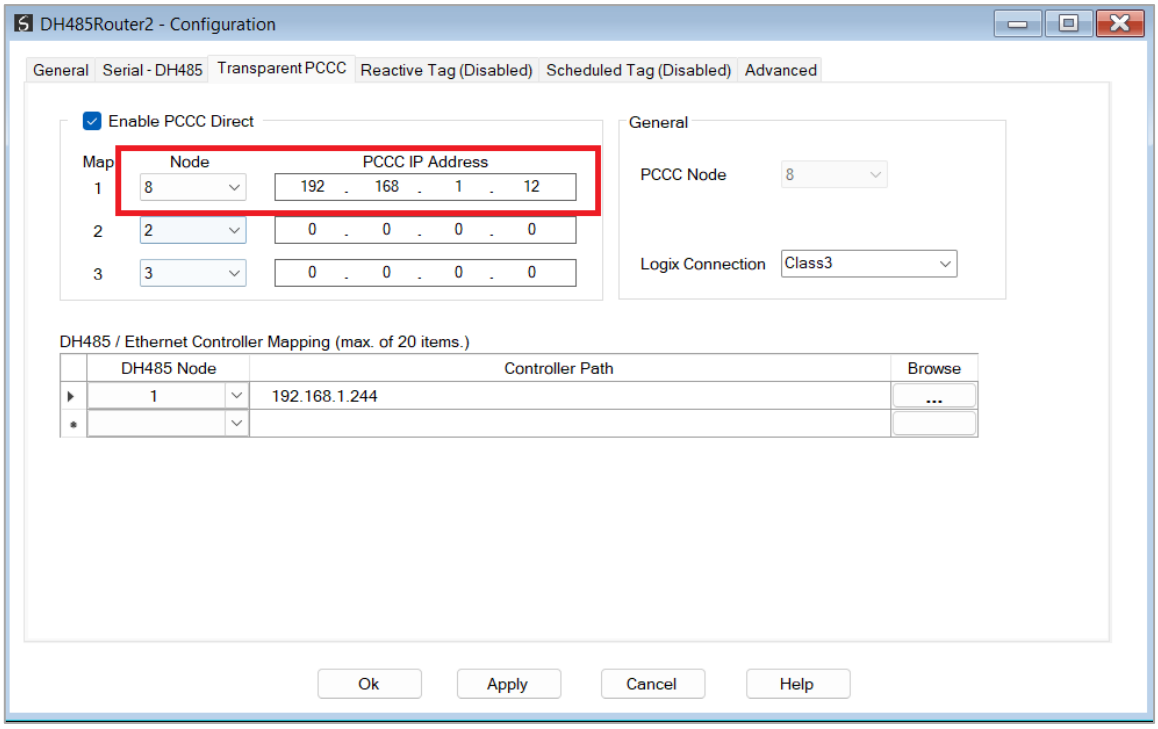
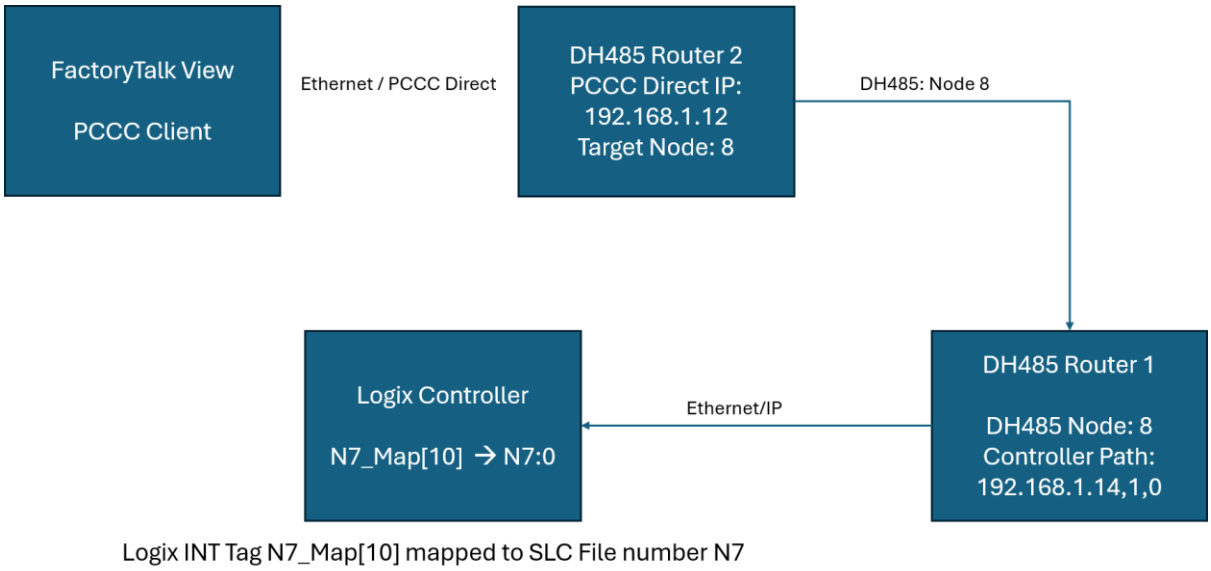


FIGURE 3.6. – ROUTER 2 TRANSPARENT PCCC CONFIGURATION

NOTE: At least one transparent mapped item must be added for the communication to work on DH485. The reason for this is because the DH485 Router requires a node on the network.



Logix INT Tag N7_Map[10] mapped to SLC File number N7

FIGURE 3.7. – PCCC COMMUNICATION PATH BETWEEN FACTORYTALK VIEW AND A LOGIX CONTROLLER USING TWO DH485 ROUTERS

3.4. LOGIX 5000 SETUP

Using Studio5000 map the appropriate tags to SLC file numbers.

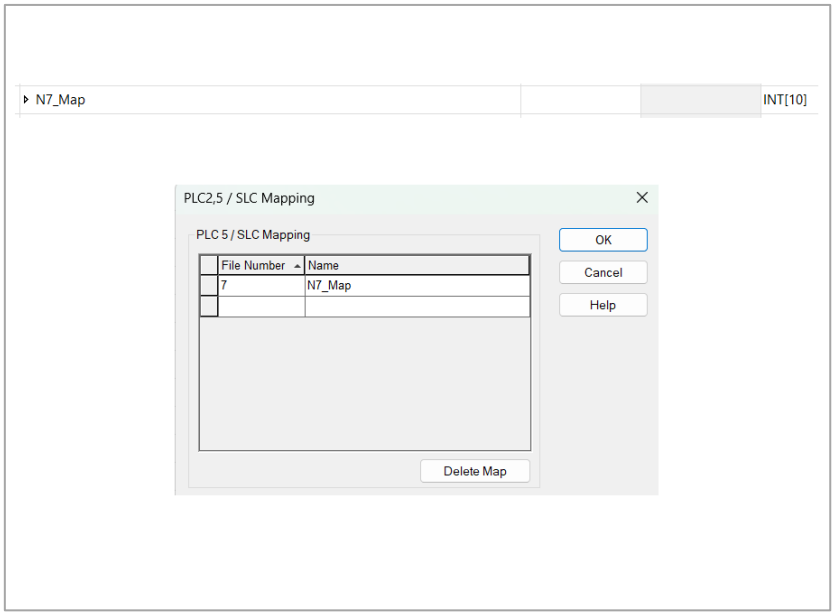


FIGURE 3.8. – MAPPING LOGIX TAGS TO SLC FILE NUMBERS

3.5. 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.

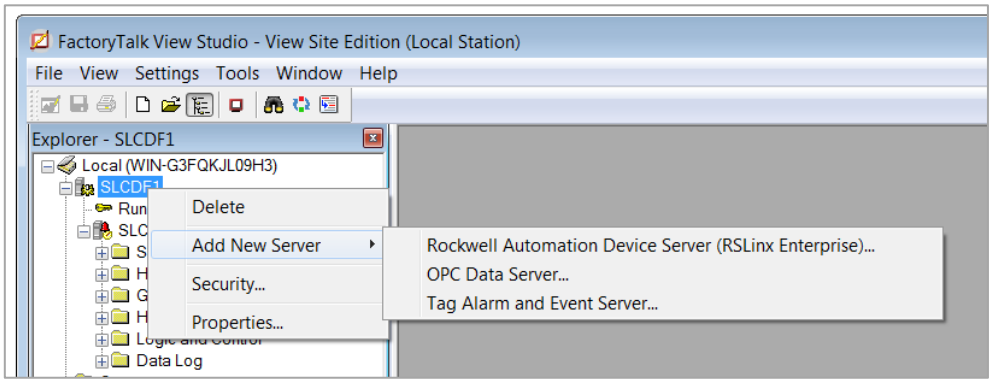


FIGURE 3.9. – FACTORY TALK SERVER ADD

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

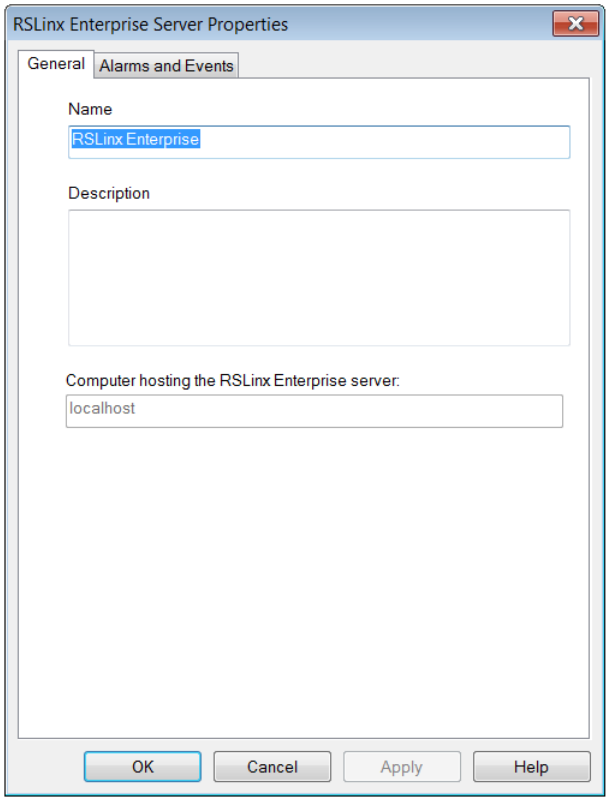


FIGURE 3.10. – FACTORY TALK SERVER GENERAL

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.

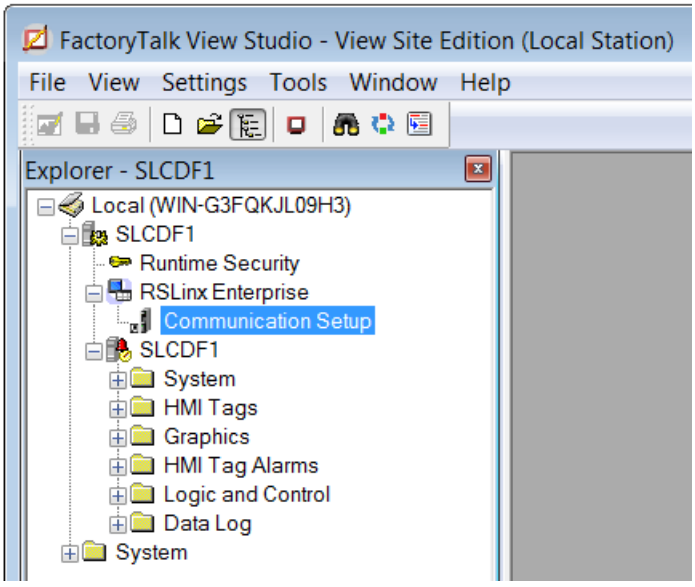


FIGURE 3.11. – FACTORY TALK COMMUNICATION SETUP

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

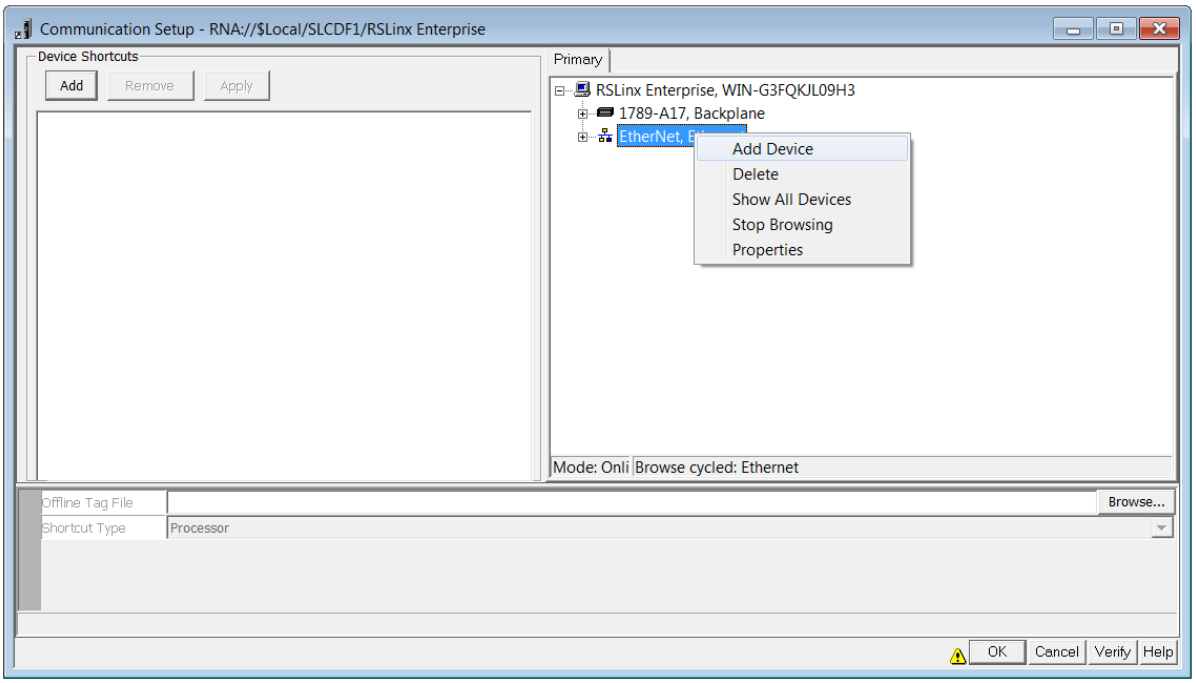


FIGURE 3.12. – FACTORY TALK RSLINX COMMUNICATION SETUP

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

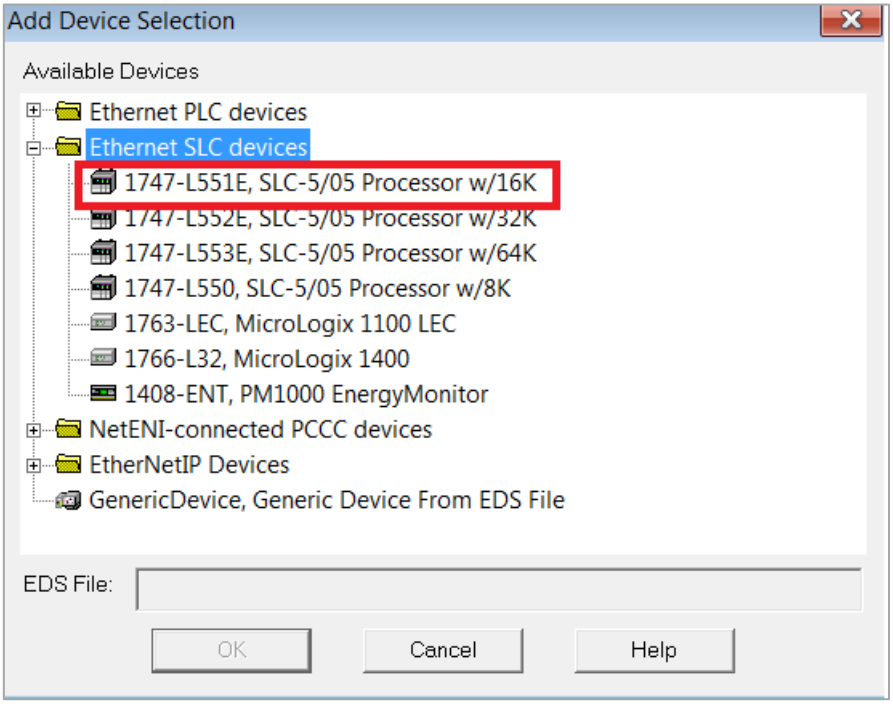


FIGURE 3.13. – FACTORY TALK DEVICE SELECTION

In the Device Properties window, enter the **IP Address that you added into the PCCC direct Router** module and select Ok.

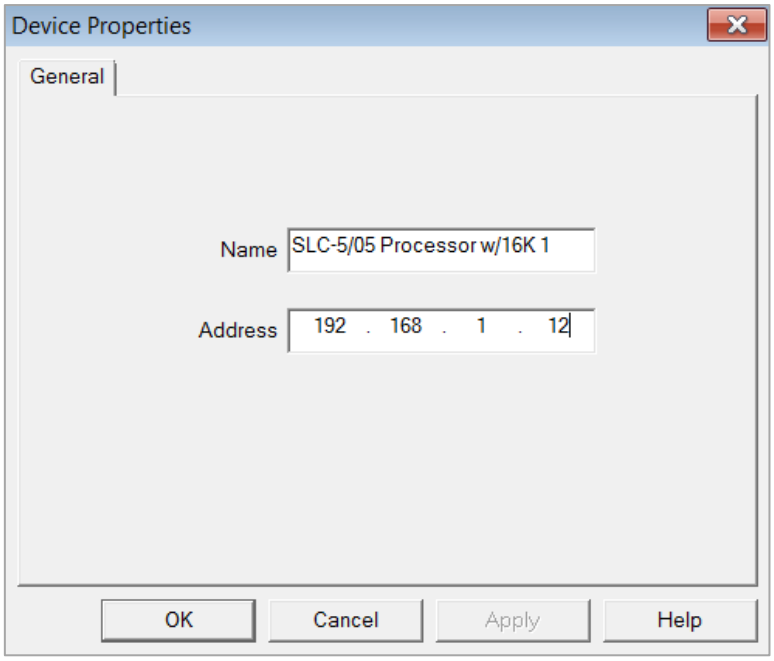


FIGURE 3.14. – FACTORY TALK DEVICE PROPERTIES

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.

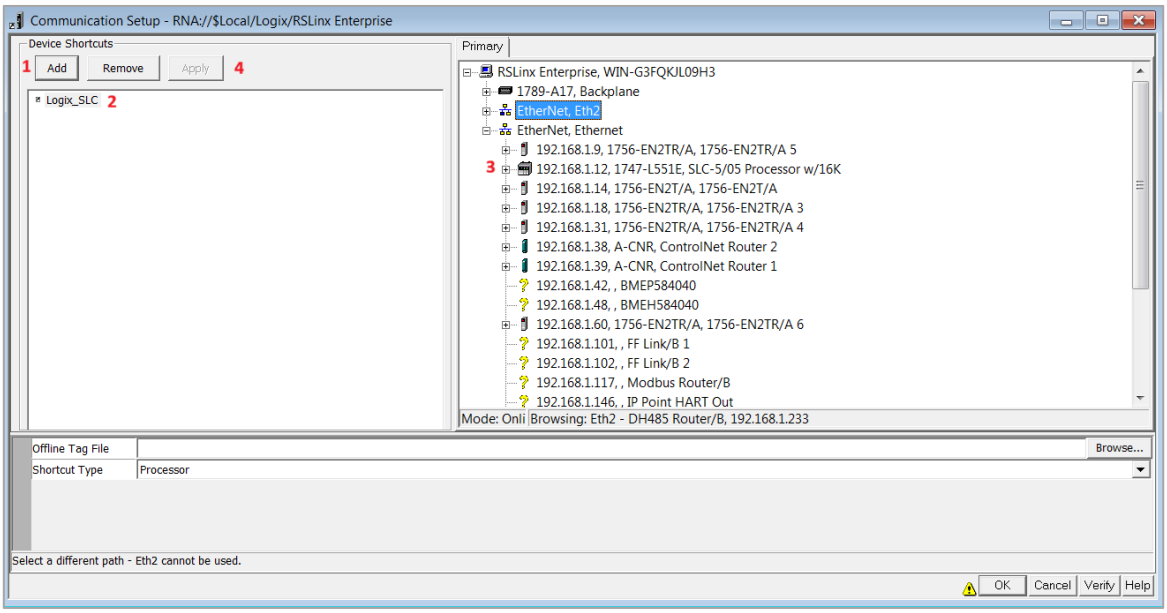


FIGURE 3.15. – FACTORY TALK RSLINX SETUP

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

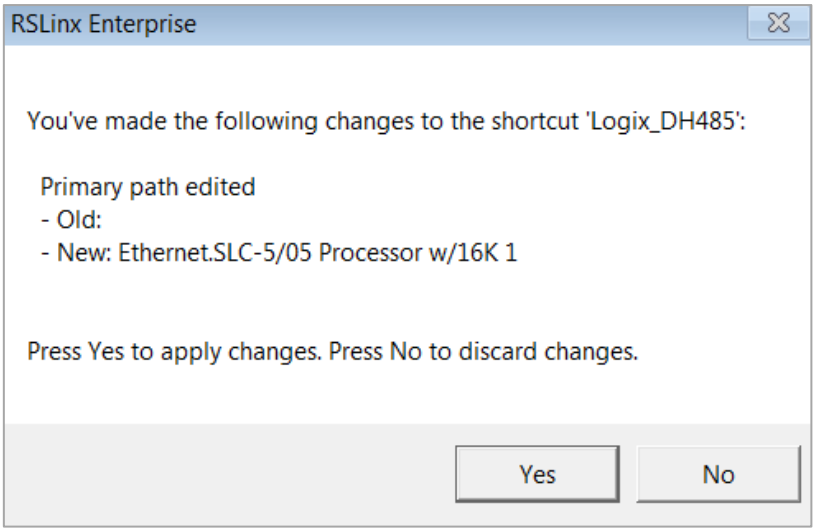


FIGURE 3.16. – FACTORY TALK RSLINX SETUP

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

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***.

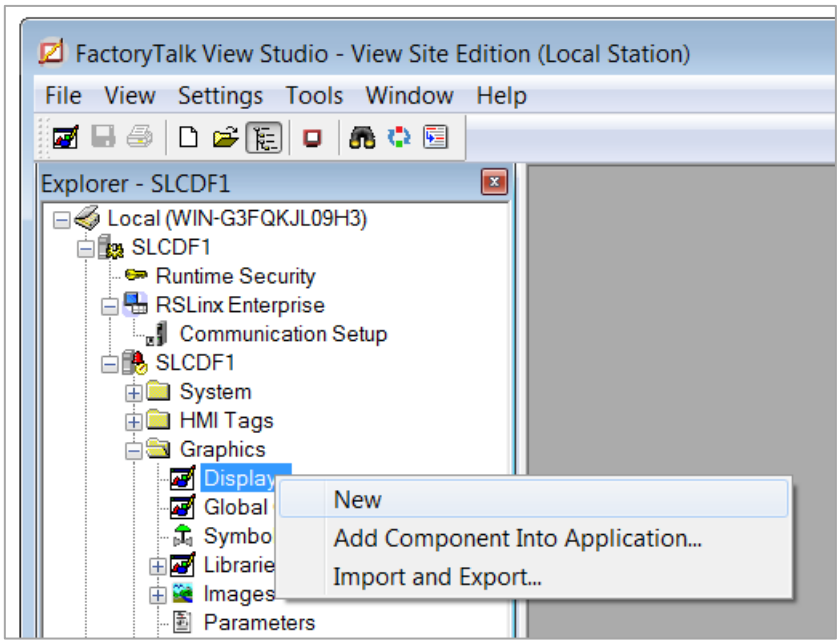


FIGURE 3.17. – FACTORY TALK NEW DISPLAY

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

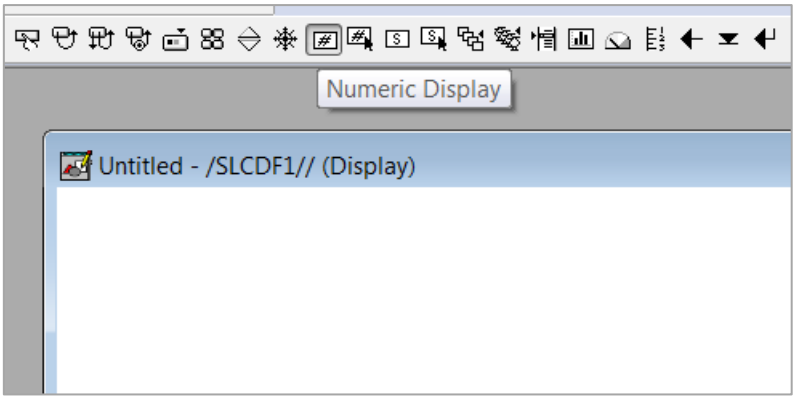


FIGURE 3.18. – FACTORY TALK NUMERIC DISPLAY

In the ***Numeric Display Properties*** window type out {::[Logix_DH485]N7:0}. Logix_DH485 should be replaced with whatever you named your shortcut.

The syntax is:
{::[ShortcutName]File:Element}

Where:

- :: = required direct-reference prefix
- [ShortcutName] = the FactoryTalk View communication shortcut
- File = The SLC data file you mapped to a Logix tag. E.g., N for an integer data file.
- Element = the element within the data file

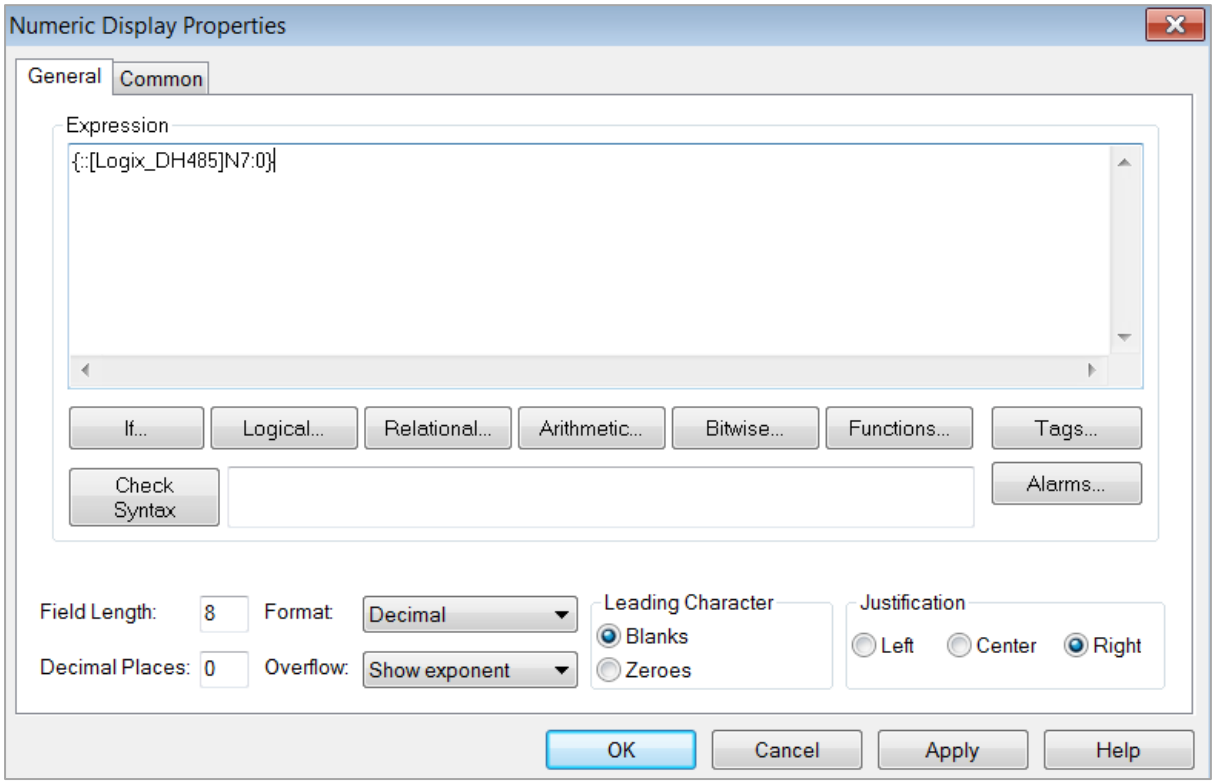


FIGURE 3.19. – FACTORY TALK DISPLAY PROPERTIES