DF1 Router

RSLogix500 Programming of SLC500/MicroLogix via DF1 Router

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 remote RSLogix 500 programming of an SLC/MicroLogix PLC.

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 and MicroLogix devices via their DF1 serial ports. In the application example below, a remote RSLogix 500 programming station can communicate with, and program an SLC500 PLC.

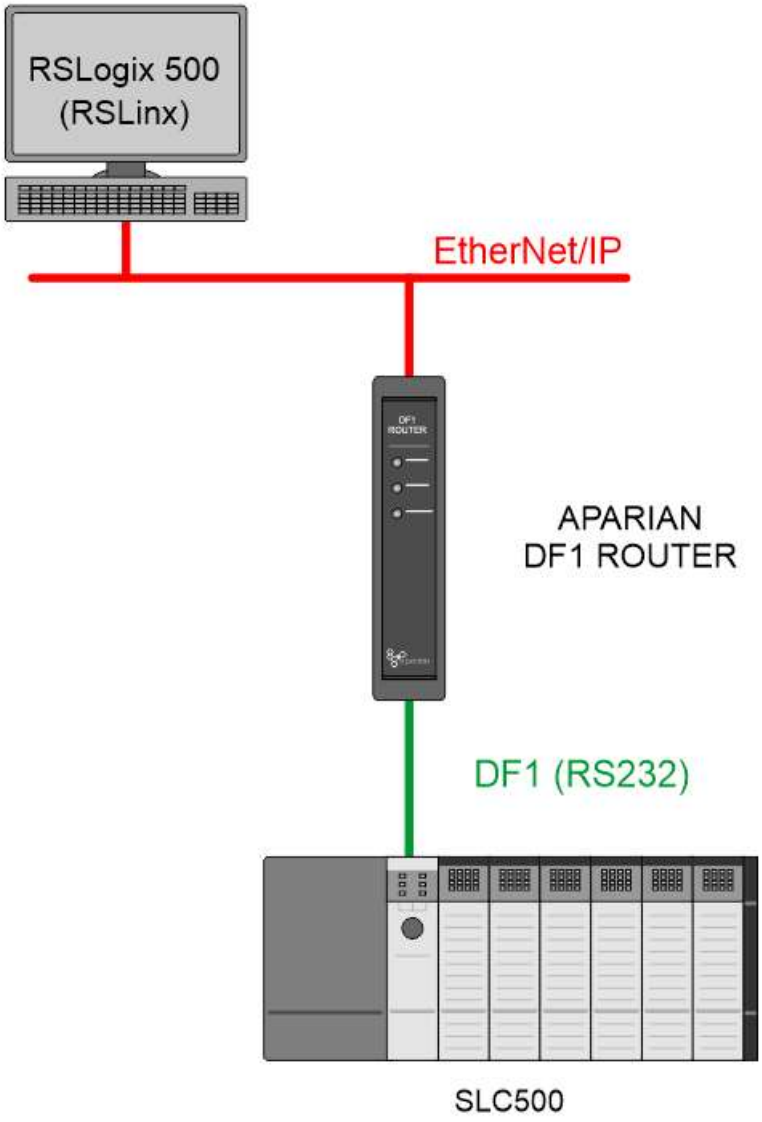

FIGURE 1 - EXAMPLE OF A TYPICAL NETWORK SETUP

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:

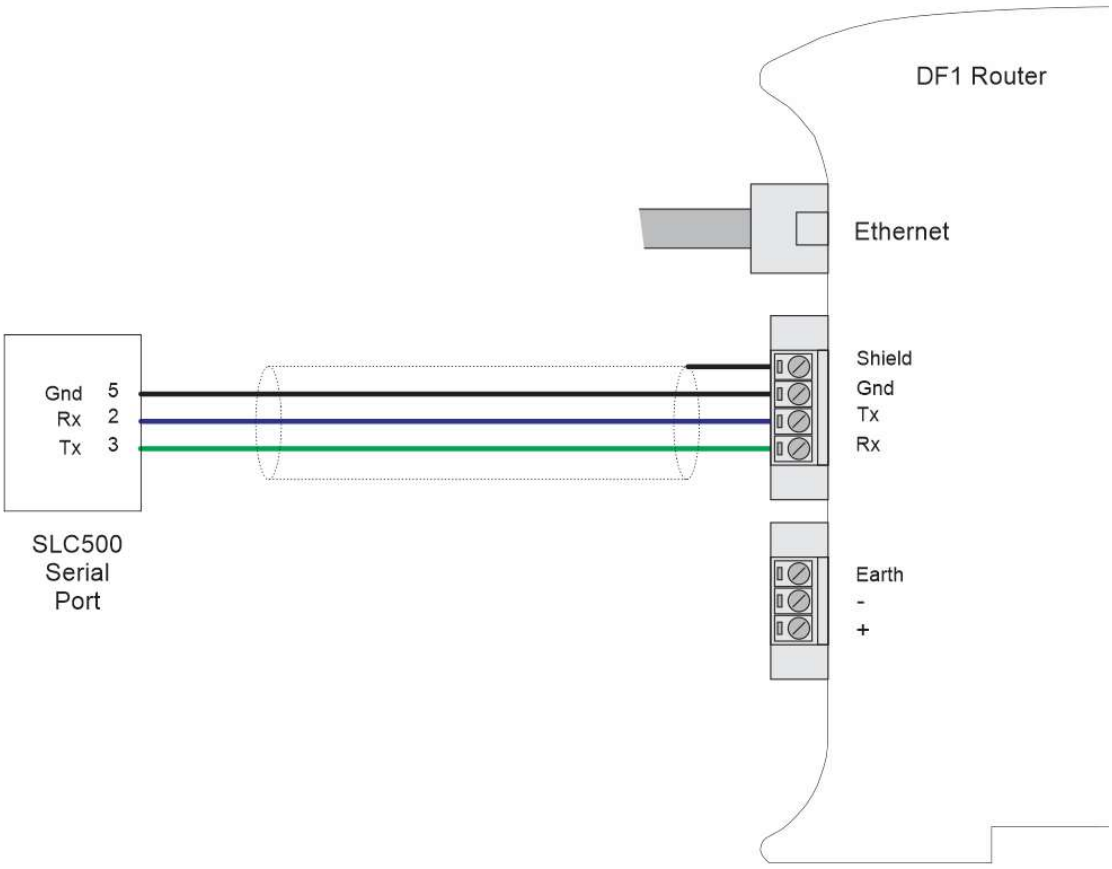

FIGURE 2 – SERIAL CABLE PINOUT

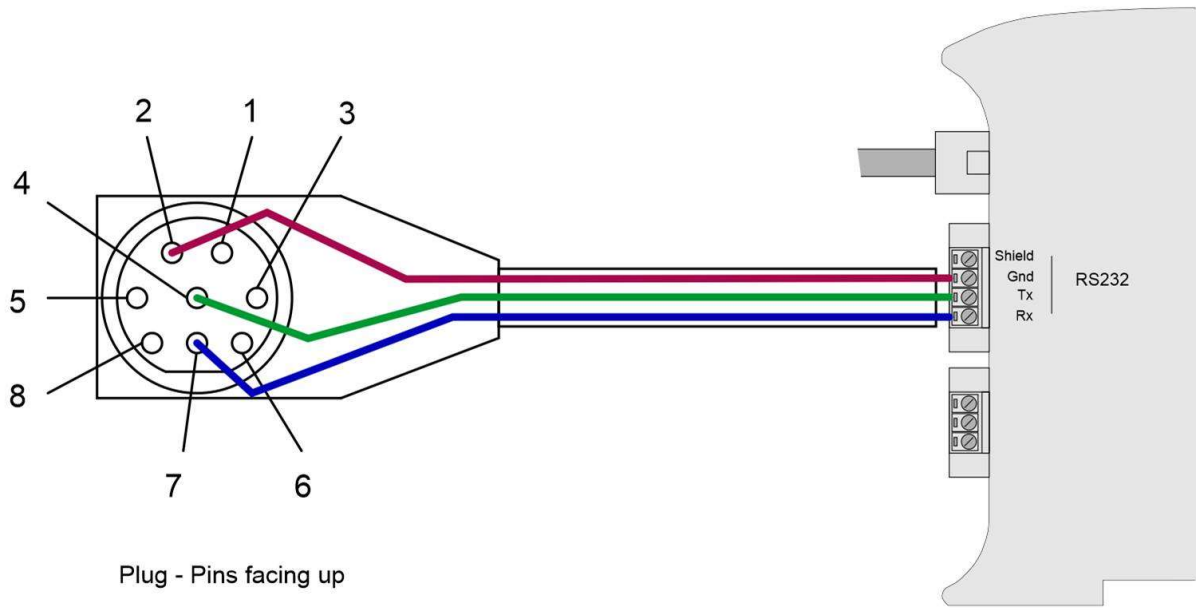

FIGURE 3 – DIN SERIAL CABLE PINOUT

3.2. DF1 ROUTER SETUP

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

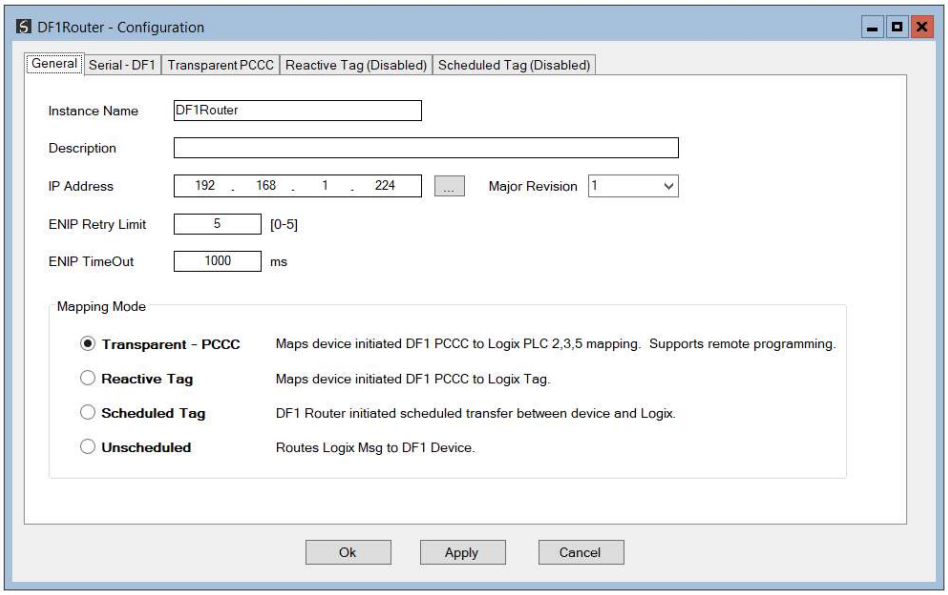

FIGURE 4 – DF1 GENERAL CONFIGURATION

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 SLC device (as configured using RSLogix 500).

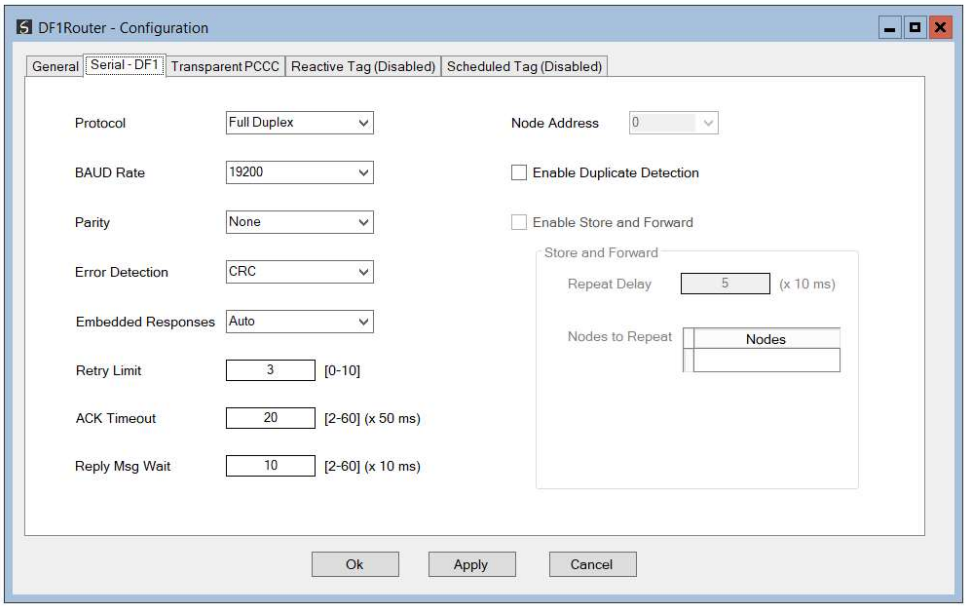

FIGURE 5 – DF1 SERIAL CONFIGURATION

No Transparent PCCC mapping items are required to be configured.

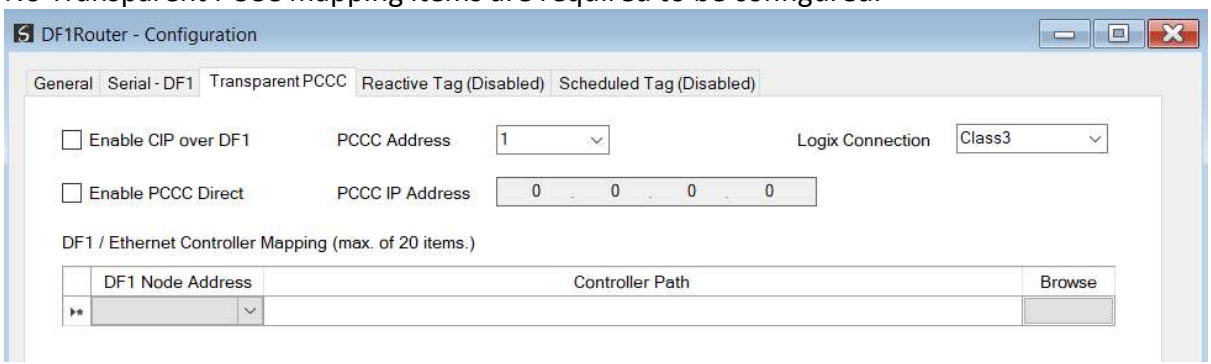

FIGURE 6 – TRANSPARENT PCCC CONFIGURATION

NOTE: The CIP over DF1 option must not be selected for programming SLC/MicroLogix controllers.

3.3. SLC500 SETUP (RSLOGIX 500)

Using RSLogix500, 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, and the Duplicate Packet Detect option must be removed.

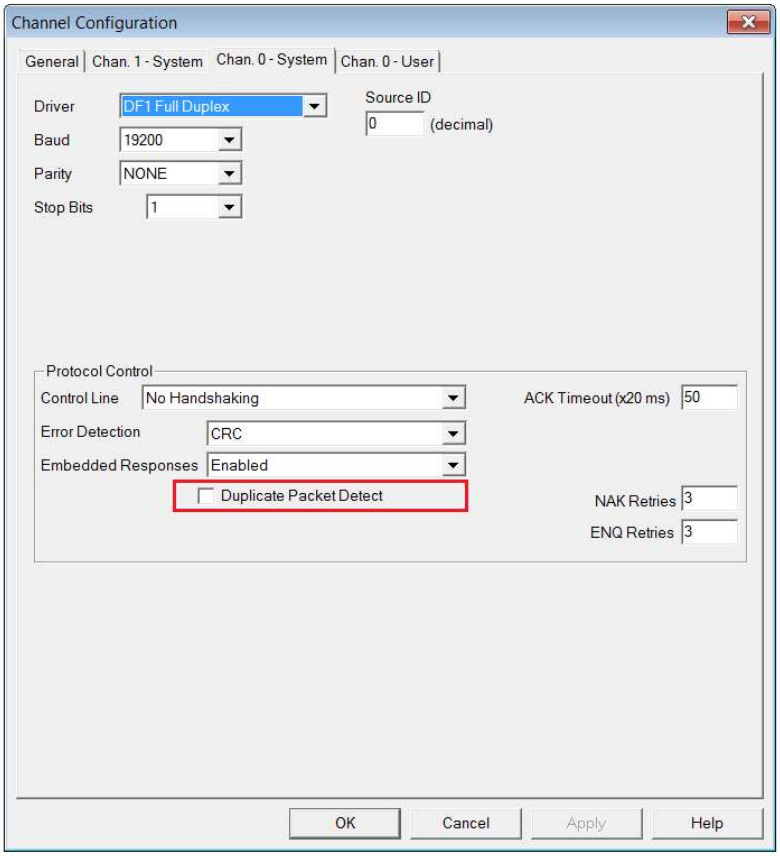

FIGURE 7 – SLC SERIAL CHANNEL CONFIGURATION

3.4. RSLINX SETUP

The DF1 Router's EDS file must be registered on the programming PC. This can be achieved in two ways:

- Uploading the EDS file from the DF1 Router online, or
- Downloading the EDS file from the Aparian website and manually registering it.

NOTE: Older revision of RSLinx may not support the uploading of the EDS file option, in which case, the second (manual) option should be used.

UPLOADING EDS FILE FROM MODULE

First add the DF1 Router module in RSLinx. Under the Communications menu select the Configure Drivers menu item.

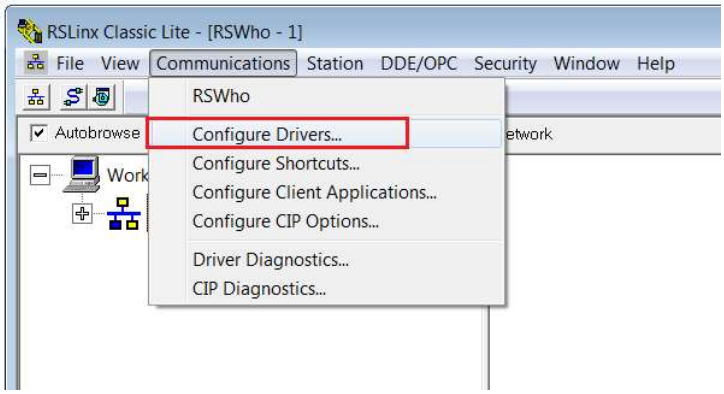

FIGURE 8 – RSLINX DRIVER CONFIGURATION

In the driver selection window, add the ***Ethernet Devices*** driver.

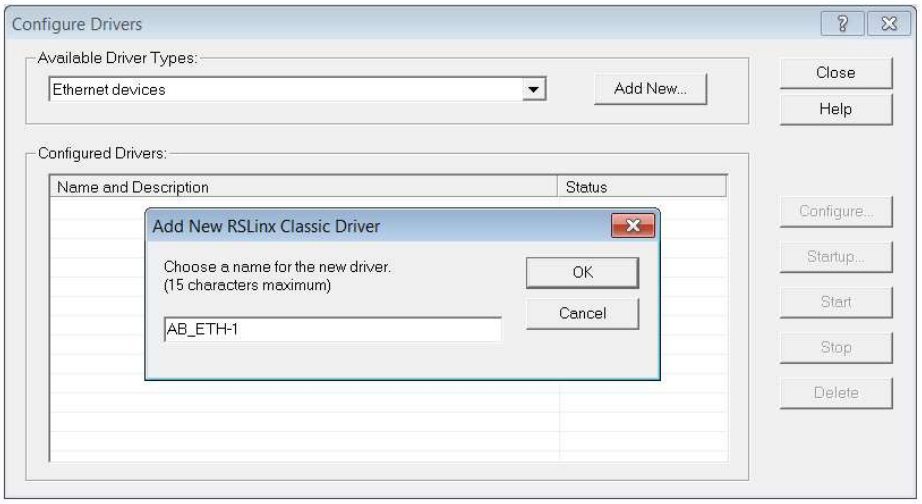

FIGURE 9 – RSLINX ETHERNET DEVICES DRIVER

Add the IP address of the DF1 Router.

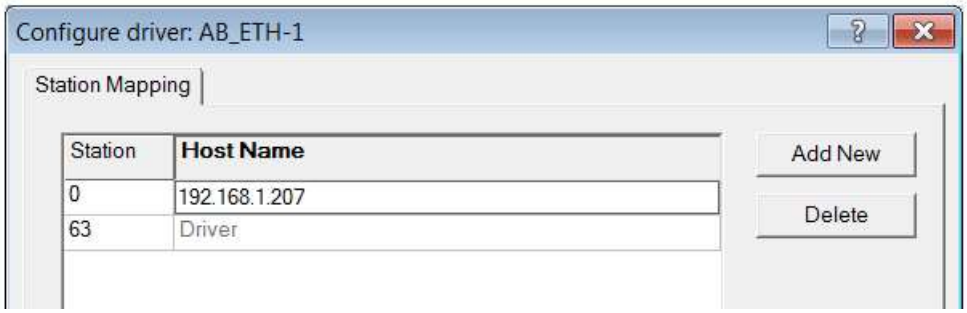

FIGURE 10 – RSLINX ETHERNET IP ADDRESS

If the DF1 Router is powered and connected on the network it will appear in the RSLinx's RSWho browse window. Note that the device icon will be a yellow question mark, as the EDS file has not yet been registered.

Right-click on the DF1 Router in the RSWho browser and select the "***Upload EDS file from device***" option.

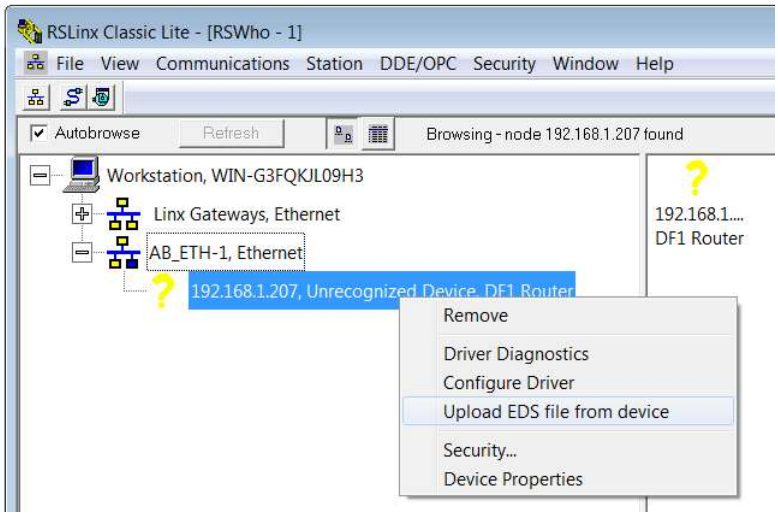

FIGURE 11 – RSLINX UPLOAD EDS FILE FROM DEVICE

The Rockwell Automation EDS Wizard will then launch. Follow the multiple steps by pressing the ***Next*** button and complete the EDS file registration.

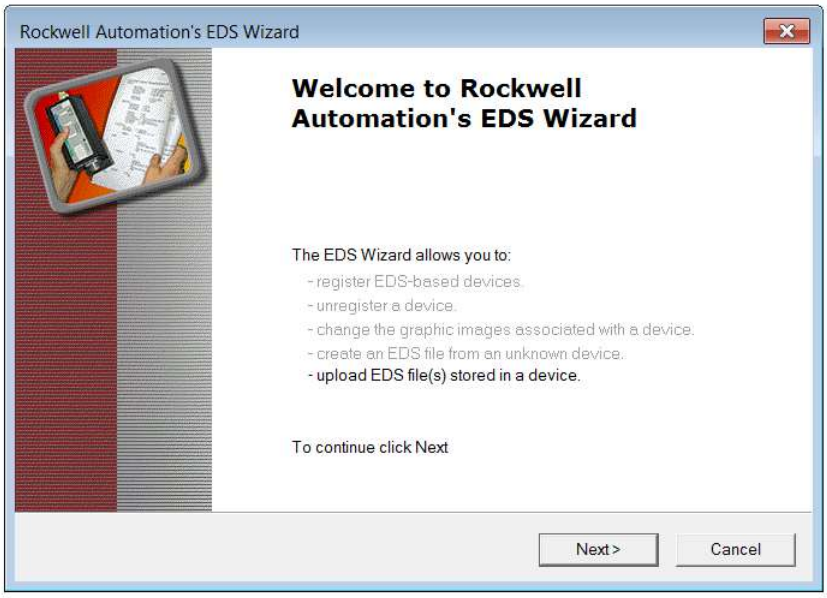

FIGURE 12 – EDS WIZARD

NOTE: Depending on the RSLinx revision, RSLinx may need to be **shut-down and re-started**. If RSLinx is running as a service, make sure the service is shut-down completely before re-starting.

After restarting RSLinx, the DF1 Router will correctly appear in the RSWho browser. It will also show the underlying DF1 Port, which, when expanded, will show the underlying SLC500.



FIGURE 13 – BROWSING SLC500 VIA DF1 ROUTER

MANUALLY INSTALLING THE EDS FILE OPTION

To install the DF1 Router's EDS file manually, it must first be downloaded from the Aparian website: http://www.aparian.com/products/df1router#downloads

The EDS file and associated icon are zipped in a single file. Save the file to local hard drive and unzip the file.

Using the Windows start button launch the Rockwell Software's ***EDS Hardware Installation Tool***.

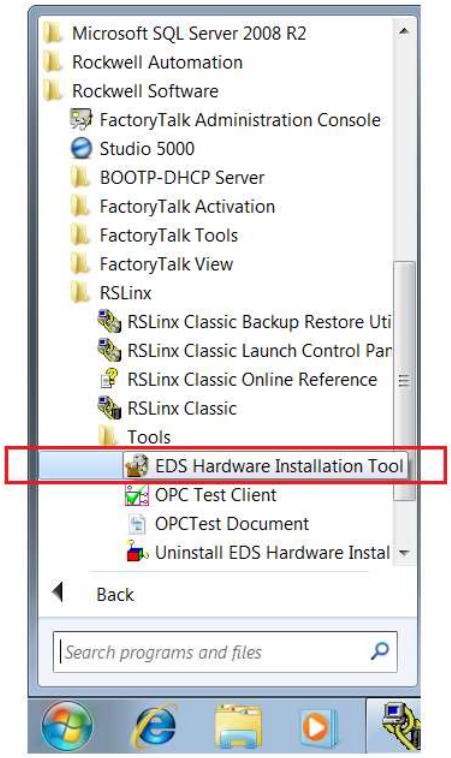

FIGURE 14 – LAUNCH EDS HARDWARE INSTALLATION TOOL

In the ***Hardware Installation Tool***, select the ***Add*** option.

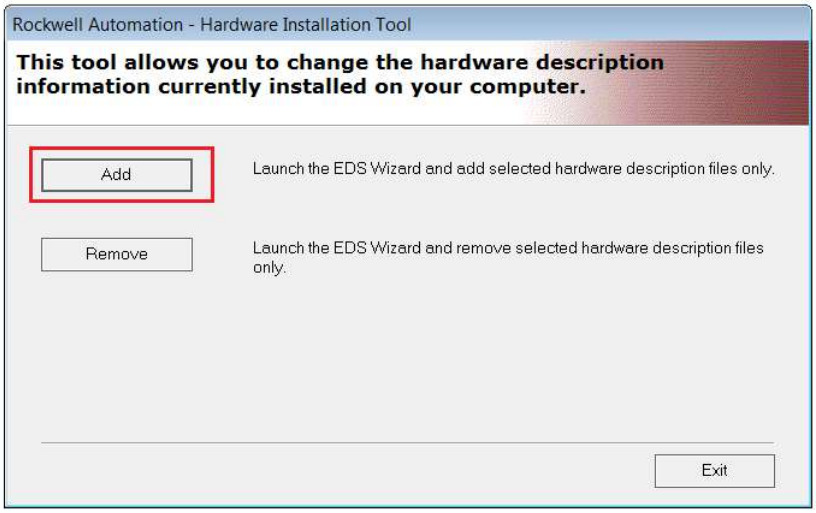

FIGURE 15 – HARDWARE INSTALLATION TOOL - ADD

Use the ***Browse*** button to navigate to the folder where the EDS file was unzipped and select the EDS file.

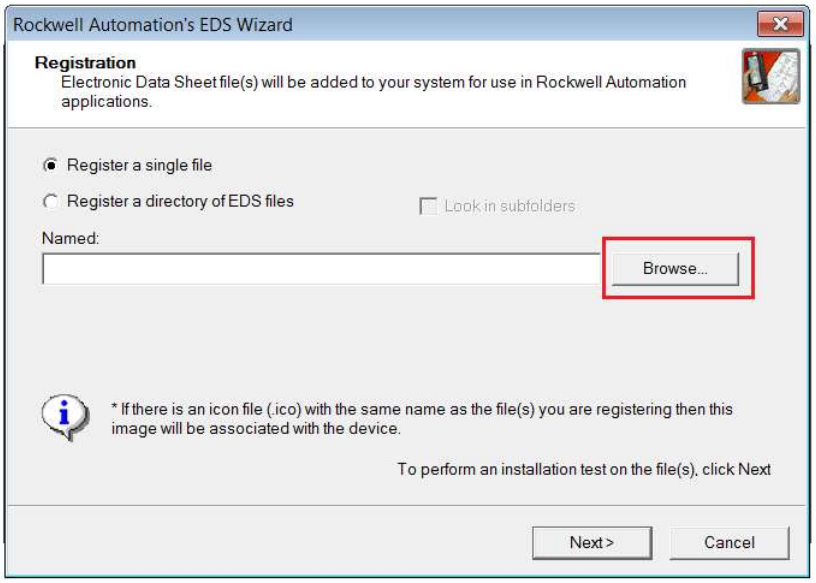

FIGURE 16 – EDS REGISTRATION

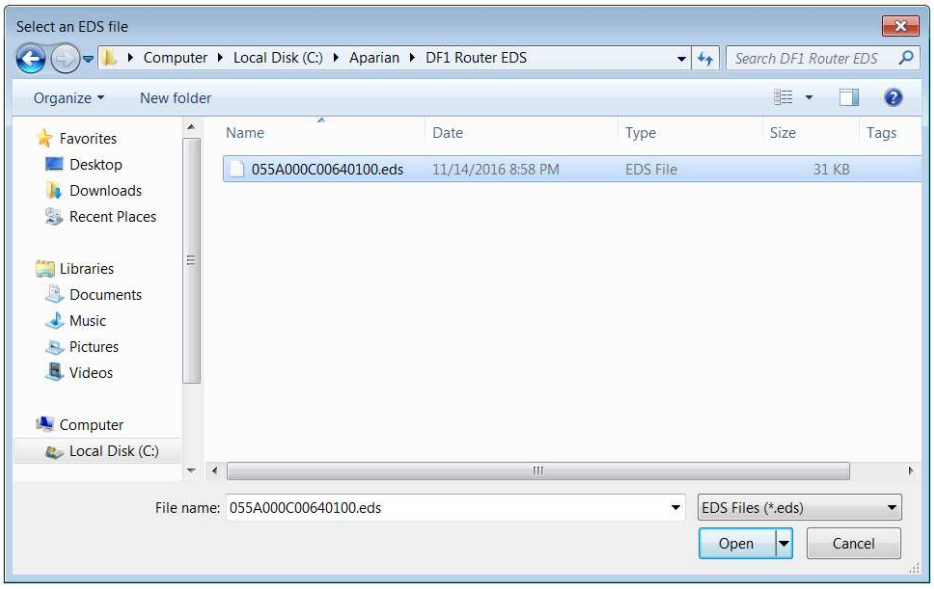

FIGURE 17 – EDS FILE SELECT

Follow the prompts and select the Next button to complete the EDS file registration.

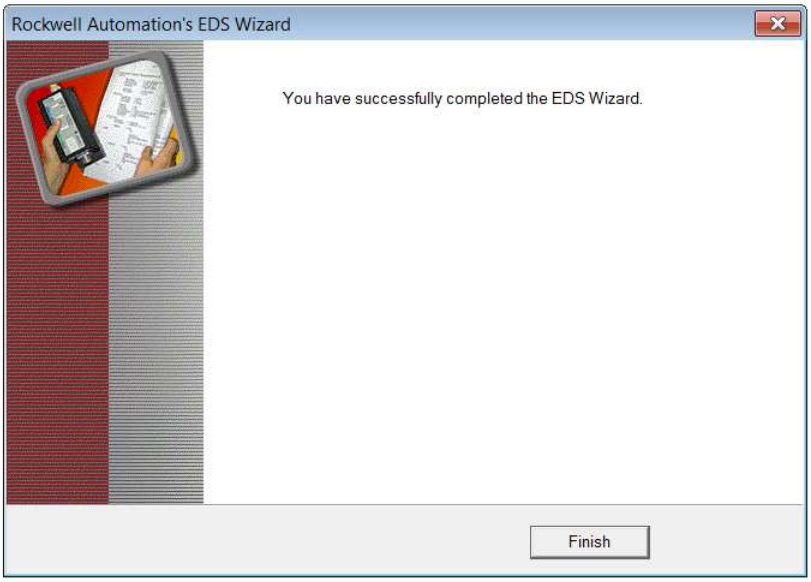

FIGURE 18 – EDS REGISTRATION COMPLETE

NOTE: Depending on the RSLinx revision, RSLinx may need to be **shut-down and re-started**. If RSLinx is running as a service, make sure the service is shut-down completely before re-starting.

3.5. RSLOGIX 500

Programming using RSLogix 500 can then continue as normal.
Inside RSLogix500 under the ***Comms*** menu, select the ***System Comms*** item.

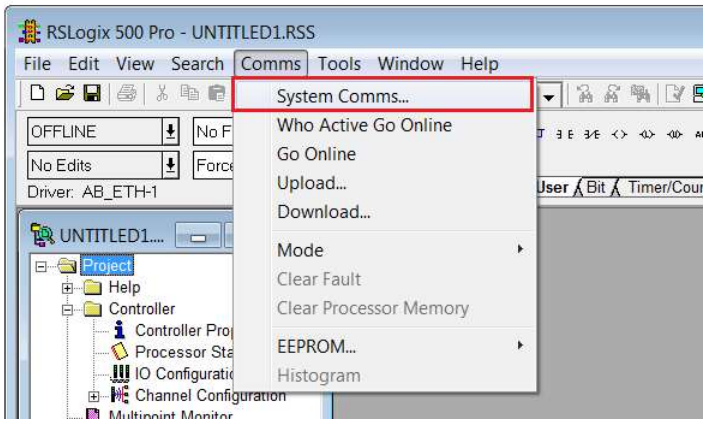

FIGURE 19 – SYSTEM COMMUNICATION

In the Communications window, browse to the SLC500 device under the DF1 Router, and select Online, Upload or Download as required.

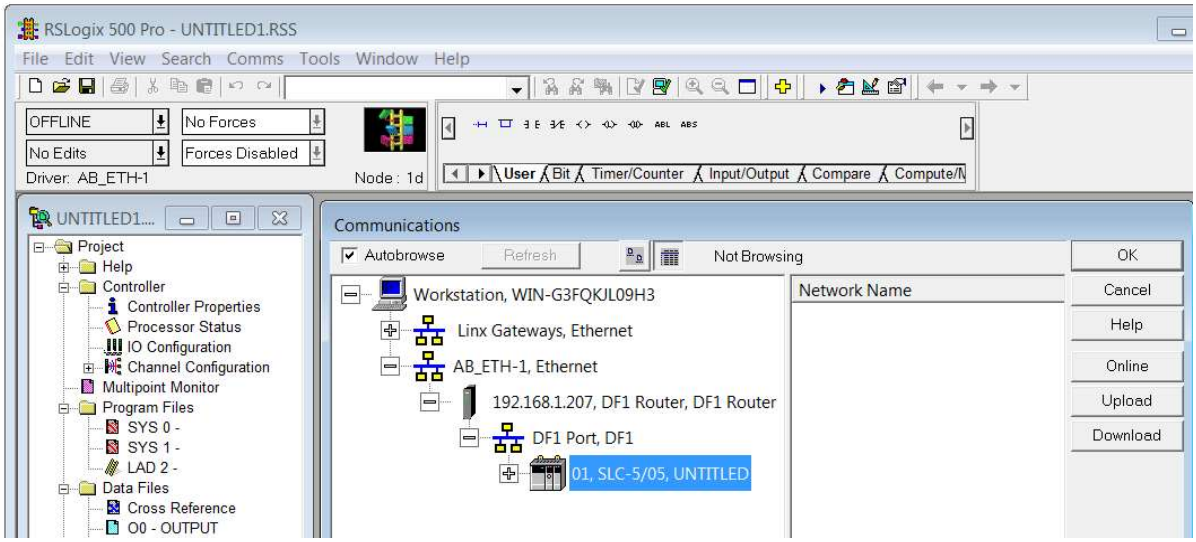

FIGURE 20 – SELECT DEVICE

3.6. PROGRAMMING SLC5/03 OR SLC5/04 WITH PANELVIEW CONNECTED

When a user programs a SLC5/04 or SLC5/03 and a PanelView is also connected to the same SLC controller (via the DF1 Router), there is a possibility that the SLC controller can fault unrecoverable. This is a known issue in the SLC5/03 and SLC5/04.

To avoid this from happening the user will need to select a different destination address for the SLC that is used for Programming with RSLogix 500. **This is only relevant for Full Duplex (Point to Point) connections when operating in Transparent mode.**

To select a different destination DF1 address the user will need to ensure the DF1 Node address for the SLC in RSLinx is different from the configured PCCC Address in Slate. In the example below the DF1 node address for the SLC in RSLinx is 1 and the user has configured the PCCC Address in Slate to be 2.

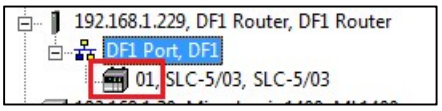

FIGURE 21 – SLC DF1 NODE ADDRESS

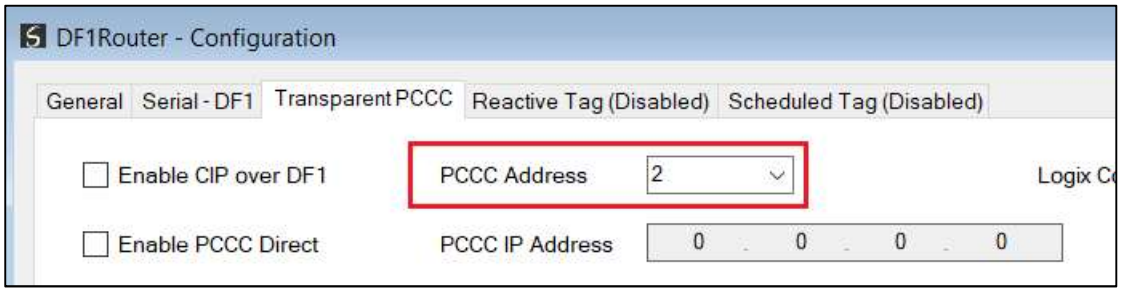

FIGURE 22 – SLATE PCCC ADDRESS