DH485 Router/B

RSLogix500 Programming of SLC500 via DH485 Router

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 the DH485 Router/B (referred to as DH485 Router in this document) to allow remote RSLogix 500 programming of an SLC503 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
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 (SLC503) devices via their DH485 ports. In the application example below, a remote RSLogix 500 programming station can communicate with, and program an SLC500 PLC.

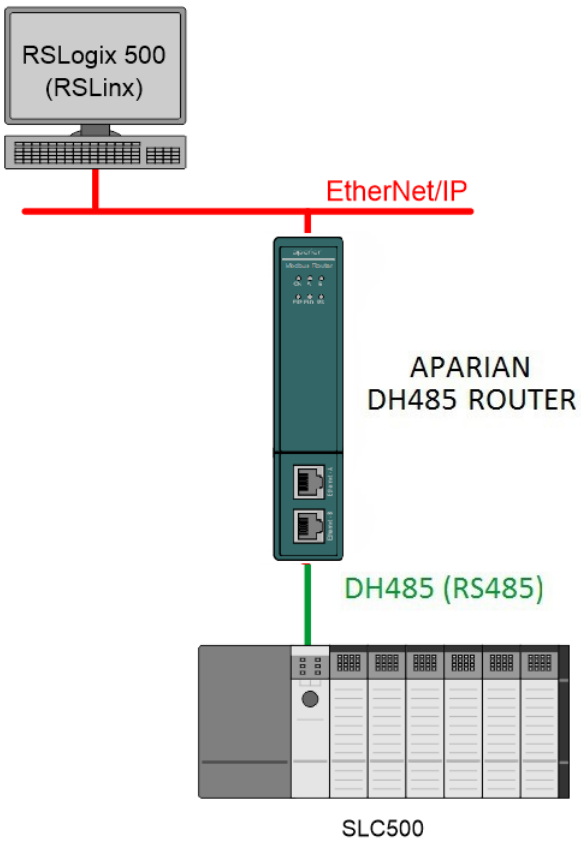


FIGURE 2.1. - EXAMPLE OF A TYPICAL NETWORK SETUP

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.

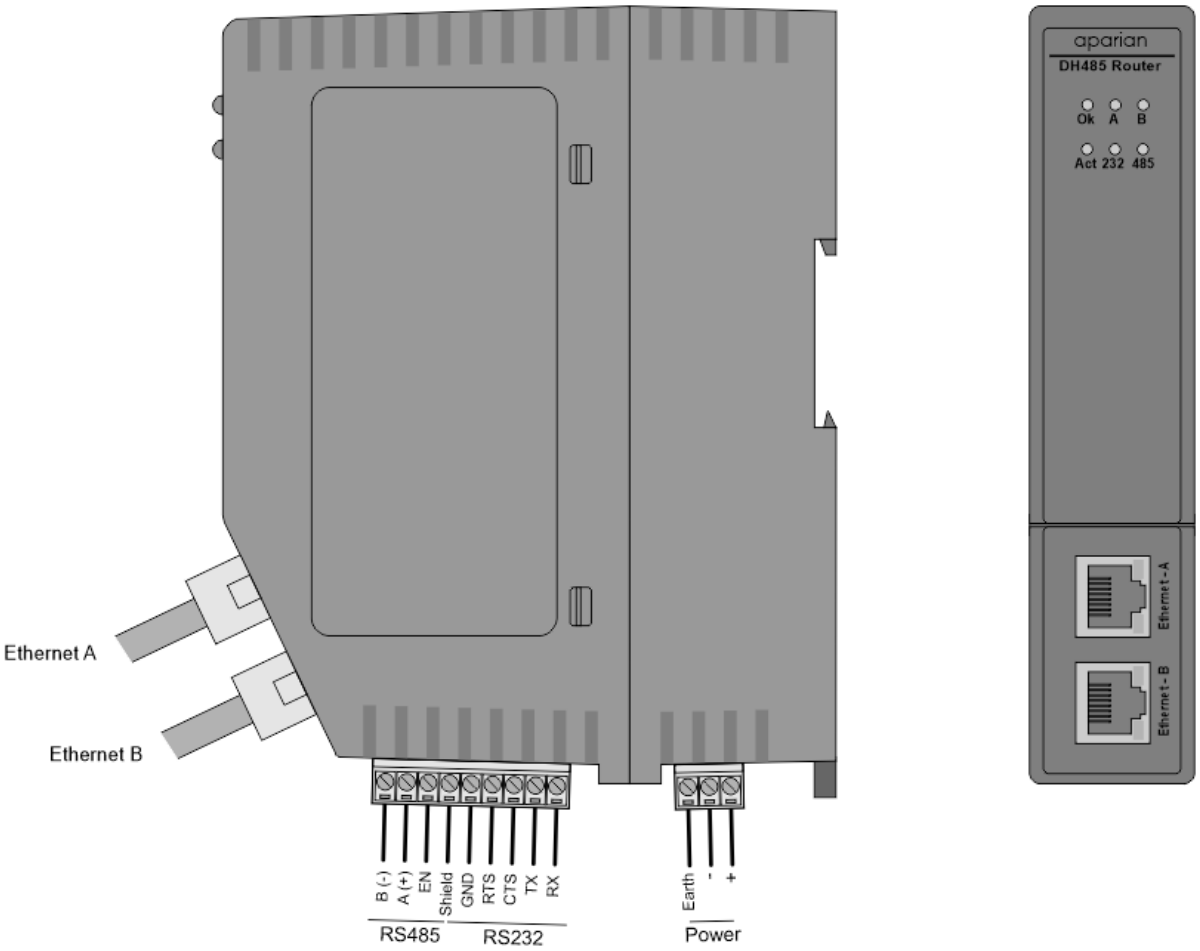


FIGURE 3.1. - DH485 ROUTER/B SIDE AND FRONT VIEW

3.2. SERIAL CABLE WIRING

The serial cable pinout is shown in the figure below:

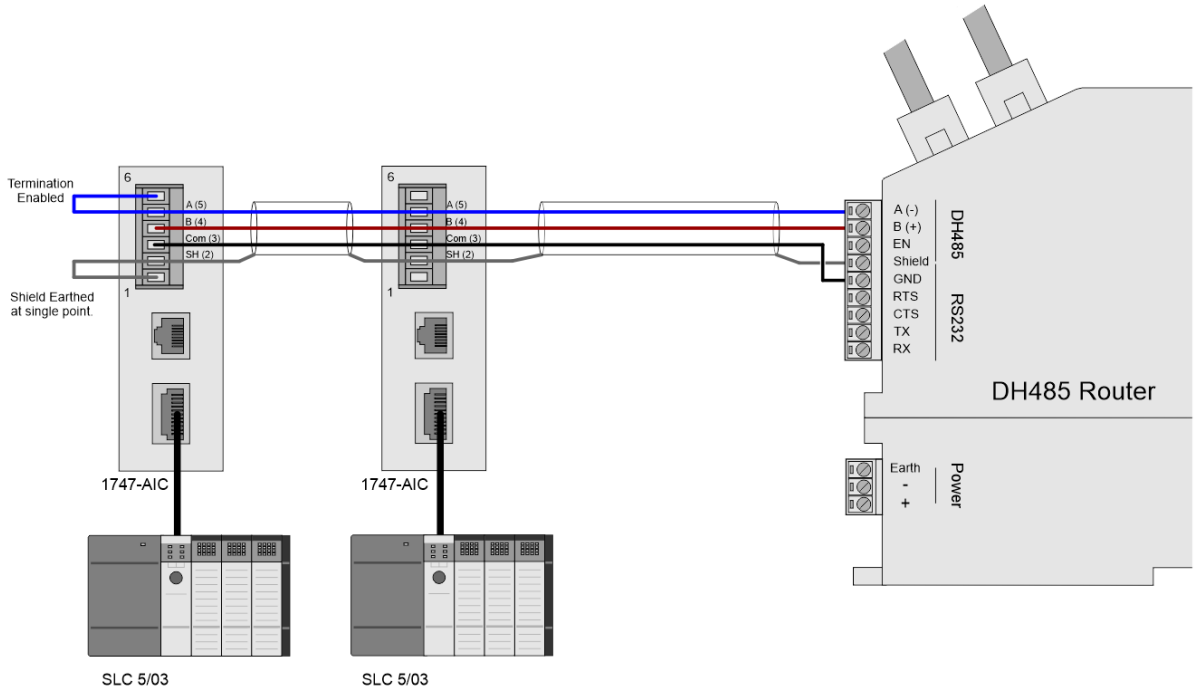


FIGURE 3.2. – SERIAL CABLE PINOUT – 1747-AIC

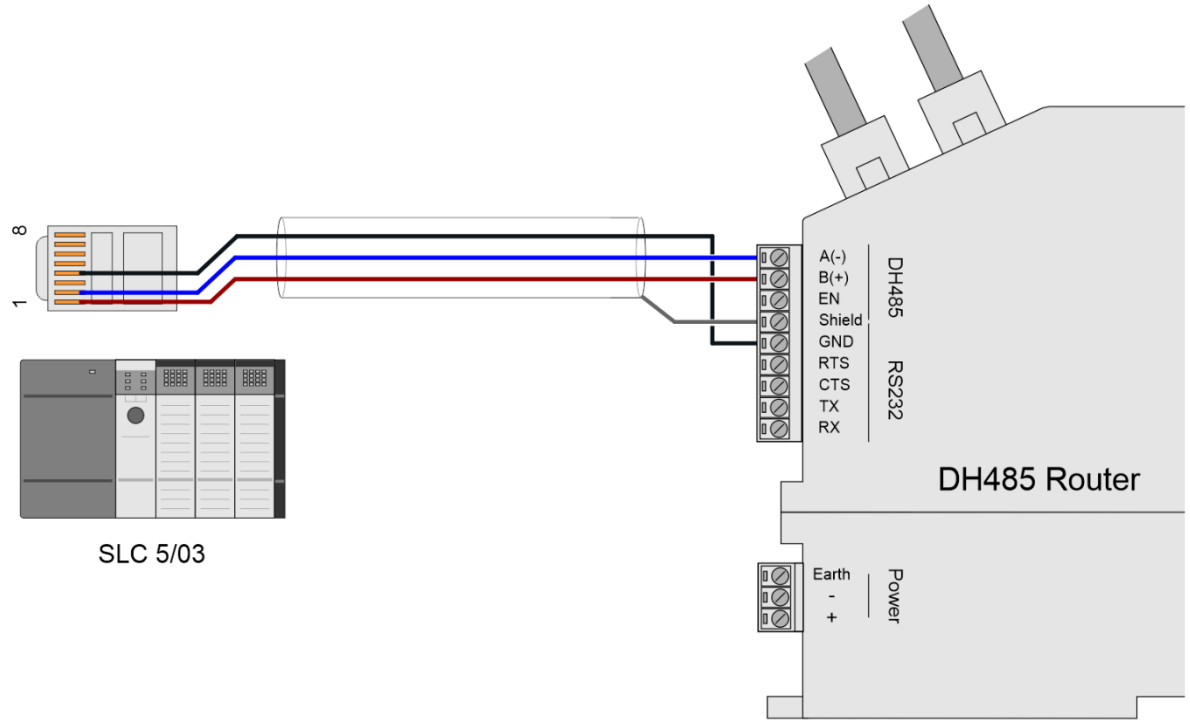


FIGURE 3.3. – SERIAL CABLE PINOUT – SLC DIRECT

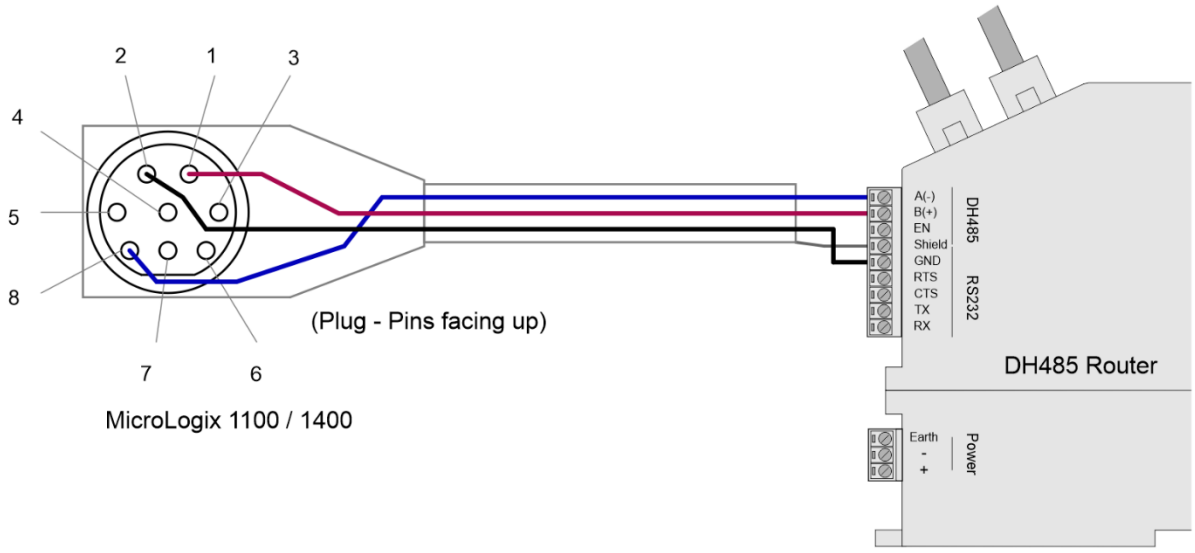


FIGURE 3.4. – SERIAL CABLE PINOUT – MICROLOGIX 1100

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):

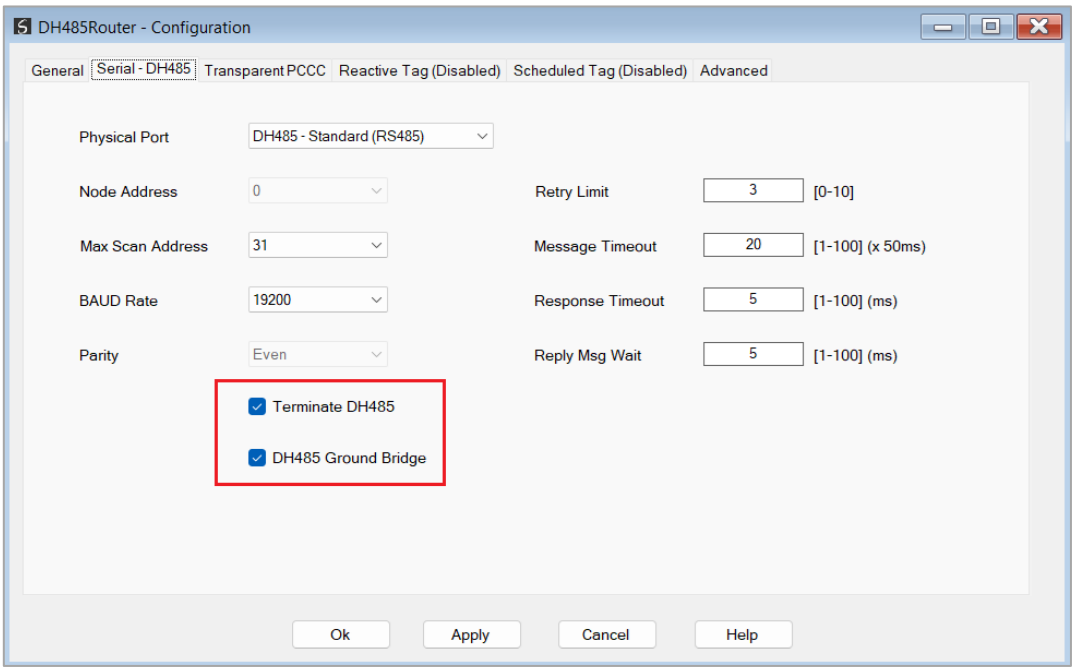


FIGURE 3.5. – INTERNAL RS485 TERMINATION

3.3. DH485 ROUTER SETUP

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

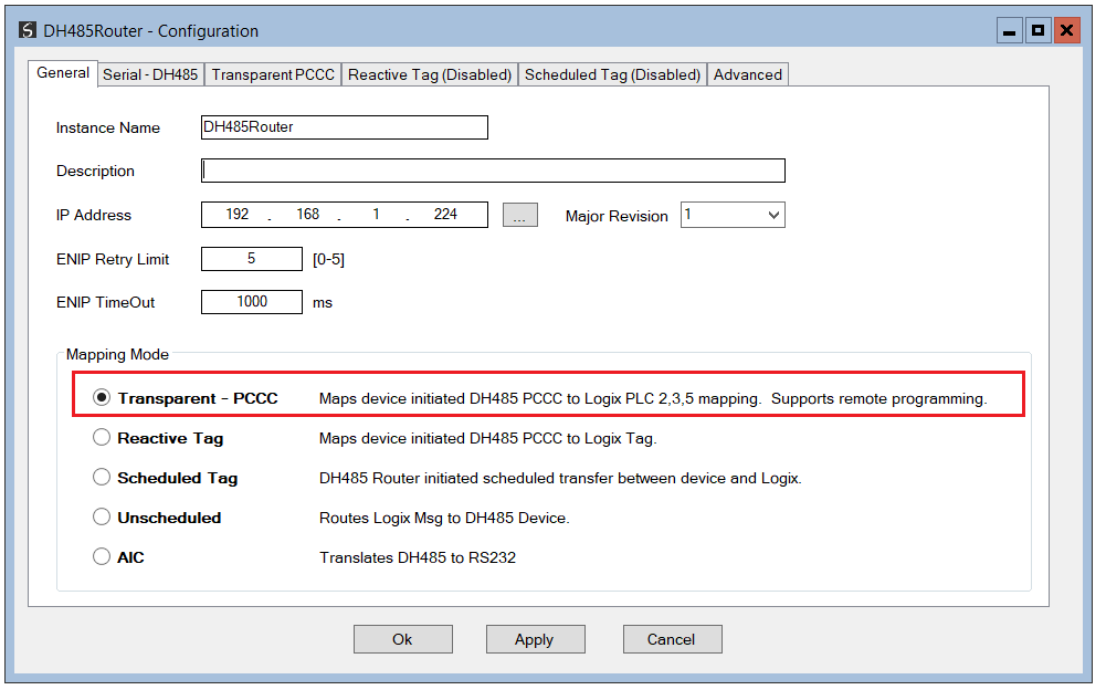


FIGURE 3.6. – DH485 GENERAL CONFIGURATION

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

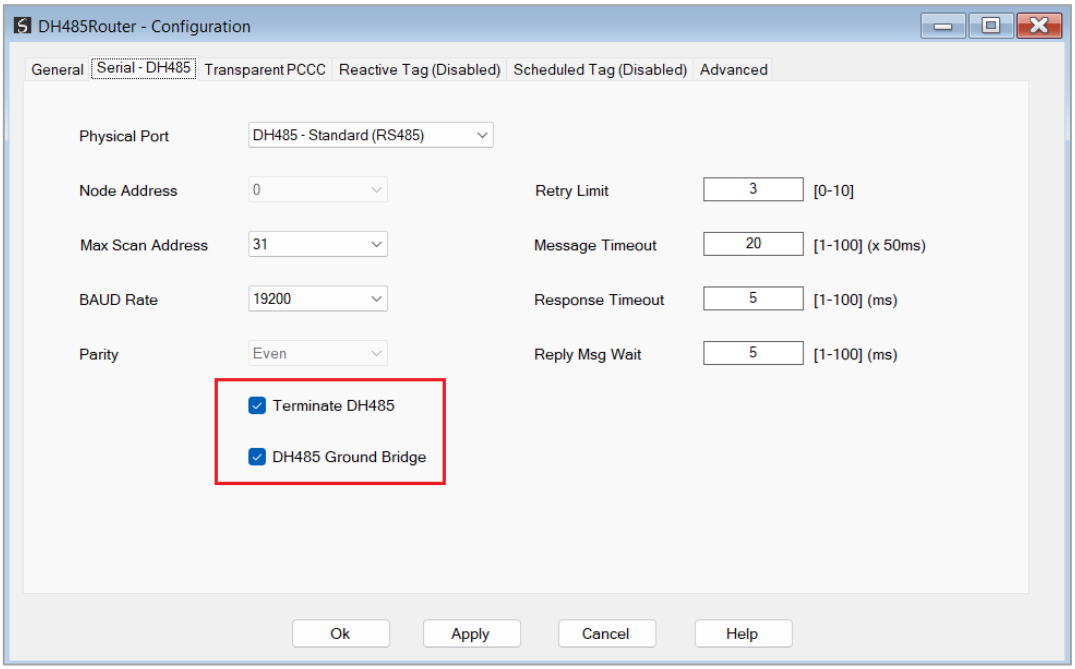


FIGURE 3.7. – DH485 SERIAL CONFIGURATION

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.

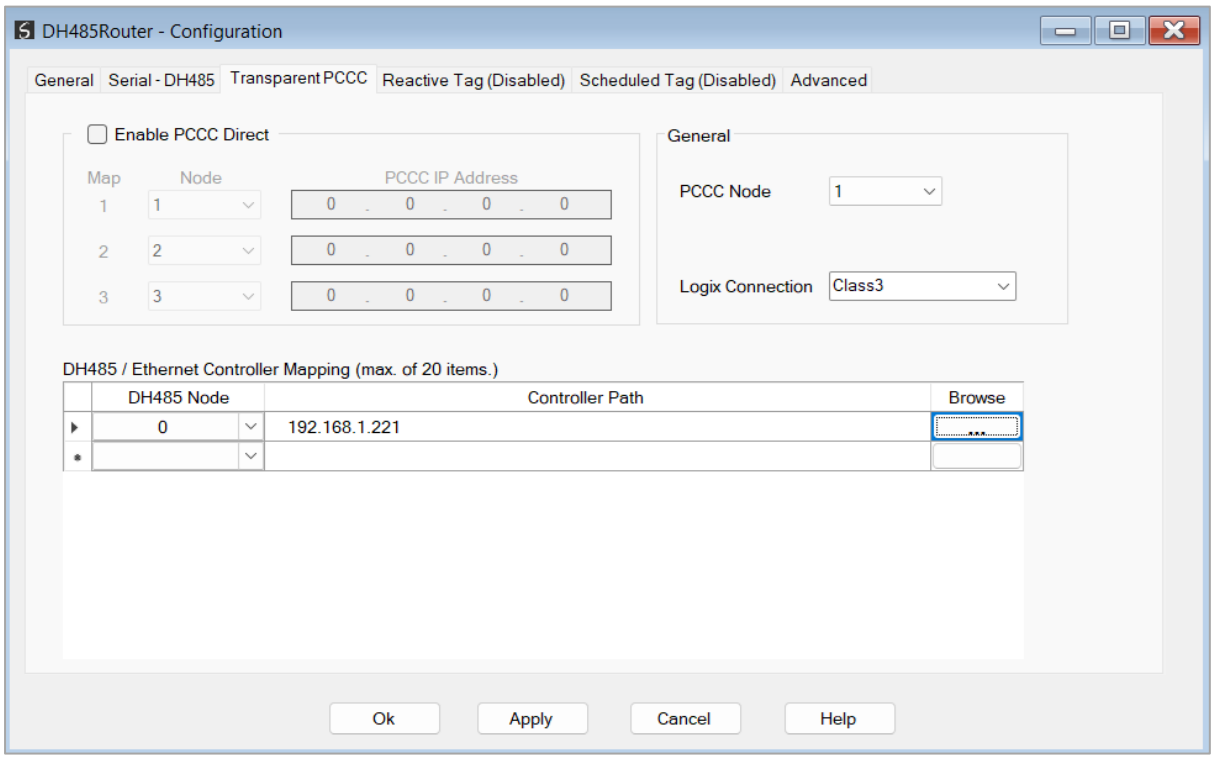


FIGURE 3.8. – TRANSPARENT PCCC CONFIGURATION

3.4. SLC500 SETUP (RSLOGIX 500)

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

3.5. RSLINX SETUP

The DH485 Router's EDS file must be registered on the programming PC. This can be achieved in two ways:

- Uploading the EDS file from the DH485 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 DH485 Router module in RSLinx. Under the Communications menu select the Configure Drivers menu item.

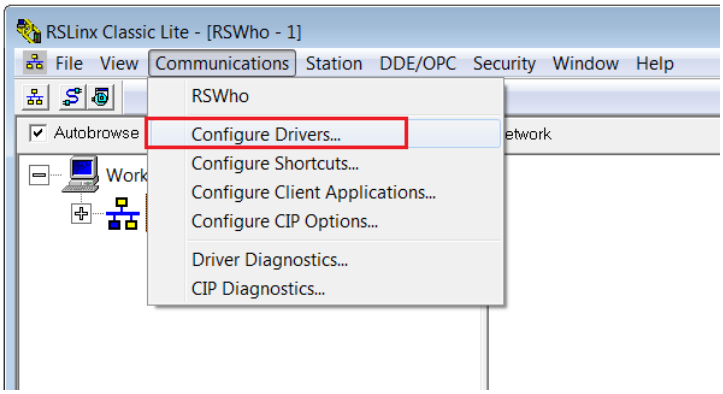


FIGURE 3.9. – RSLINX DRIVER CONFIGURATION

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

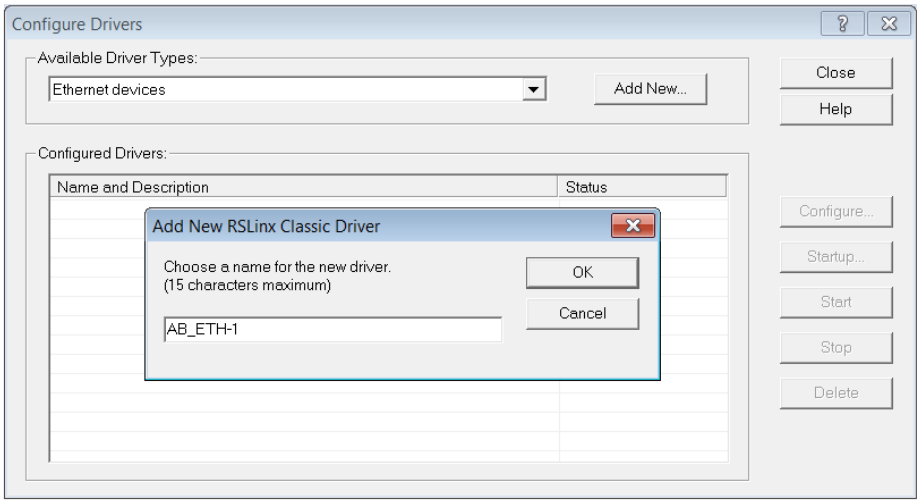


FIGURE 3.10. – RSLINX ETHERNET DEVICES DRIVER

Add the IP address of the DH485 Router.

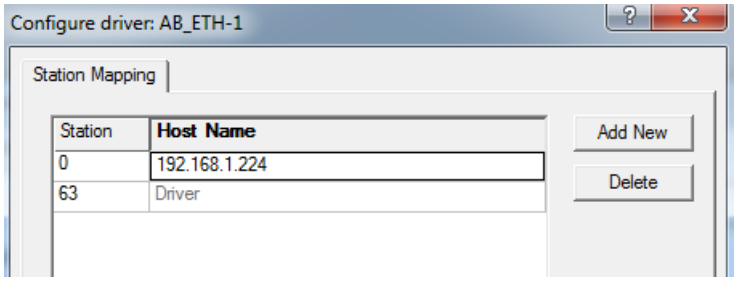


FIGURE 3.11. – RSLINX ETHERNET IP ADDRESS

If the DH485 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 DH485 Router in the RSWho browser and select the "***Upload EDS file from device***" option.

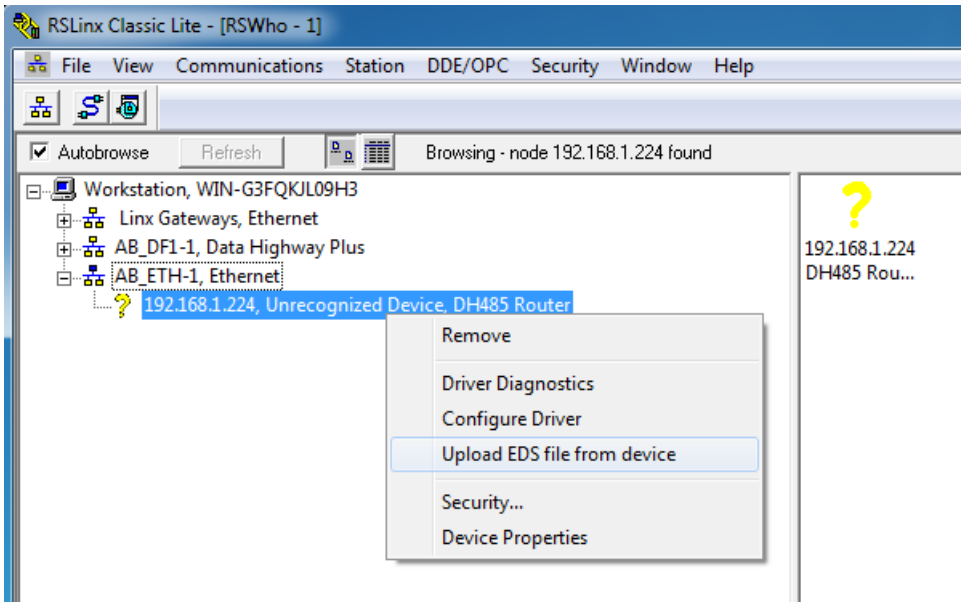


FIGURE 3.12. – RSLINX UPLOAD EDS FILE FROM DEVICE

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



FIGURE 3.13. – 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 DH485 Router will correctly appear in the RSWho browser. It will also show the underlying DH485 Port, which, when expanded, will show the underlying SLC500.

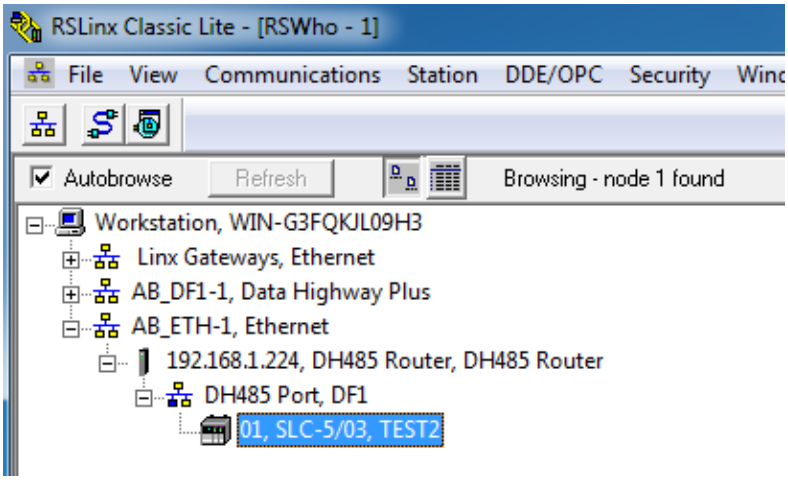


FIGURE 3.14. – BROWSING SLC500 VIA DH485 ROUTER

To enable RSlinx to scan the DH485 network the DH485 Router must be setup correctly. This is done by right-clicking on the DH485 Port in RSLinx and selecting properties.

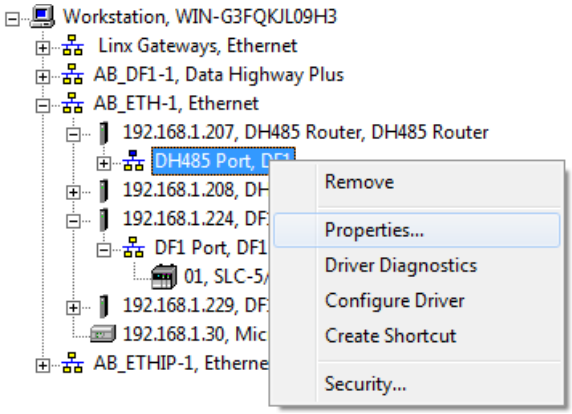


FIGURE 3.15. – SET DH485 NETWORK PROPERTIES

Next the user will need to set the scan range.

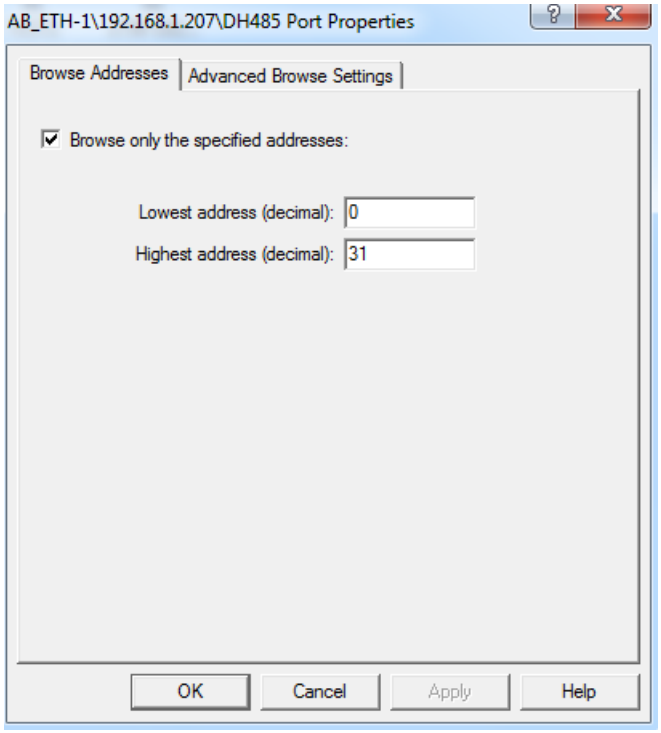


FIGURE 3.16. – SET BROWSE RANGE

Once this is done the user will need to select the *Advanced Browse Settings* and set the *Maximum Concurrent Packets* to 5.

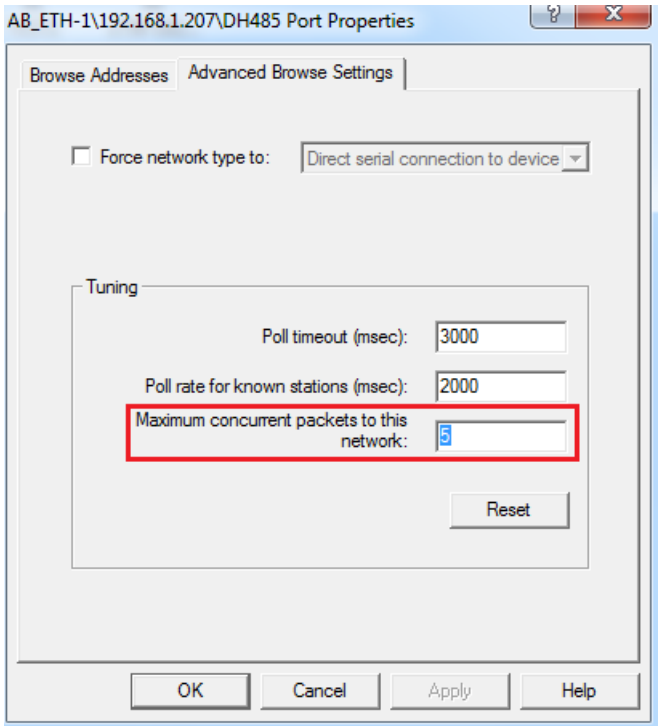


FIGURE 3.17. – SET MAXIMUM CONCURRENT PACKETS

Once this is done the user can select the DH485 Port on the DH485 Router and it will scan the DH485 network for devices. These devices can be selected from RSLogix 500 as target devices used for programming the SLC/MicroLogix controllers.

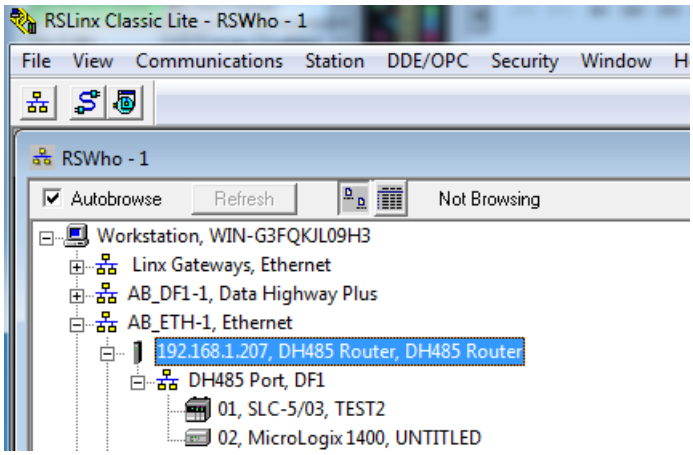


FIGURE 3.18. – REMOTE PROGRAMMING EXAMPLE – RSLINX RSWHO BROWSER

NOTE: When having multiple DH485 Routers on the same DH485 network and the user wants to browse the DH485 network via RSLinx, the user must ensure that all the DH485 Routers on the network have been configured for PCCC operation. Failing to do this will result in incorrect scanning behaviour.

NOTE: When having multiple DH485 Routers on the same DH485 network the DH485 Router used for scanning could find the Logix controllers mapped to the other DH485 Routers (as shown below). It is normal for these Logix controllers to appear and disappear from the network as certain RSLinx routed messages for Logix controllers are not supported by the DH485 network.

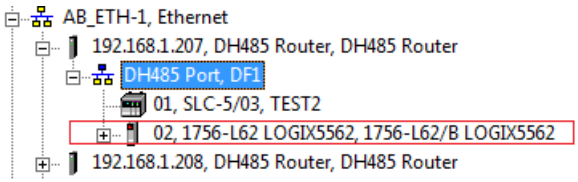


FIGURE 3.19. – LOGIX CONTROLLERS ON THE DH485 NETWORK

MANUALLY INSTALLING THE EDS FILE OPTION

To install the DH485 Router's EDS file manually, it must first be downloaded from the Aparian website: http://www.aparian.com/products/dh485router#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***.

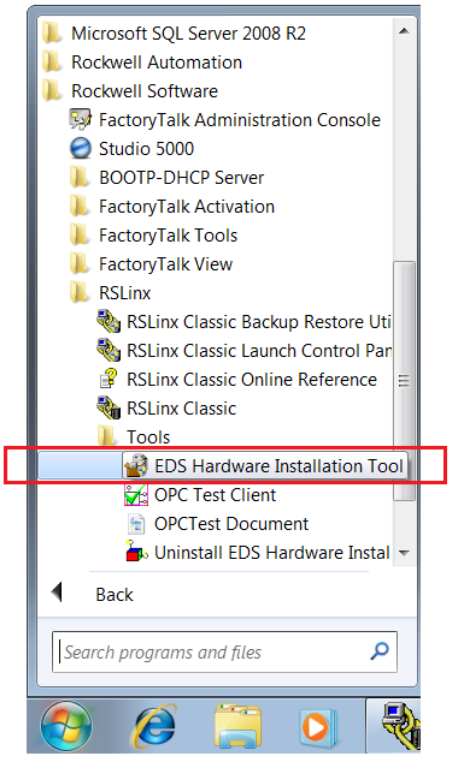


FIGURE 3.20. – LAUNCH EDS HARDWARE INSTALLATION TOOL

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

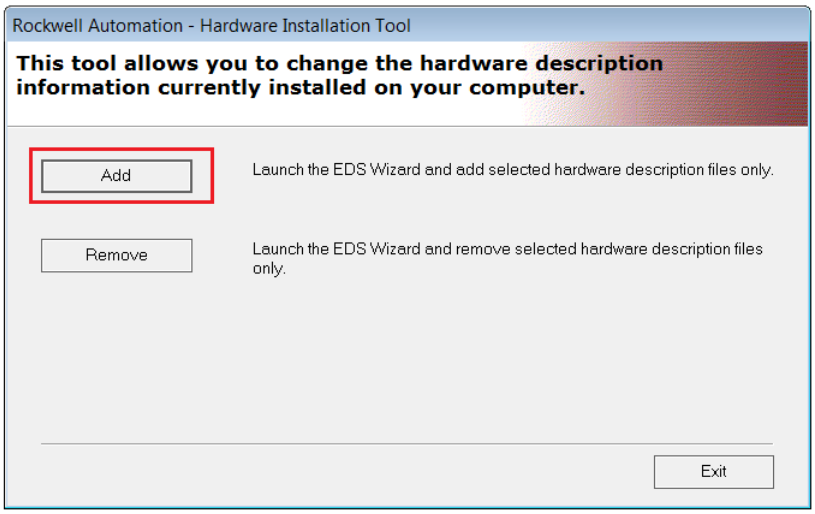


FIGURE 3.21. – HARDWARE INSTALLATION TOOL - ADD

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

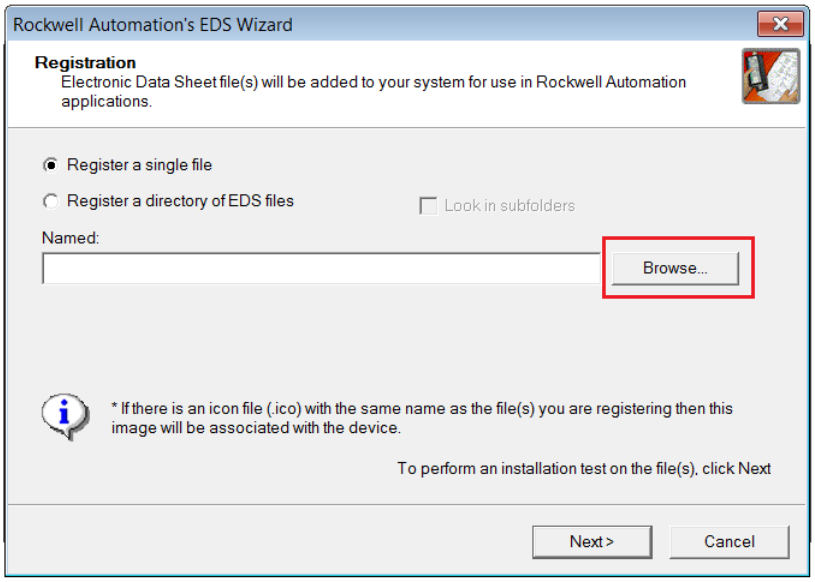


FIGURE 3.22. – EDS REGISTRATION

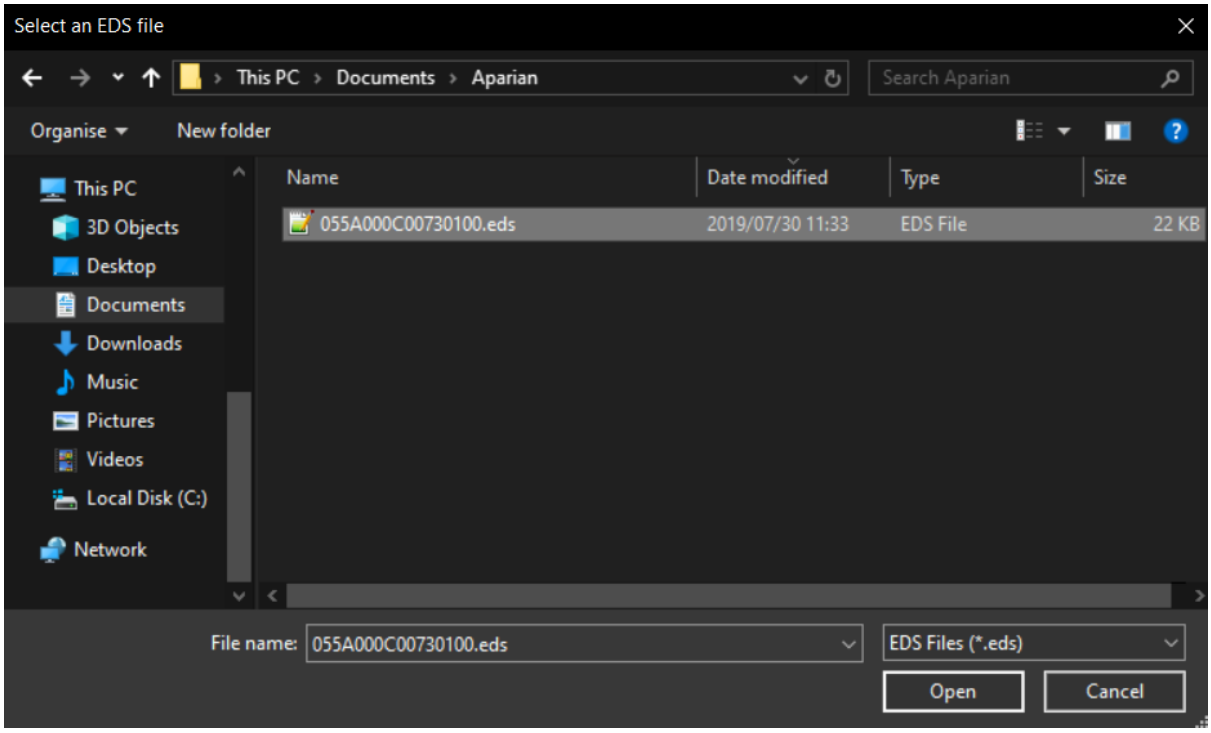


FIGURE 3.23. – EDS FILE SELECT

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

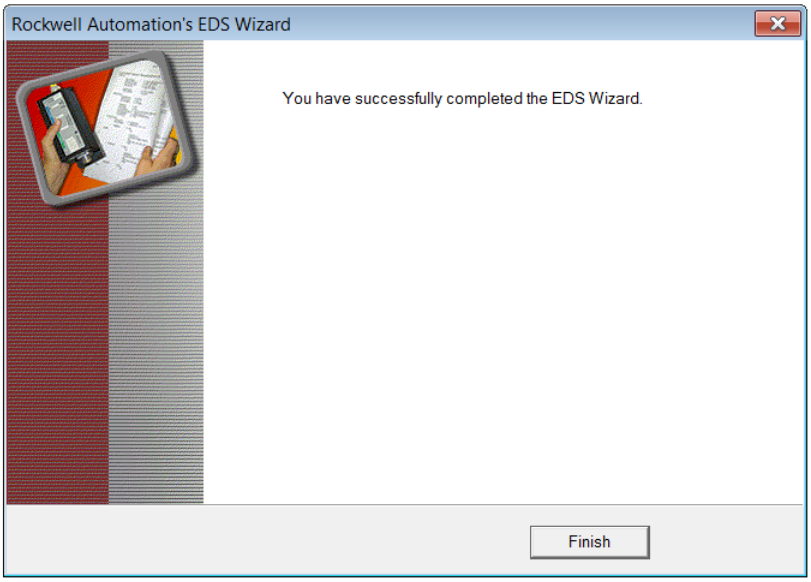


FIGURE 3.24. – EDS REGISTRATION COMPLETE

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.

3.6. RSLOGIX 500

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

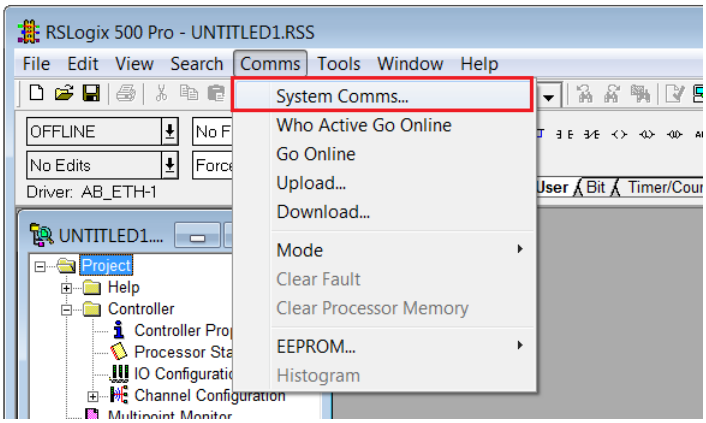


FIGURE 3.25. – SYSTEM COMMUNICATION

In the Communications window, browse to the SLC500 device under the DH485 Router, and select Online, Upload or Download as required.

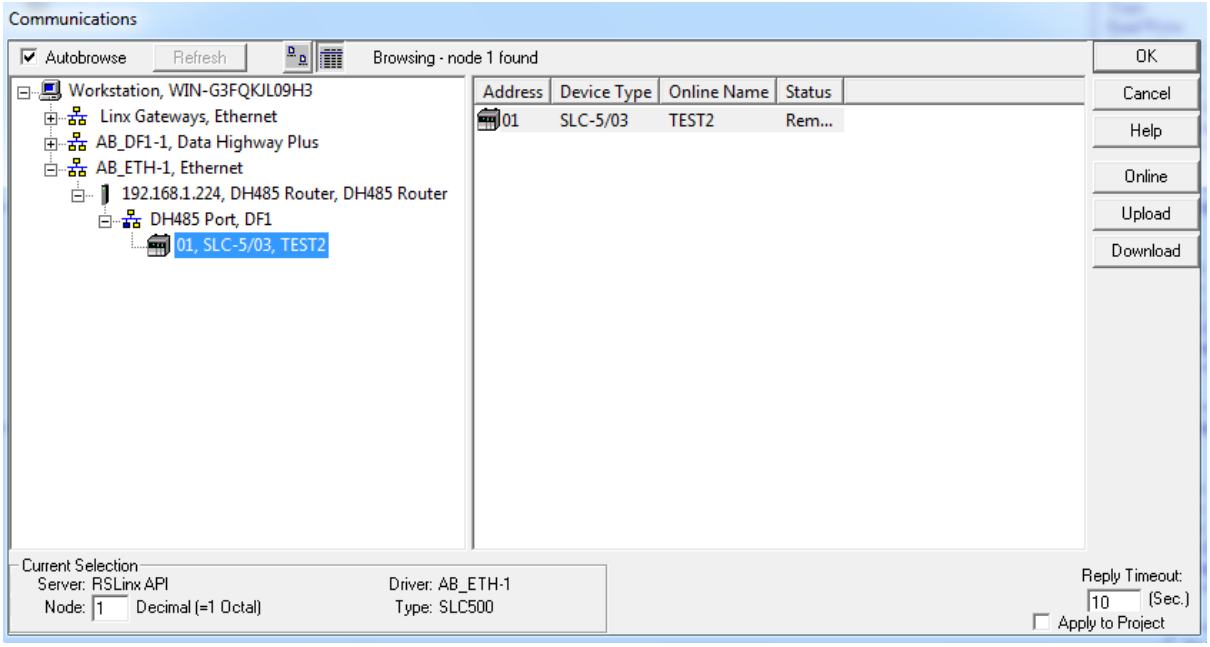


FIGURE 3.26. – SELECT DEVICE