DH485 Router/B

AVEVA™ InTouch to SLC setup

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 an AVEVA™ InTouch application to communicate to an SLC device's DH485 port via PCCC Ethernet.

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 SLC5/03 via their DH485 serial ports. In the application example below, an AVEVA™ InTouch application can read and write data to an SLC500.

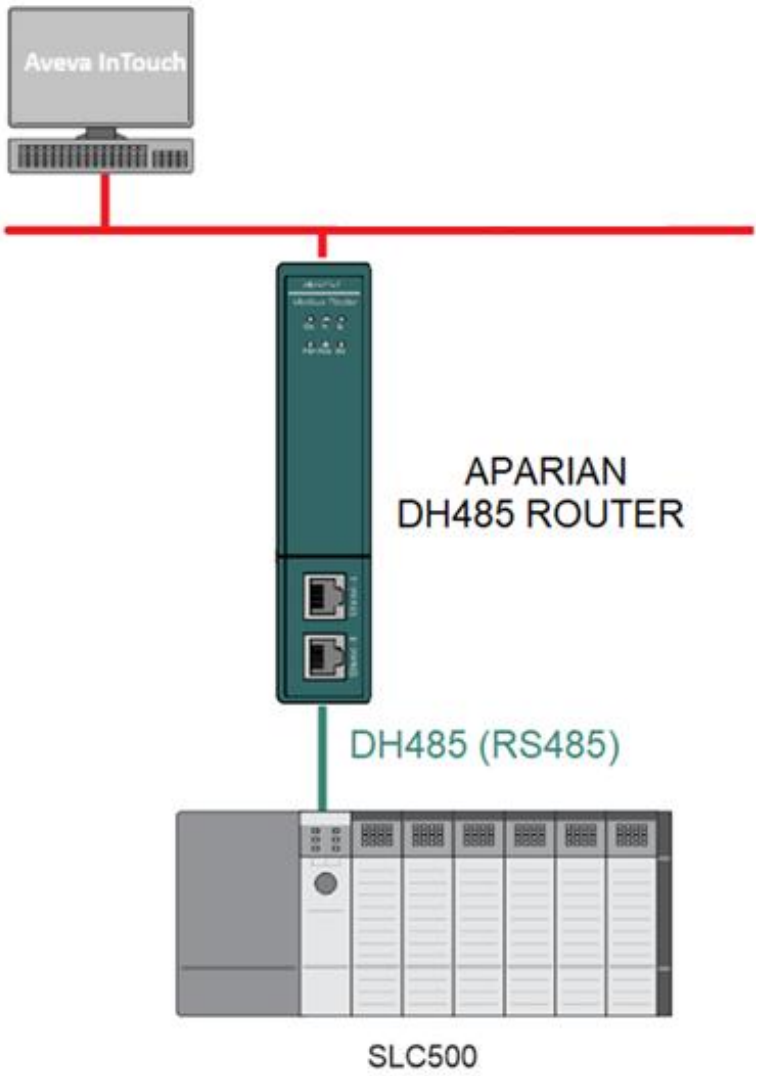


FIGURE 2.1. - EXAMPLE OF A TYPICAL NETWORK SETUP

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.

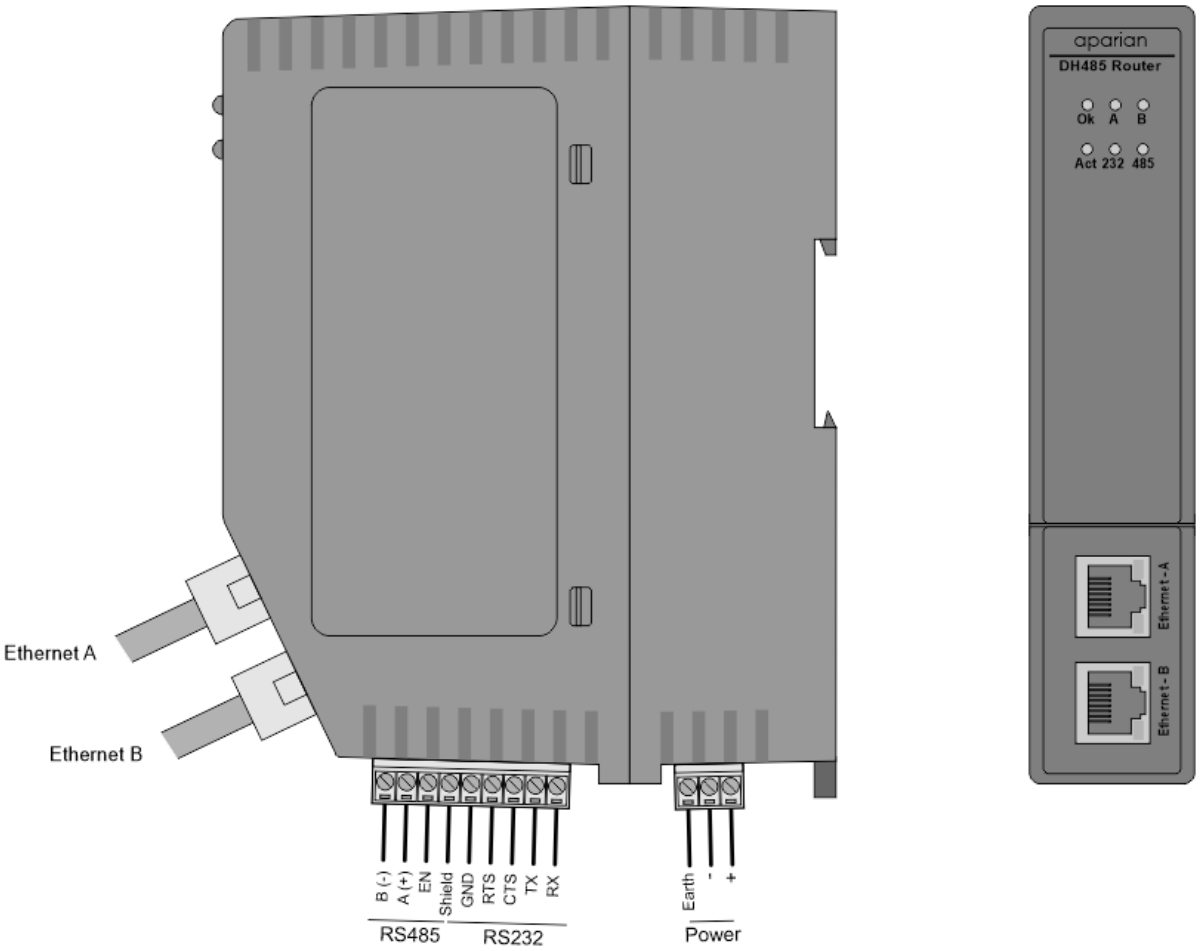


FIGURE 3.1. - DH485 ROUTER/B SIDE AND FRONT VIEW

3.2. SERIAL CABLE WIRING

The serial cable pinout is shown in the figure below:

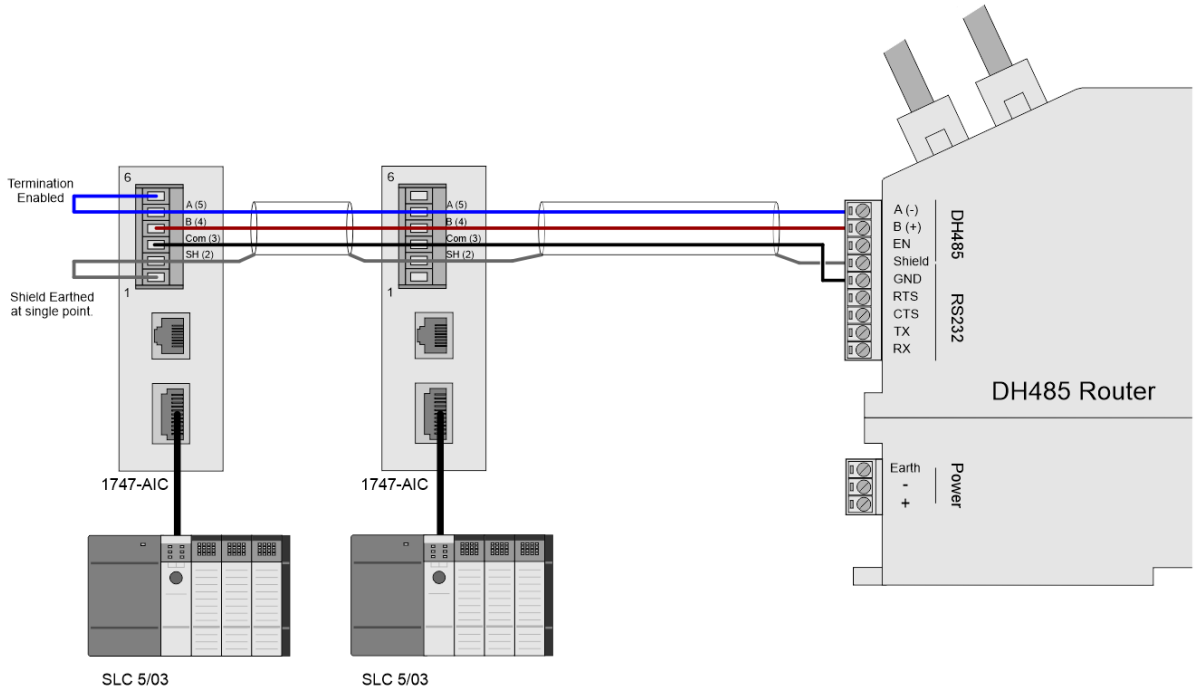


FIGURE 3.2. – SERIAL CABLE PINOUT – 1747-AIC

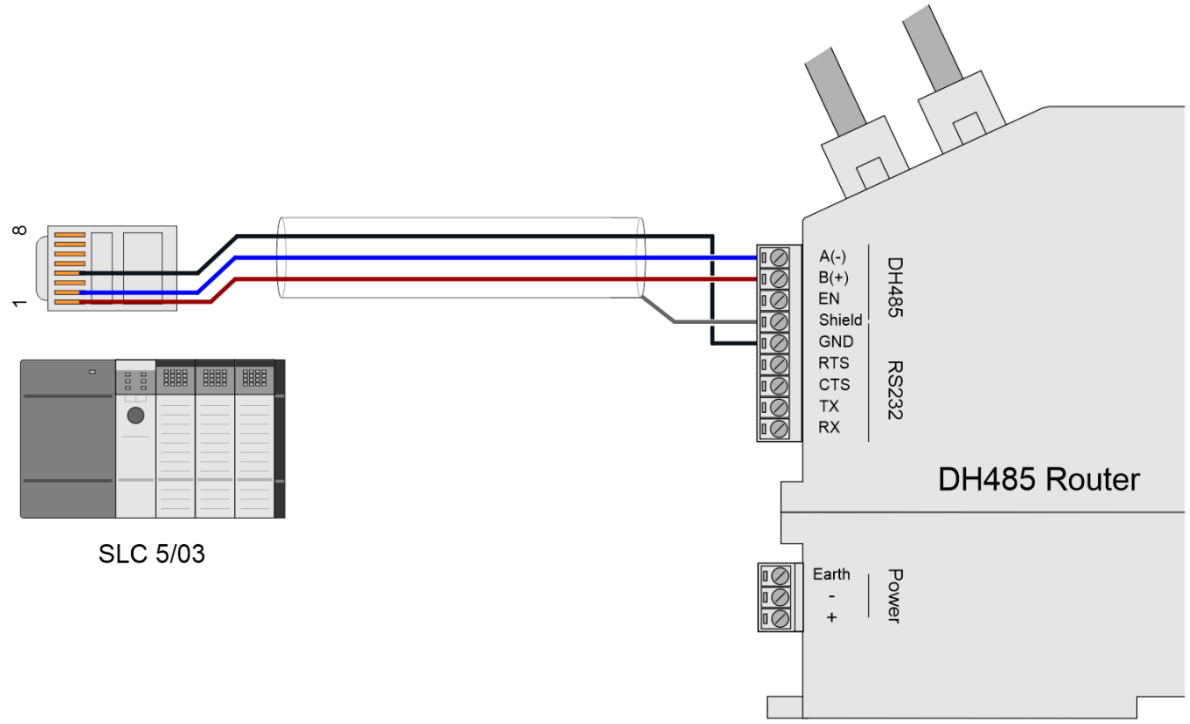


FIGURE 3.3. – SERIAL CABLE PINOUT – SLC DIRECT

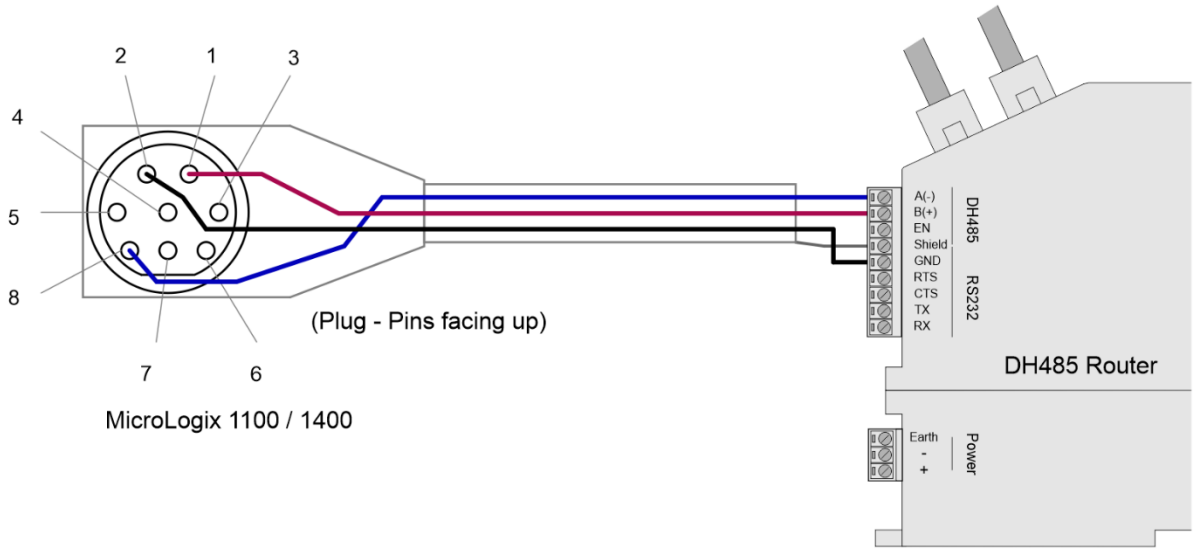


FIGURE 3.4. – SERIAL CABLE PINOUT – MICROLOGIX 1100

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):

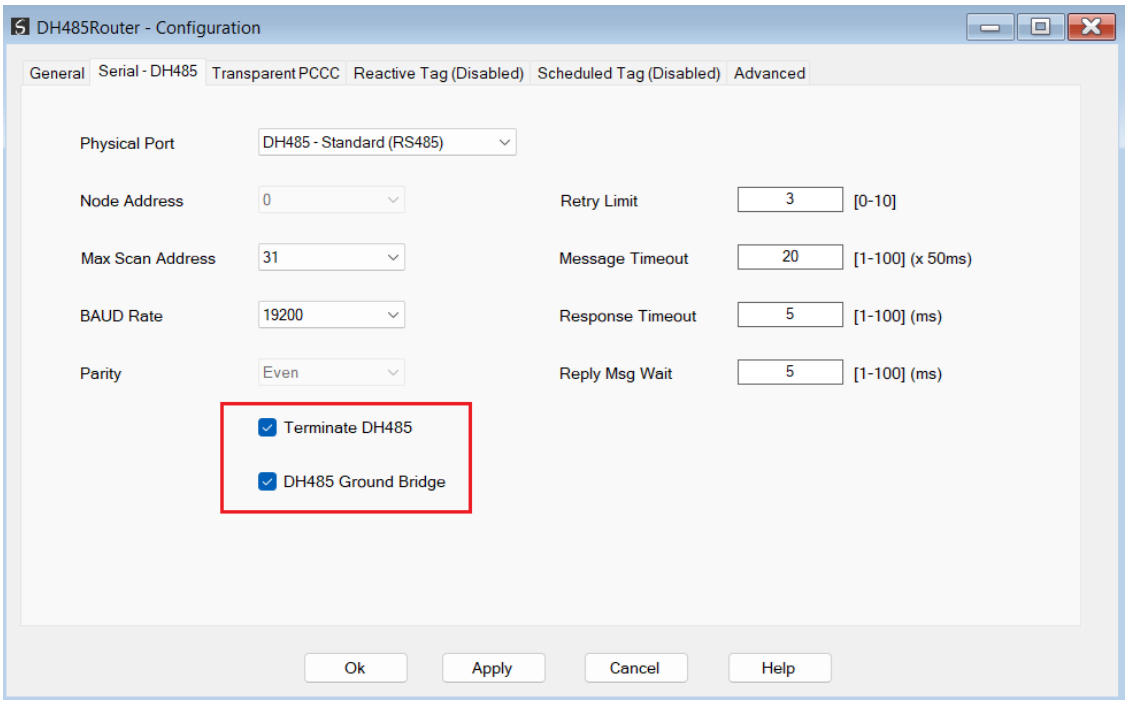


FIGURE 3.5. – INTERNAL RS485 TERMINATION

3.3. DH485 ROUTER SETUP

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

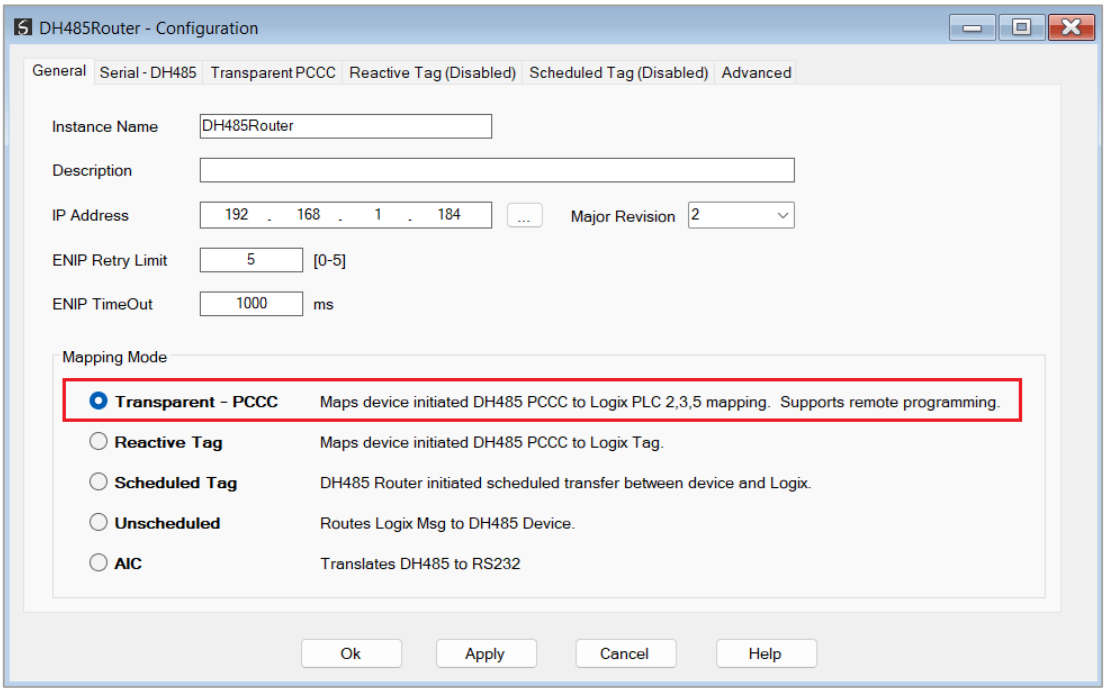


FIGURE 3.6. – DH485 GENERAL CONFIGURATION

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

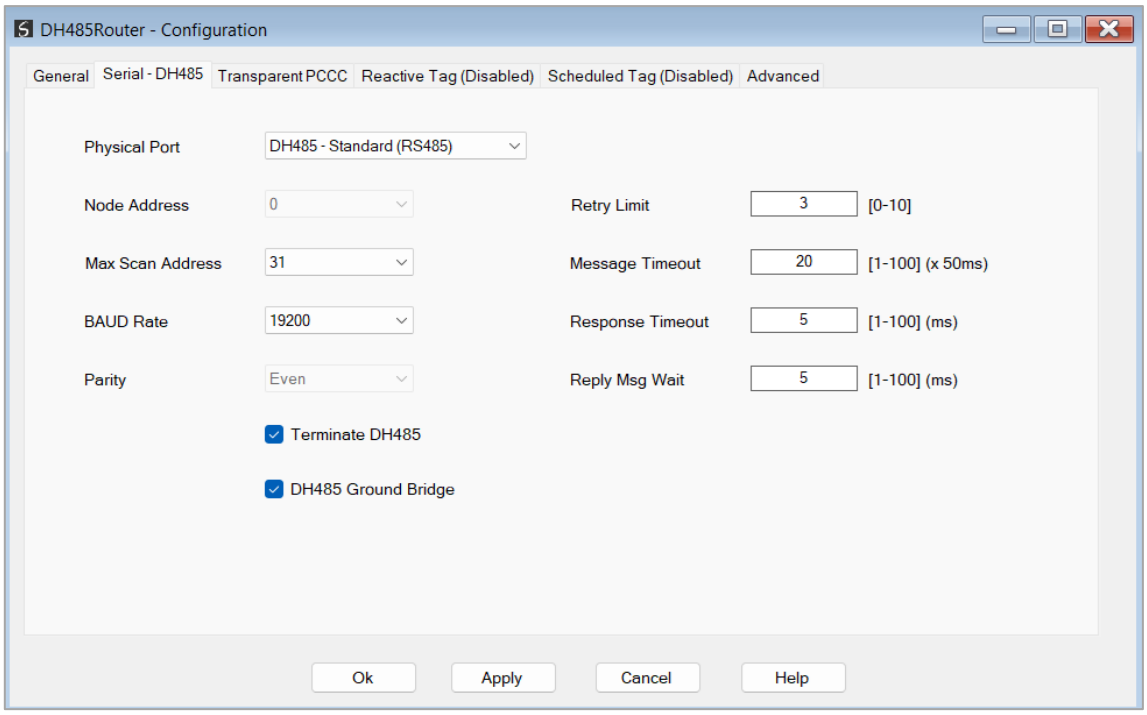


FIGURE 3.7. – DH485 SERIAL CONFIGURATION

NOTE: At least one transparent mapped item must be added for the SLC500 communication to work over DH485. If the DH485 Router is used purely for communicating with InTouch, then the user can, as an example, add a DH485 Node of 1 (which **must be unique** on the DH485 network) with an IP address of the DH485 Router. The reason for this is because the DH485 Router requires a node on the DH485 network.

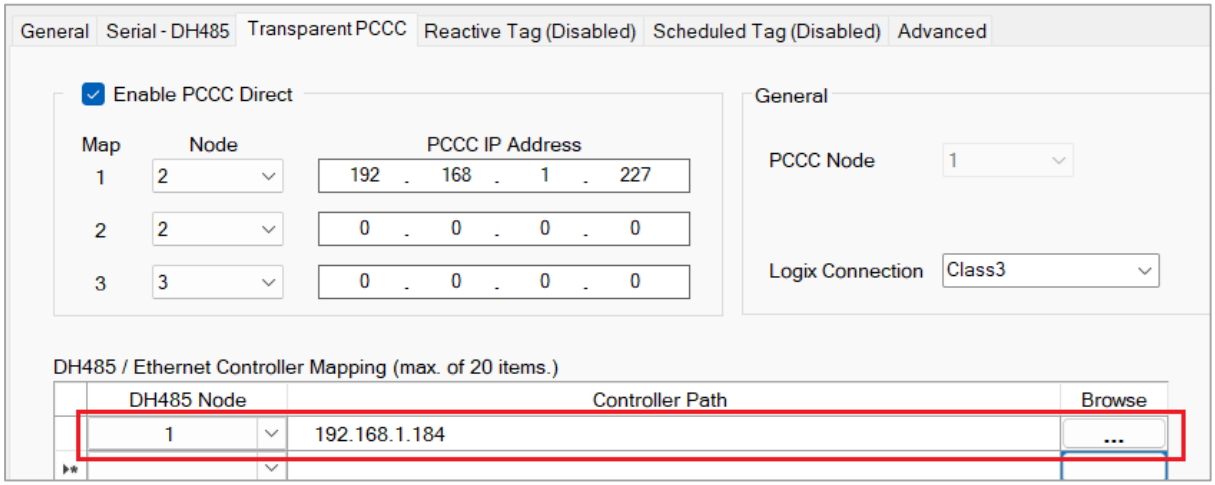


FIGURE 3.8. – TRANSPARENT PCCC CONFIGURATION

The InTouch application will use PCCC (AB-ETH) to communicate with the DH485 Router. To enable this on the DH485 Router, the user will need to set the *Enable PCCC Direct* in the Transparent PCCC tab, set the DH485 node of the SLC, and set the IP address that will be used for the PCCC communicate (i.e., the IP address the DH485 Router will emulate).

NOTE: The IP address selected in the PCCC Direct mapping **must not** match the DH485 Router main IP address configured in the General tab.

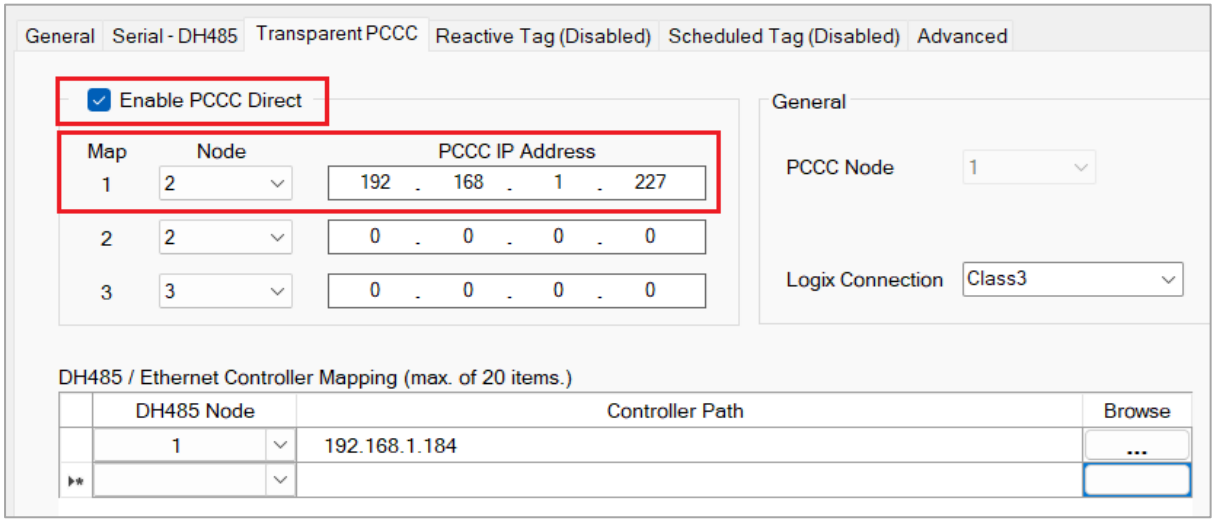


FIGURE 3.9. – PCCC DIRECT CONFIGURATION

3.4. 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. The DH485 node address of the SLC must also match the Node set in the PCCC Direct Map.

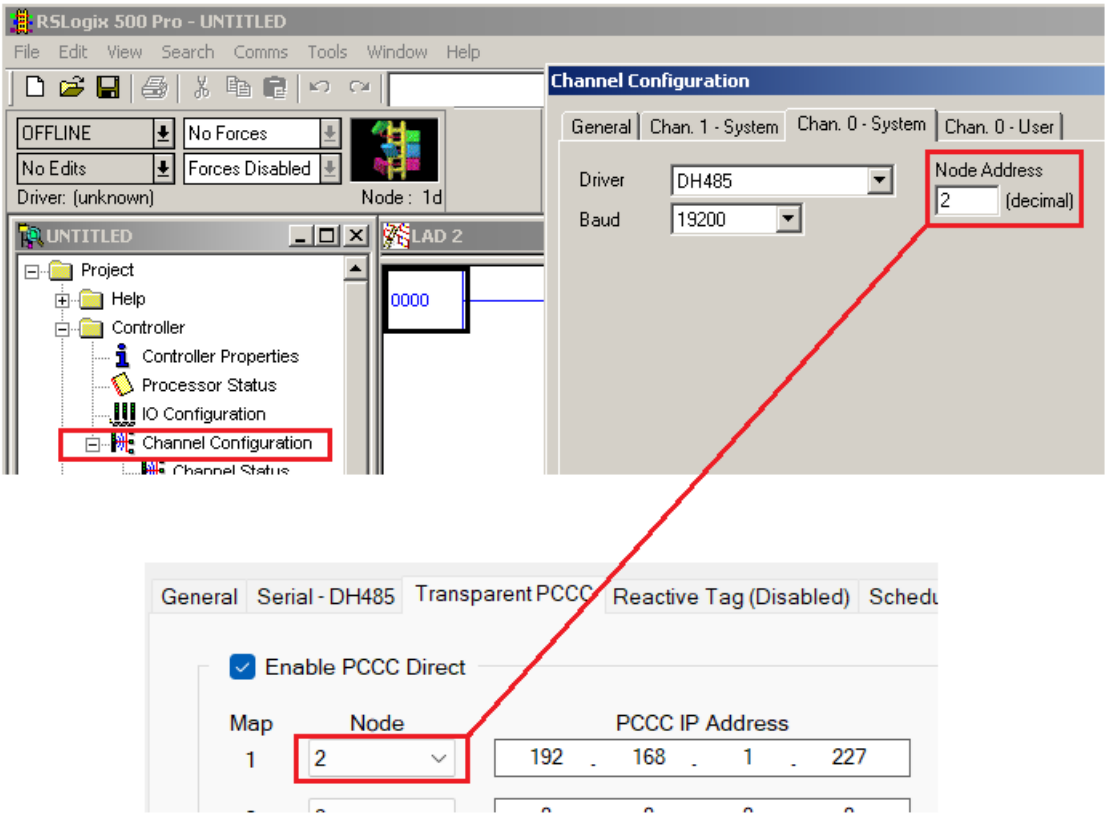


FIGURE 3.10. – RSLOGIX 500 CONFIGURATION

3.5. AVEVA™ INTOUCH SETUP

- AVEVA™ InTouch (formerly Wonderware InTouch) can be configured to communicate to an SLC controller via the DH485 Router.

- The communication can be set up using the Operations Control Management Console.

3.5.1. OPERATIONS CONTROL MANAGEMENT CONSOLE (OCMC)

- In the OCMC, expand the Operations Integration Supervisory Servers to expose the Allen Bradley – ABCIP port.

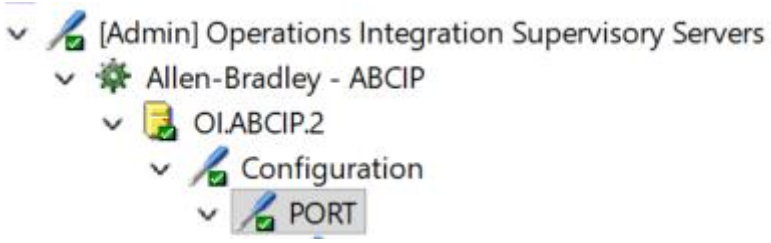


FIGURE 3.11. - OCMC PORT

- If there is not an existing Server Instance of the driver, then this must be created by right-clicking on the ABCIP driver.
- Under the PORT item, right-click and select the Add SLC500_EN Connection option.

- Rename the newly added connection appropriately (e.g. “DH485”) and set the ***Host Name*** to the ***IP Address*** of the PCCC direct IP address linked to your SLC, e.g. 192.168.1.227. Save the settings (top right button).

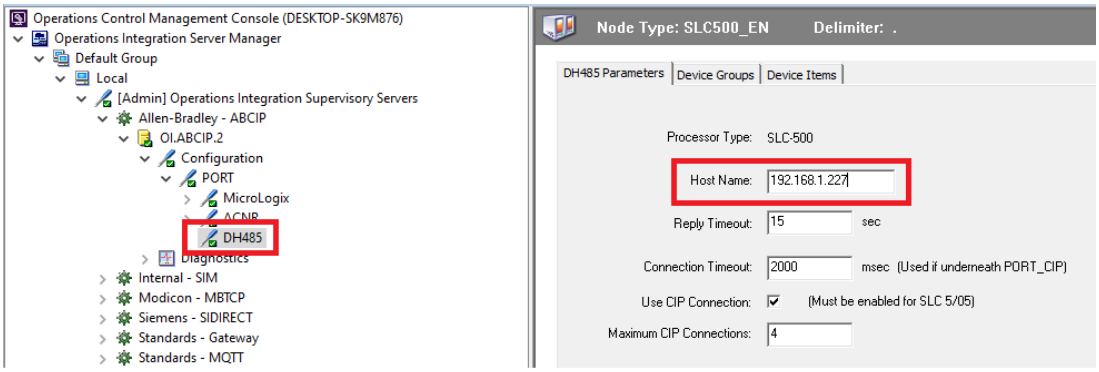


FIGURE 3.12. - ADDING THE ROUTERS IP AS HOST NAME

- Select the Device Groups and right click in the empty space, select add and name the group “InTouchAccess”. This is what will be referenced by InTouch. Save.

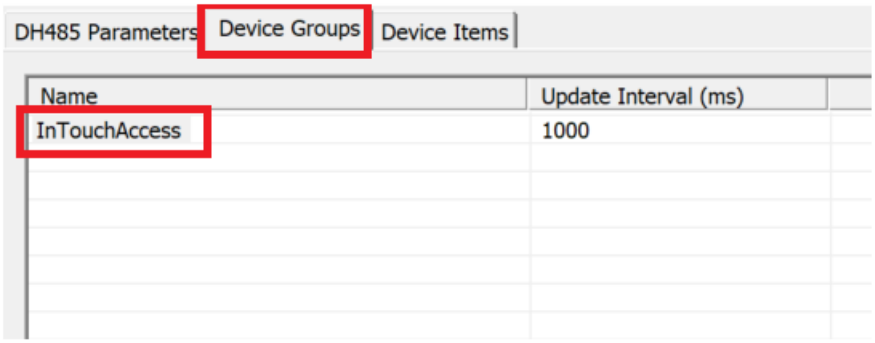


FIGURE 3.13. - DEVICE GROUPS

- Next you will need to create a project using AVEVA™ Application Manager.

3.5.2. AVEVA™ APPLICATION MANAGER/WINDOW MAKER

- In File, select new

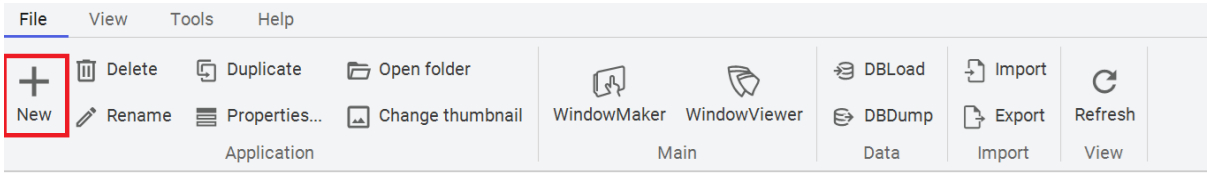


FIGURE 3.14. - CREATING NEW APPLICATION

- Choose your template and give it a name, directory and resolution. Click finish.

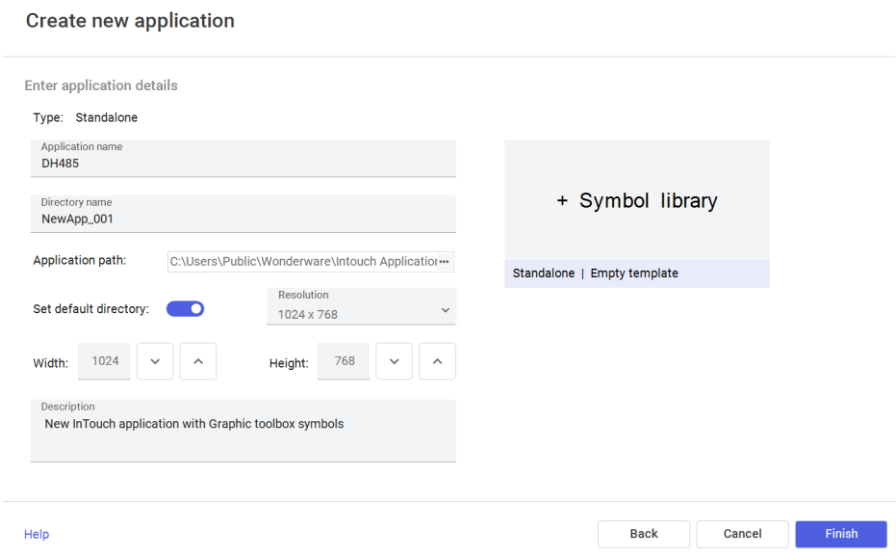


FIGURE 3.15. - EDIT APPLICATION SET-UP

- In InTouch WindowMaker, you can now configure an ***Access Name*** to point to the previously configured DH485 driver. You can Select the arrow below the Tag Dictionary to find the Access Names.

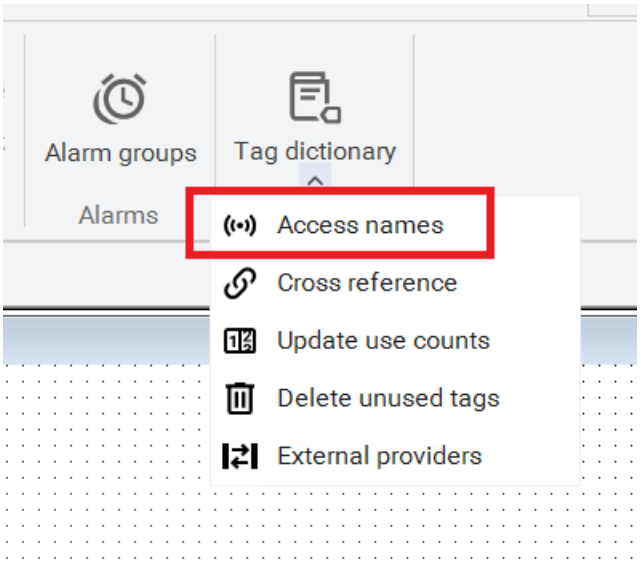


FIGURE 3.16. FINDING ACCESS NAMES

- Select the + to add a new access name.

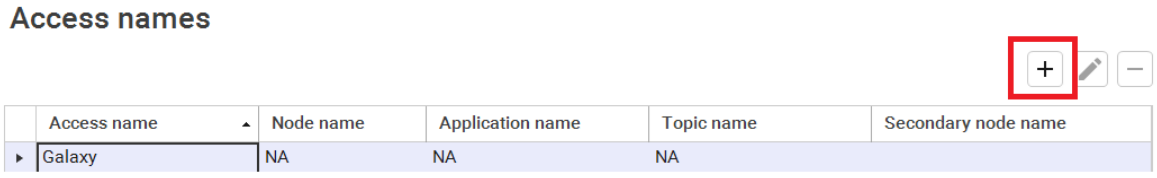


FIGURE 3.17. ADD NEW ACCESS NAME

- Enter an appropriate ***Access name***. If the server is local then the ***Node name*** can be left blank, otherwise it should be the name of the server running the DH485 driver.

- The *Application name* must be set to the name (between the two periods) of the ABCIP driver instance. In the example below, the instance name is "OI.ABCIP.2", so the Application name must be set to "ABCIP".

- The ***Topic name*** must be set to the Topic name defined in the drivers Device Groups, in the example below this is "InTouchAccess".

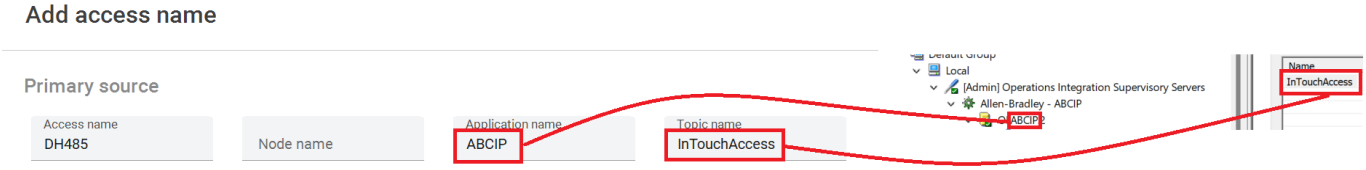


FIGURE 3.18. - INTOUCH ACCESS NAMES

- To verify its working, you can create a new tag by selecting the Tag dictionary. This will open the Tagname dictionary pop-up.

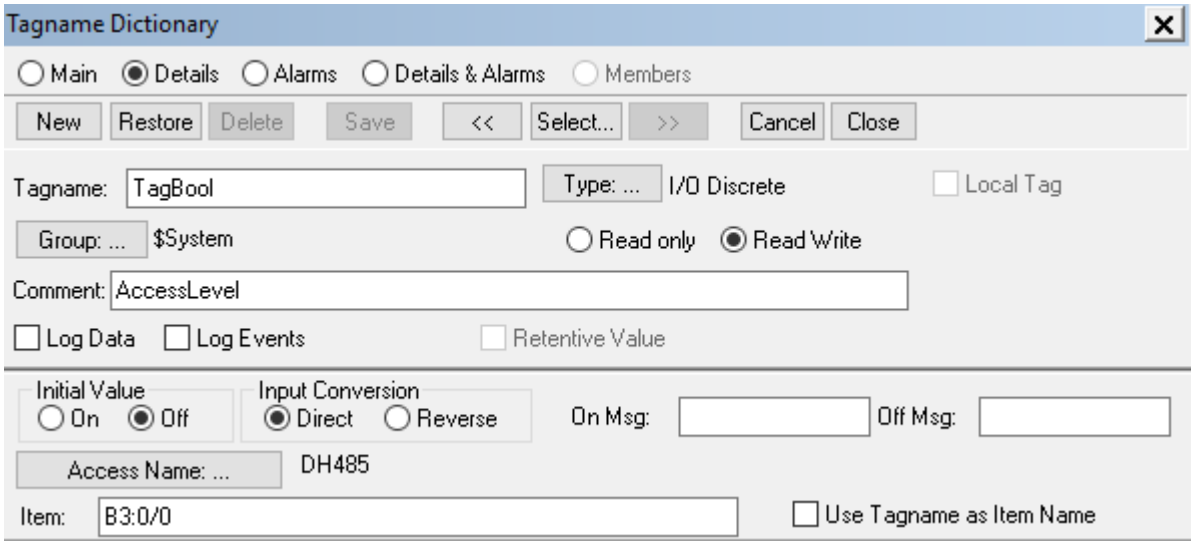


FIGURE 3.19. - TAGNAME DICTIONARY

- Select new, give it a tagname e.g., TagBool, and set the type to I/O Discrete.

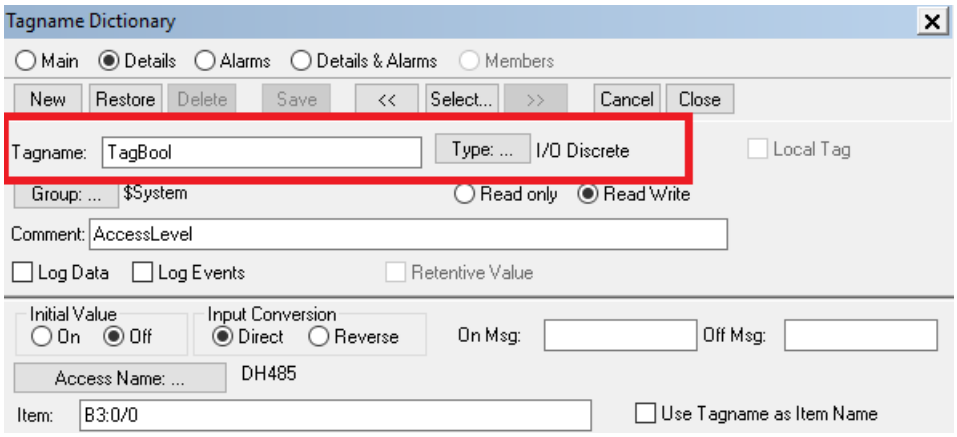


FIGURE 3.20. - TAGNAME AND TYPE

- Select Access Name and select the Access Name that was created (DH485).

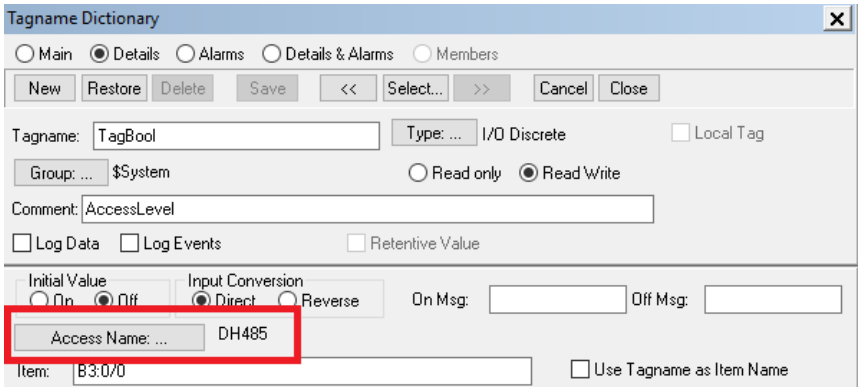


FIGURE 3.21. - SET ACCESS NAME

- You can then add the target tag of your SLC as the Item. For this example B3:0/0 is used.
- A button can then be added by selecting Graphics on the home tab

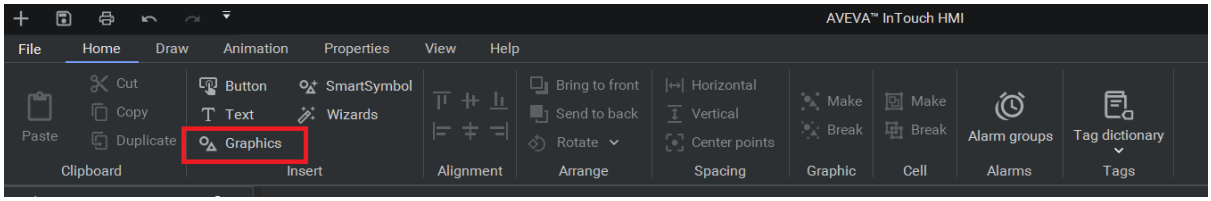


FIGURE 3.22. - GRAPHICS

- In the Galaxy Browser the user can then Select a button and place it in the Canvas

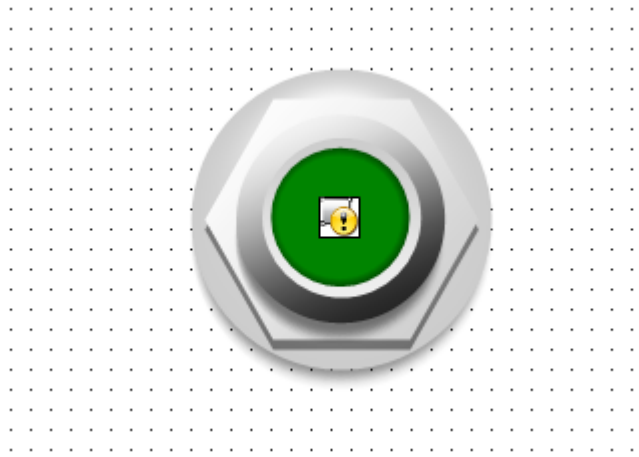


FIGURE 3.23. - BUTTON ADDED TO CANVAS

- Double click the button, click the arrow to the Value property and type or select your tag.

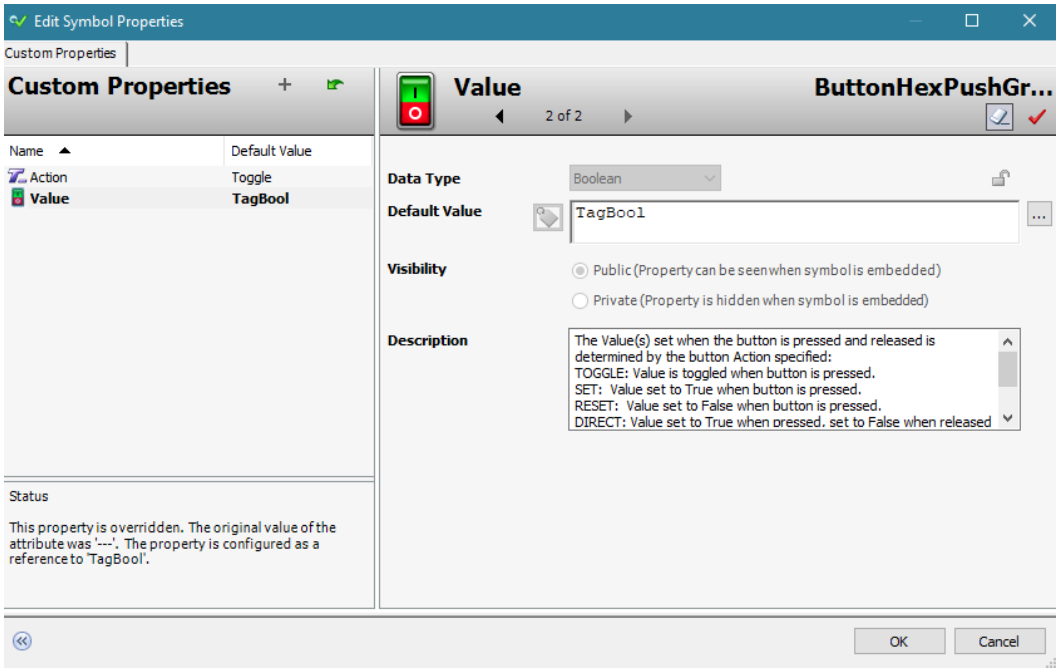


FIGURE 3.24. - SETTING VALUE TO YOUR TAG

- Click Ok, run the canvas by selecting the runtime in the top right corner to open the Window viewer application. The button will be displayed and once pressed it will toggle the SLC tag B3:0/0.

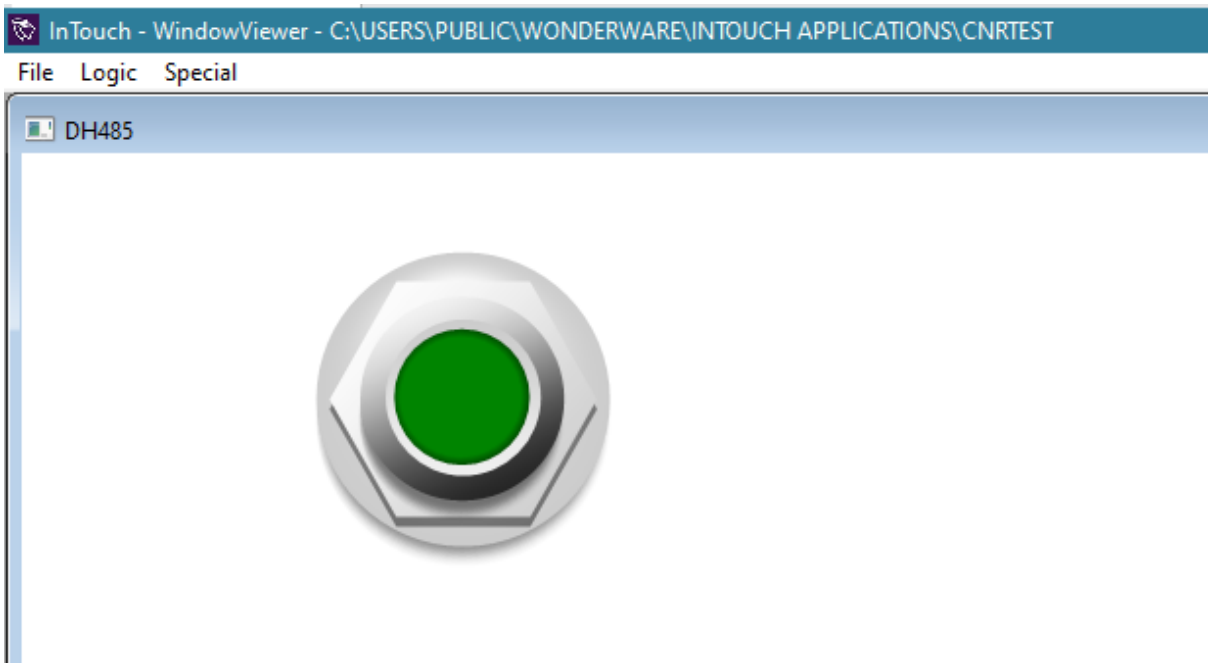


FIGURE 3.25. - BUTTON RUNNING IN WINDOW VIEWER

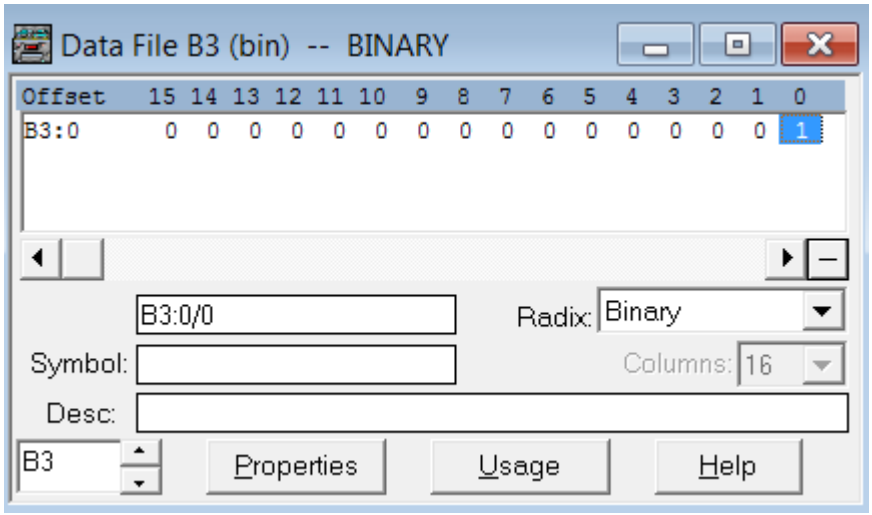


FIGURE 3.26. - B3:0/0 REFLECTING IN STUDIO 500