DF1 Router

PanelView800 to PLC-5 setup

Technical Application Note

A-DF1R

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1. PREFACE

1.1. PURPOSE OF THIS DOCUMENT

This document will assist the user to setup the DF1 Router to allow a PanelView 800 application to communicate to a PLC-5 device's DF1 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
DF1 Router User Manual DF1 Router Datasheet Example Code & UDTs	http://www.aparian.com/products/df1router
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

The Aparian DF1 Router can be used to enable multiple modern Ethernet devices to communicate to legacy SLC500, PLC5 and MicroLogix devices via their DF1 serial ports. In the application example below, two PanelView800 terminals can read and write data to a PLC-5.

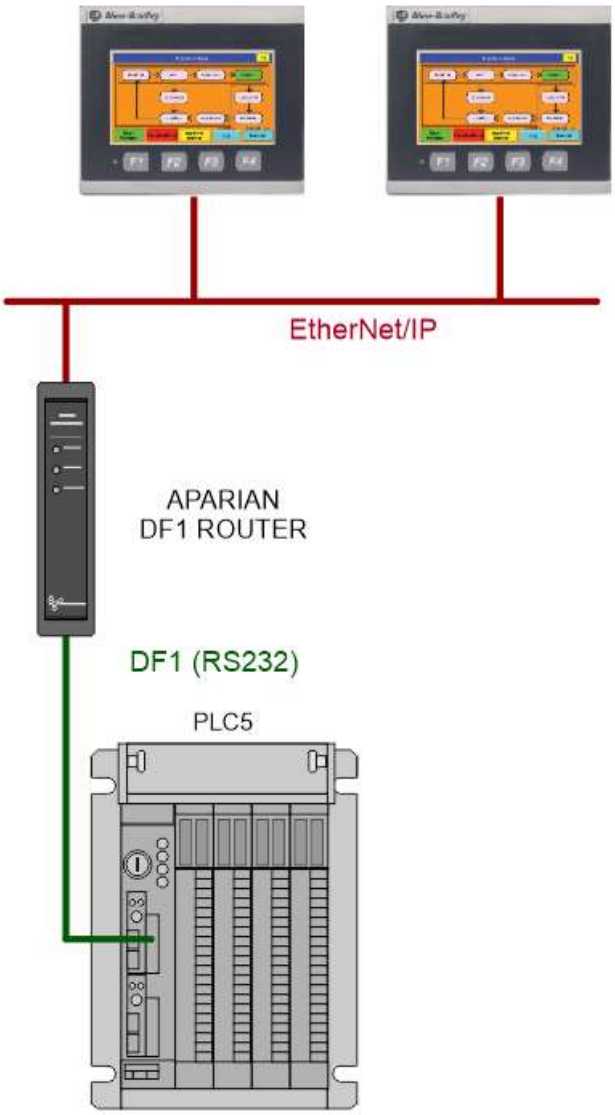

FIGURE 1 - EXAMPLE OF A TYPICAL NETWORK SETUP

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. SERIAL CABLE WIRING

The serial cable pinout is shown in the figure below:

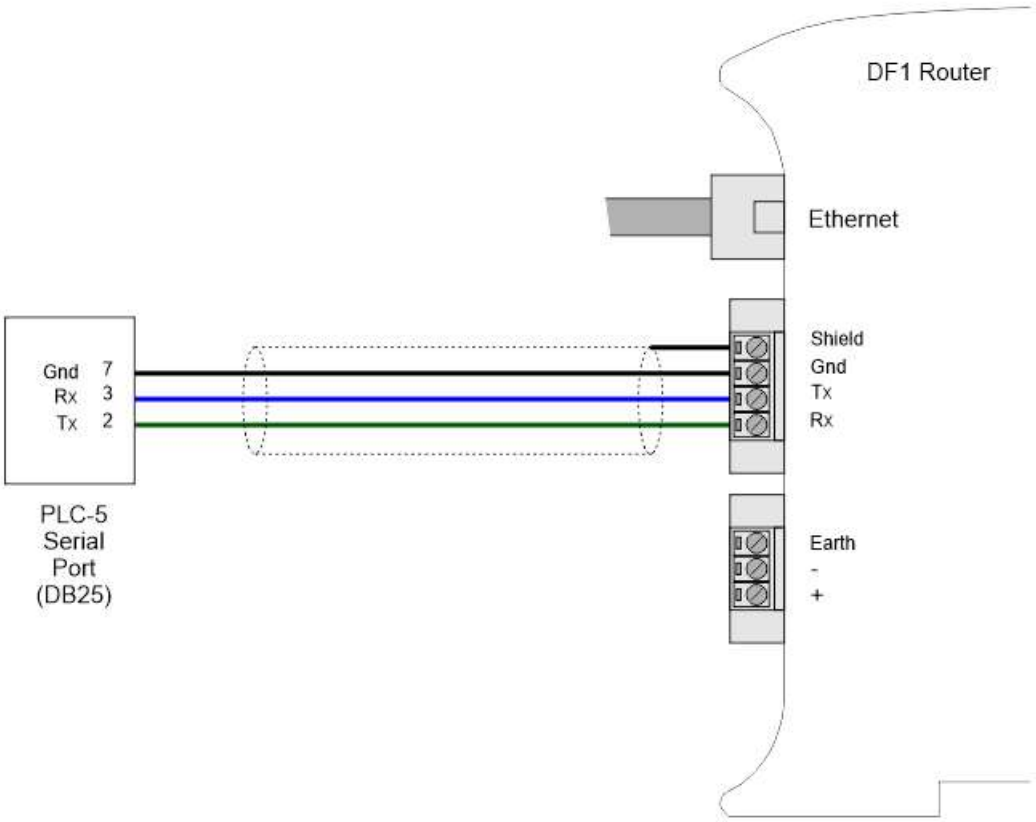

FIGURE 2 – SERIAL CABLE PINOUT

3.2. DF1 ROUTER SETUP

The DF1 Router must be configured in Transparent PCCC mode, as shown below.

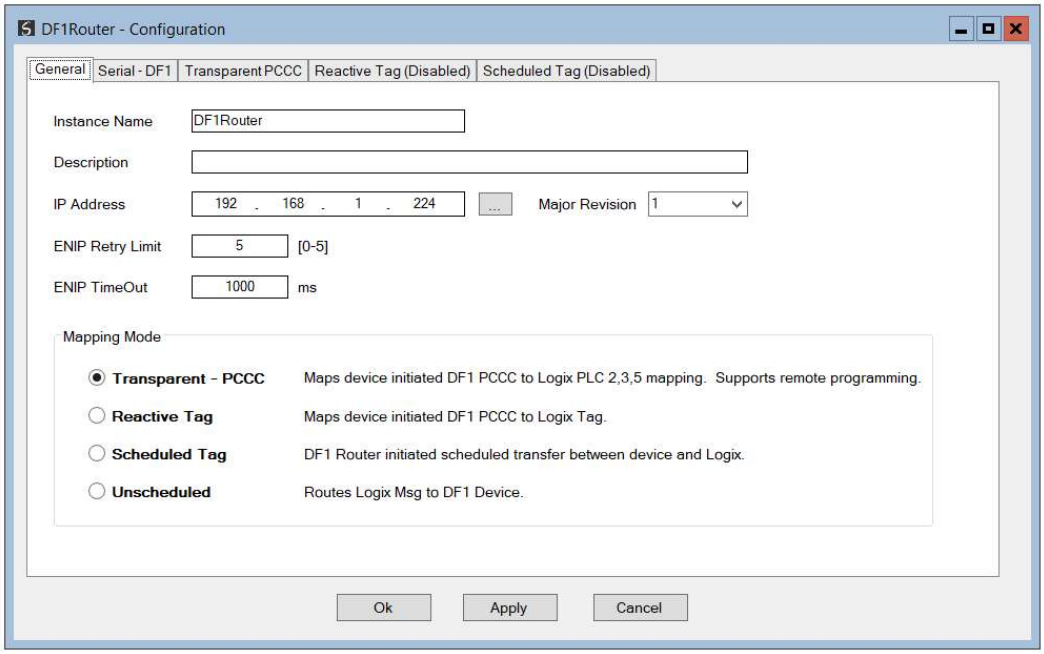

FIGURE 3 – DF1 GENERAL CONFIGURATION

In the Serial-DF1 settings, the protocol must be set to Full Duplex. The BAUD Rate, Parity and Error Detection must match that of the PLC-5 device (as configured using RSLogix 5).

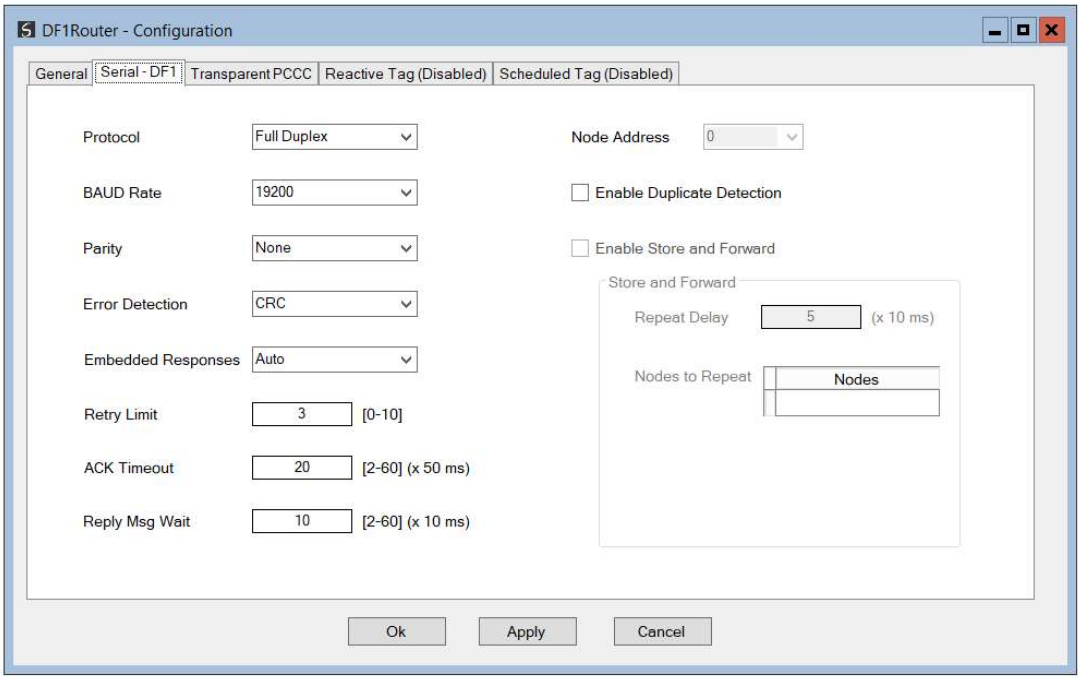

FIGURE 4 – DF1 SERIAL CONFIGURATION

No Transparent PCCC mapping items are required to be configured.

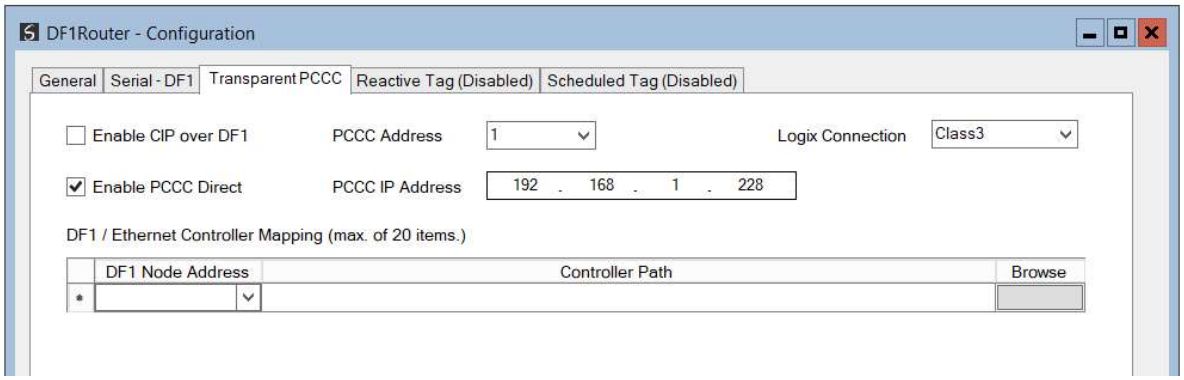

FIGURE 5 – TRANSPARENT PCCC CONFIGURATION

The PCCC Address allows the user to force the destination address of the DF1 message which is routed either via the PCCC protocol or the CIP embedded PCCC message.

NOTE: The PCCC Address is usually only relevant for DH485 networks. Thus, for the DF1 Router the default value of 1 can be left unchanged.

The **PCCC Direct** option must be enabled, and a **PCCC IP Address** configured. This IP address must be different from the main DF1 Router IP address configured on the first tab.

NOTE: Setting the DF1Router's IP Address and PCCC Direct IP Address to the same value can cause unexpected / intermittent results.

The **CIP over DF1** option must be disabled.

3.3. RSLOGIX 5 SETUP

Using RSLogix5, the DF1 serial port must be configured to match that of the DF1 Router's serial port settings with respect to BAUD rate, Parity and Error Detection.

NOTE: The DF1 Full Duplex must be selected.

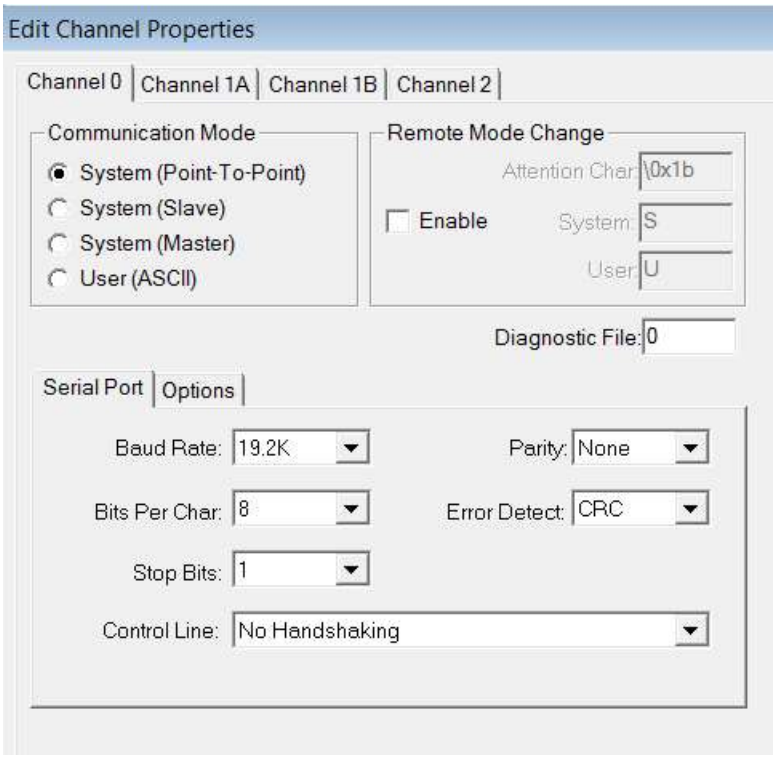

FIGURE 7 – PLC-5 SERIAL CHANNEL CONFIGURATION

3.4. PANELVIEW 800 SETUP

Open Connected Components Workbench and create a new project. The user will be prompted to add a device. Select a PanelView 800 model under the Graphical Terminals and press *Select* followed by *Add to Project*.

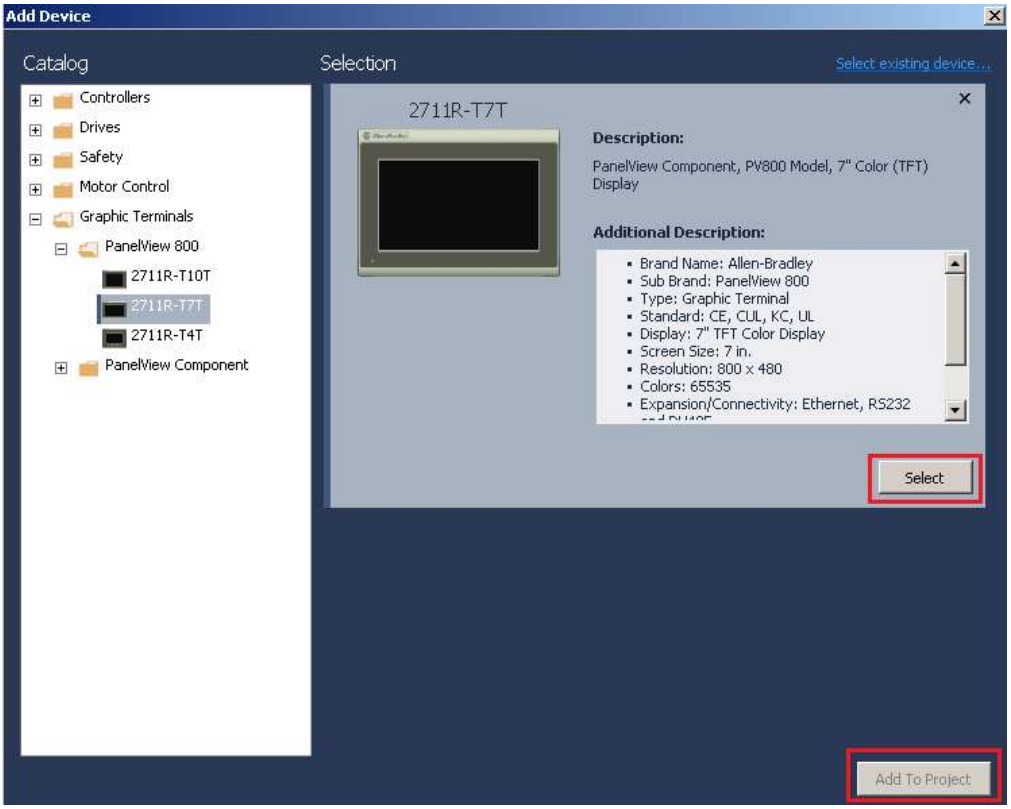

FIGURE 8 – PANELVIEW 800 ADD

The PanelView 800 (PV800) will now be added to the project tree on the left.

3.4.1. COMMUNICATION SETTING

Double click on the PV800 application in the tree to go to the settings page. The user will first need to setup the communication for the PV800.

Next the user will need to select the ***Ethernet | Allen-Bradley SLC/PLC*** Protocol from the drop-down menu:

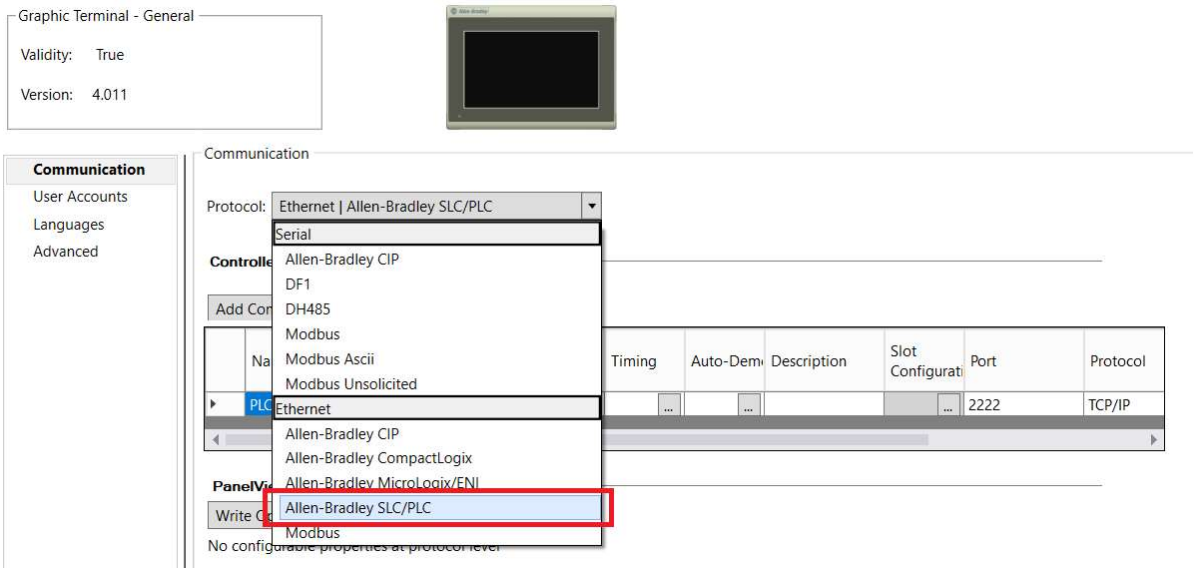

FIGURE 9 – PROTOCOL SELECTION

The user will need to select **PLC-5 Family** for the Controller Type and then enter the **IP Address of the DF1 Router's PCCC Direct IP address** in the address textbox.

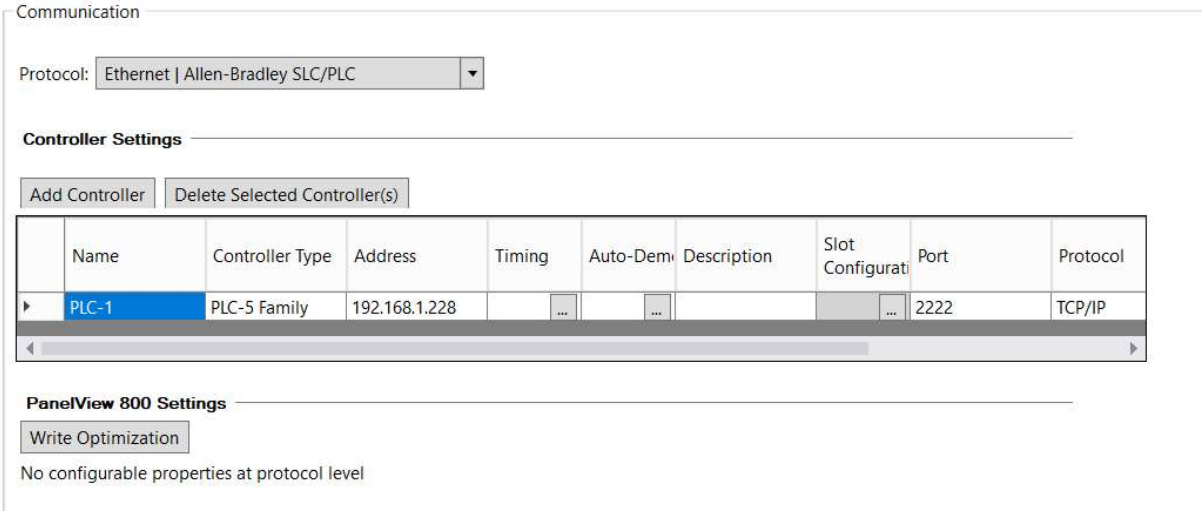

Figure 10 – Communication Parameters

Make sure that the **Port** is set to 2222.

3.4.2. TAG SETUP

Next the user will need to setup a Tag which the PV800 can use to communicate with the PLC-5 controller. The Tag Editor can be found by double clicking on the Tags in the project tree.

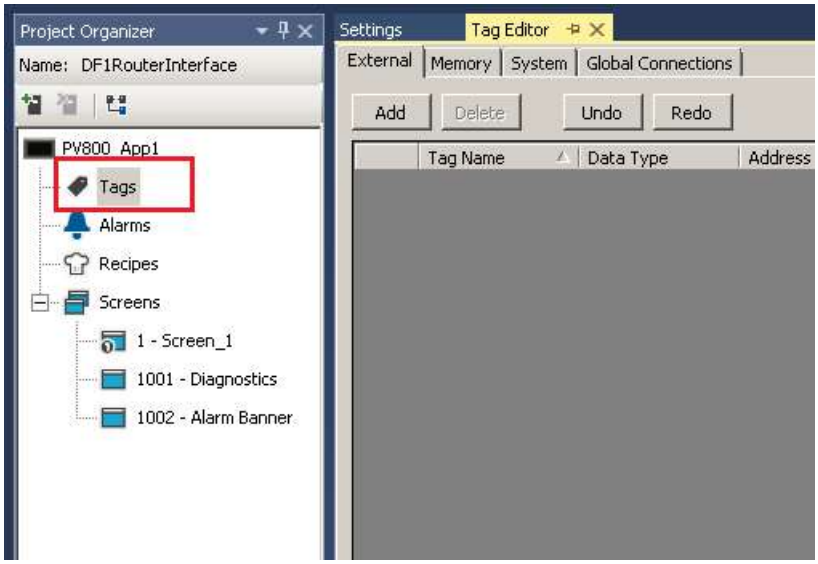

FIGURE 11 – OPENING THE TAG EDITOR

The user must first select the controller to be used. This will be the same as the one selected in the communication settings (can be selected from a drop-down menu). The user must then select the request communication address as well as the data type.

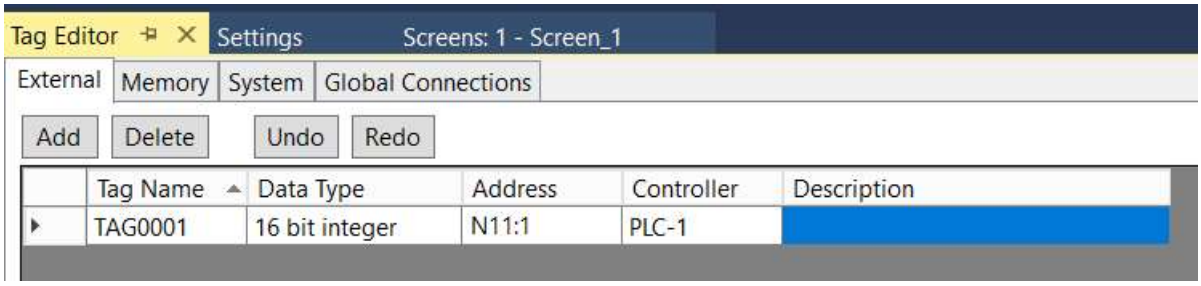

FIGURE 12 – TAG PARAMETERS

3.4.3. TESTING COMMUNICATION

To test the communication, the default screen can be selected by double-clicking on it in the project tree.

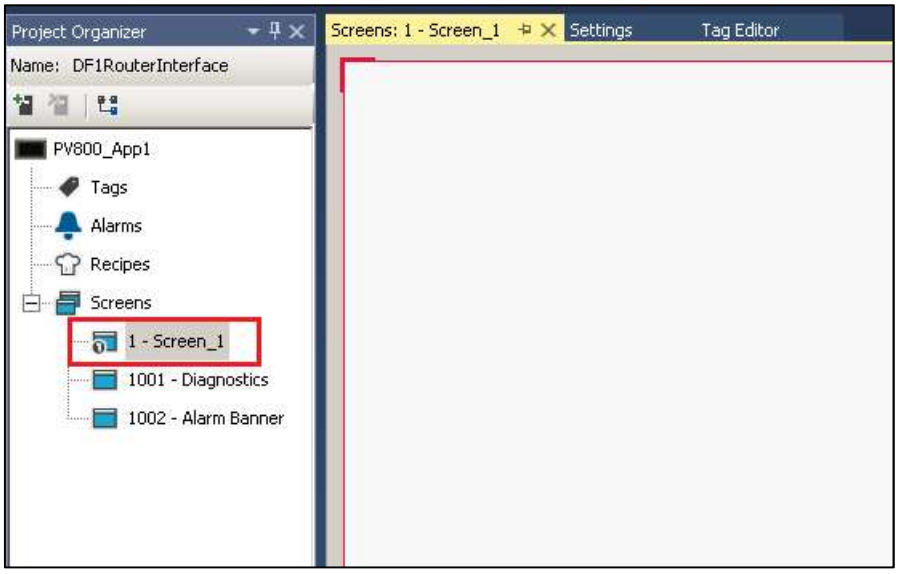

FIGURE 14 – DEFAULT SCREEN

The user will first need to add the Goto Terminal Config button to the display. The user can then add a Numeric Display as well which will be used to show the value of the tag.

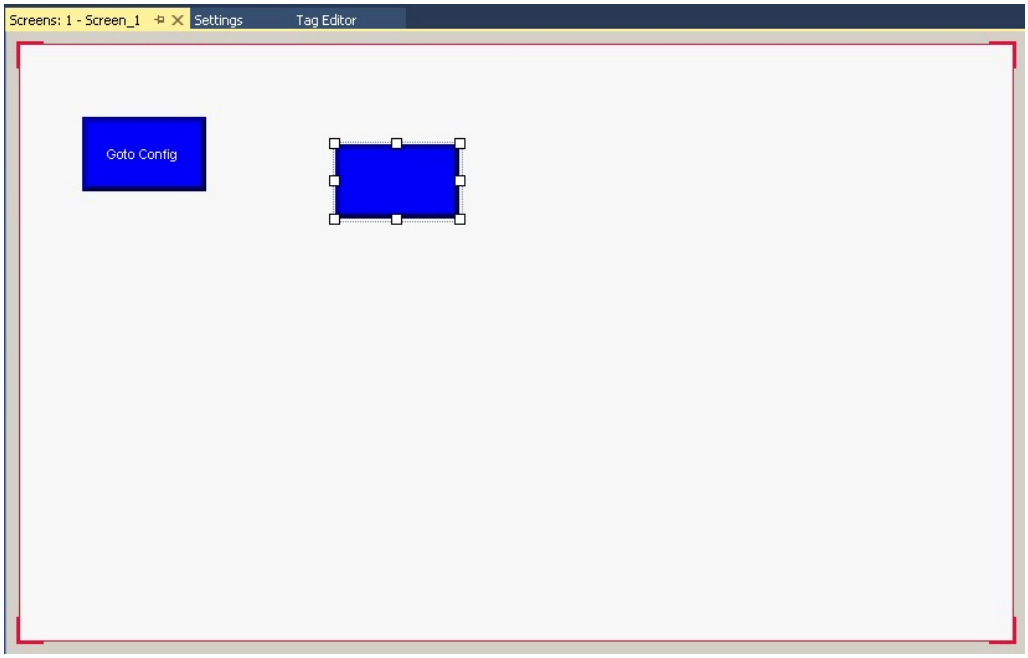

FIGURE 15 – NUMERIC DISPLAY ADDED

Next the user will need to assign the Tag created (TAG0001) to the numeric display. This is done by right-clicking on the numeric display and selecting properties. The properties window will generally be opened on the right-hand side of the screen. Under the Connections tab the user will need to select the Read Tag that will be used.

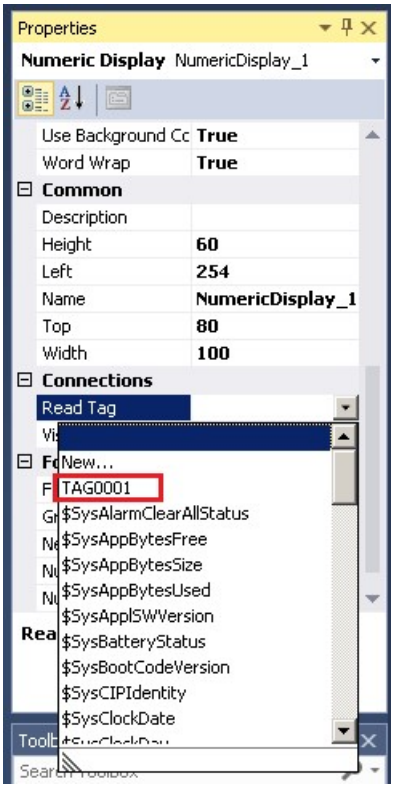

FIGURE 16 – READ TAG SELECTED

Once this is done the user can download the application to the PV800. This is done by right-clicking the Application in the project tree and selecting download.

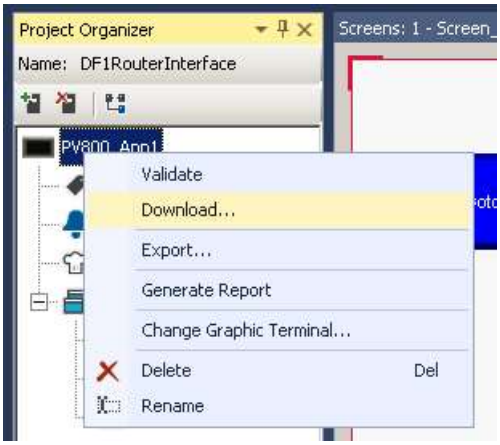

FIGURE 17 – DOWNLOAD APPLICATION

The user will need to select the PV800 to which the application must be downloaded in the Connection Browser.

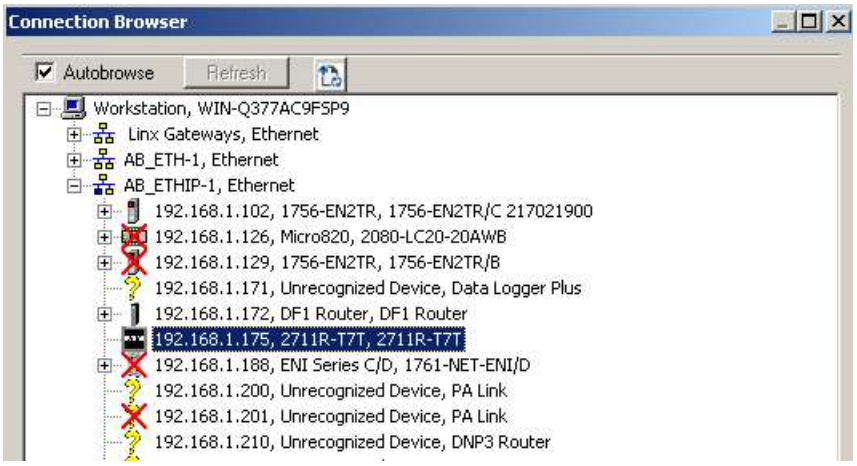

FIGURE 18 – PANELVIEW SELECT

Once the application has been downloaded the user can verify the communication operation by viewing the actual PV800 to which the application was downloaded.

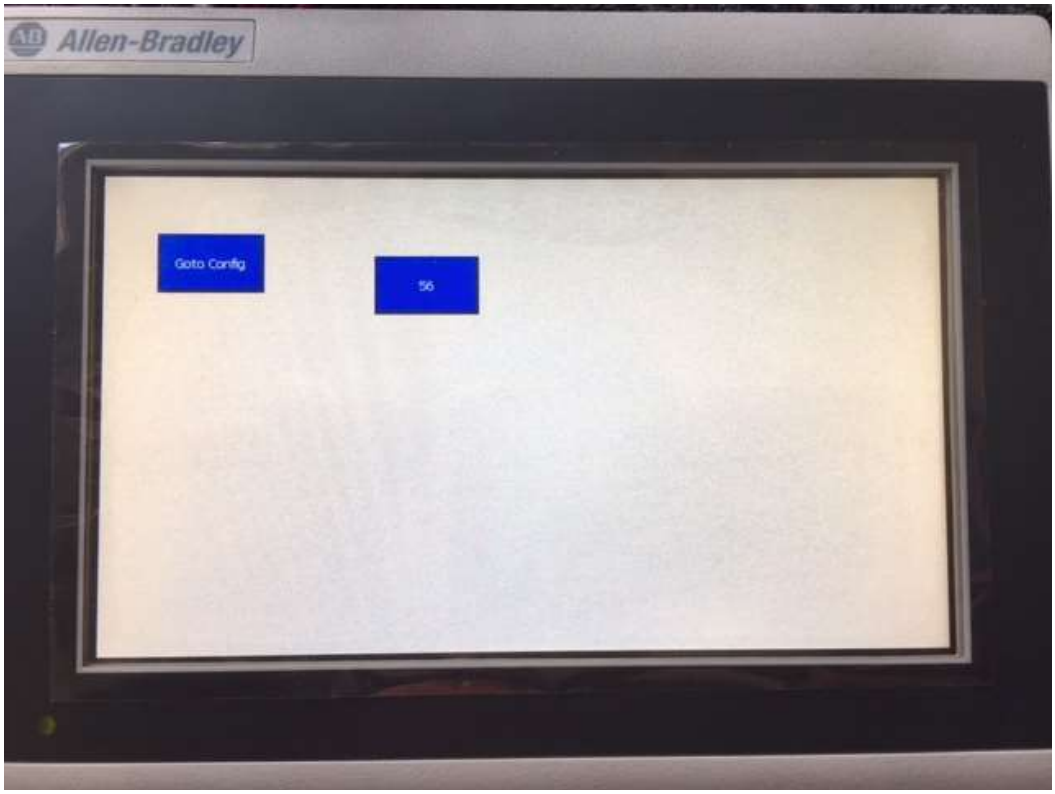

FIGURE 19 – ACTUAL PANELVIEW