DF1 Router

Connected Components Workbench
Programming of Micro800 via DF1 Router

Technical Application Note

A-DF1R

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aparian

1. PREFACE

1.1. PURPOSE OF THIS DOCUMENT

This document will assist the user to setup the DF1 Router to allow remote Connected Components Workbench programming of a Micro800 controller.

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 Micro800 Controllers via their CIP Serial ports. In the application example below, a remote Connected Components Workbench programming station can communicate with, and program an Micro800 controller.

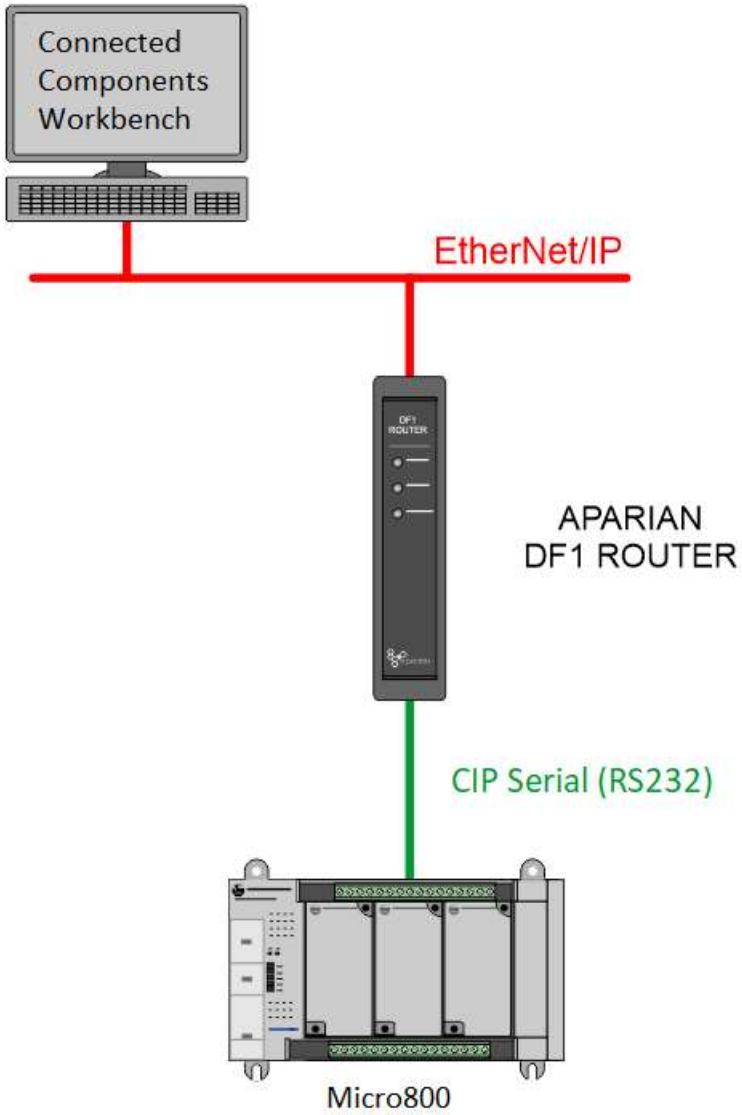

FIGURE 1 - EXAMPLE OF A TYPICAL NETWORK SETUP

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:

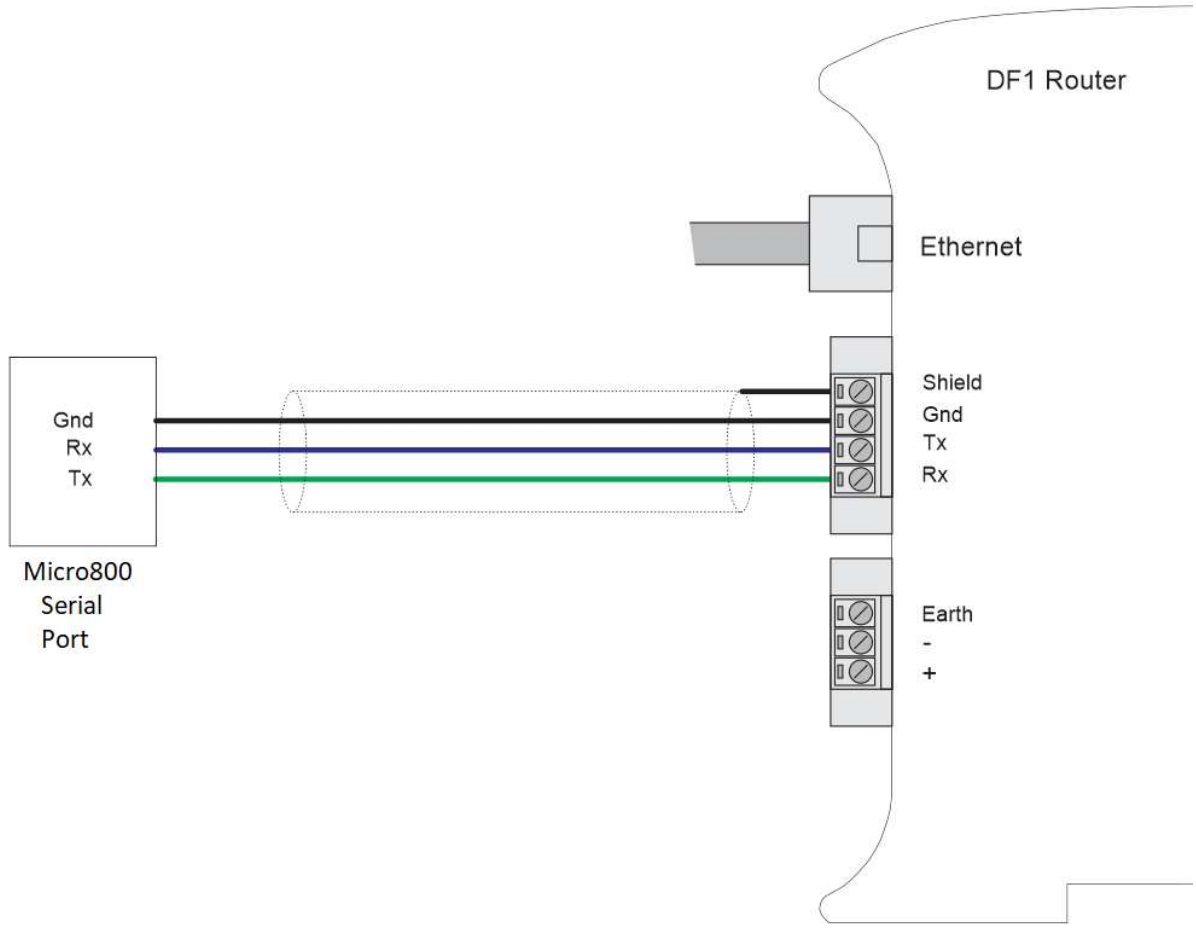

FIGURE 2 – SERIAL CABLE PINOUT

3.2. DF1 ROUTER SETUP

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

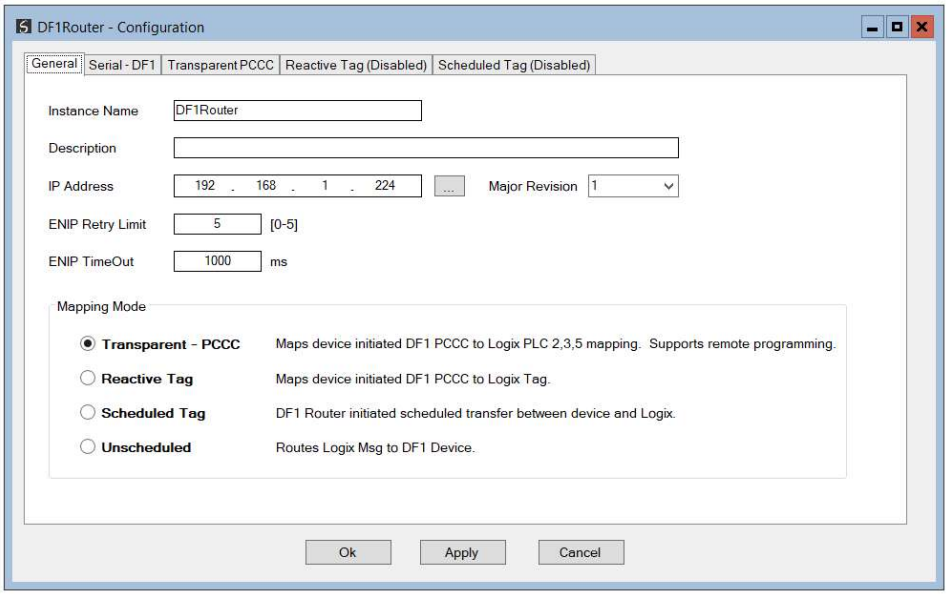

FIGURE 3 – DF1 GENERAL CONFIGURATION

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 Logix Controller (as configured using Connected Components Workbench).

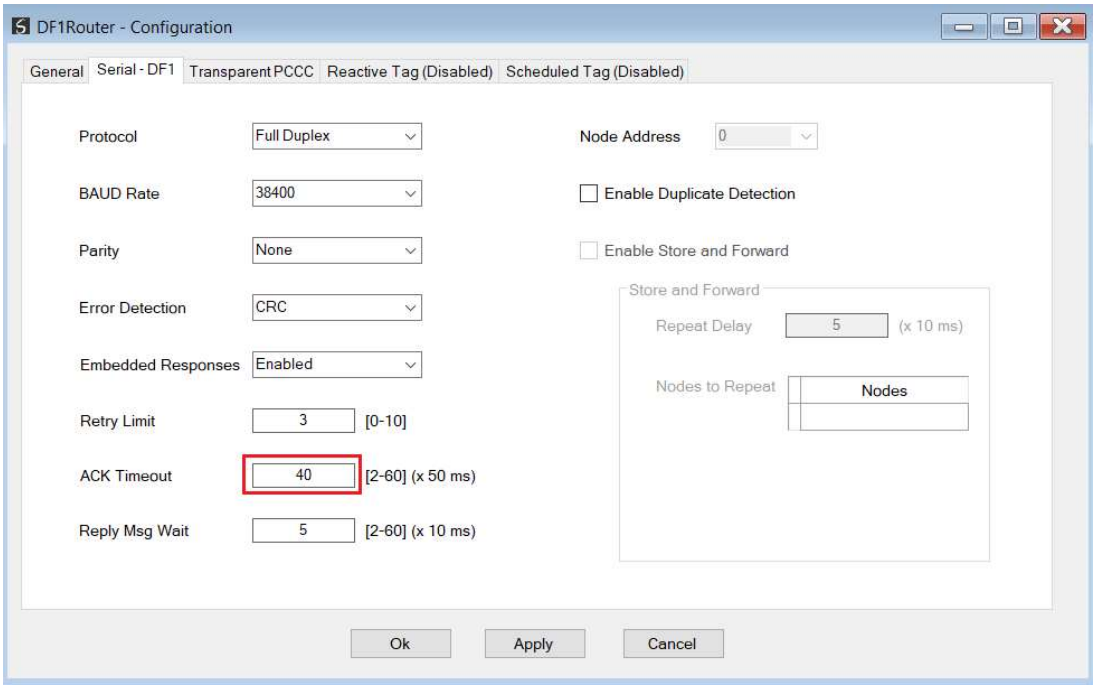

FIGURE 4 – DF1 SERIAL CONFIGURATION

NOTE: The ACK timeout **MUST** be set to 40 or higher.

No Transparent PCCC mapping items are required to be configured.

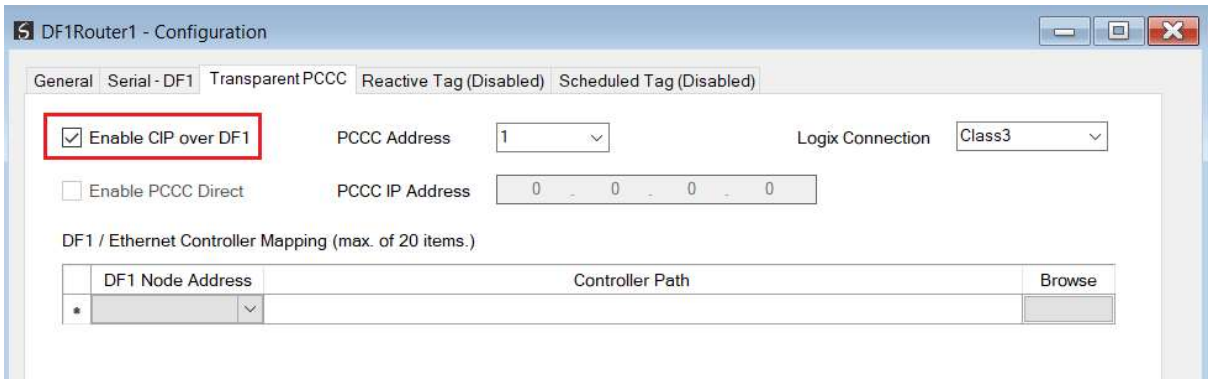

FIGURE 5 – TRANSPARENT PCCC CONFIGURATION

NOTE: The CIP over DF1 option **MUST** be selected for programming Mirco800 controllers.

3.3. CONNECTED COMPONENTS WORKBENCH (CCW) SETUP

The Micro800 controllers' serial port defaults to CIP Serial which should be matched by the DF1 Router Serial-DF1 settings.

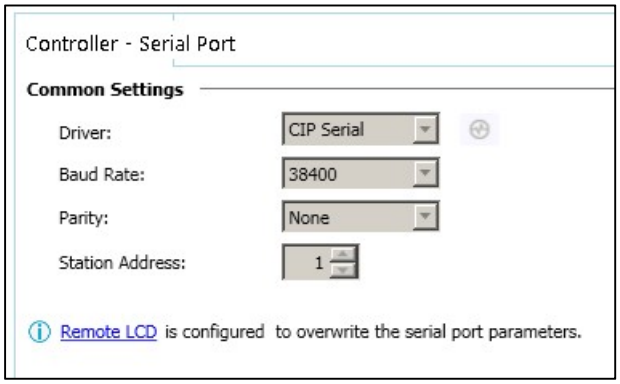

FIGURE 6 – MICRO800 SERIAL PORT SETTINGS

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.

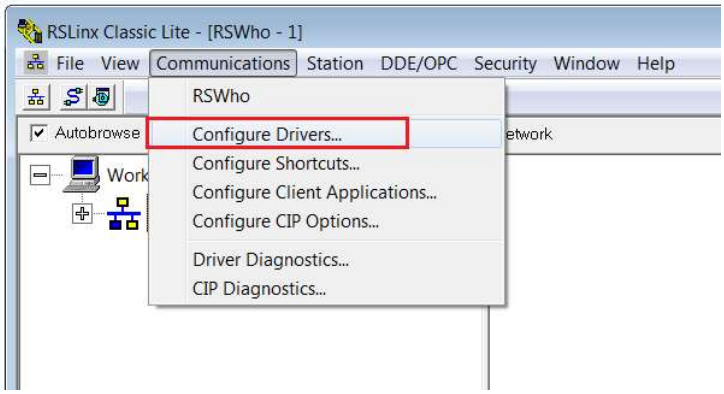

FIGURE 7 – RSLINX DRIVER CONFIGURATION

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

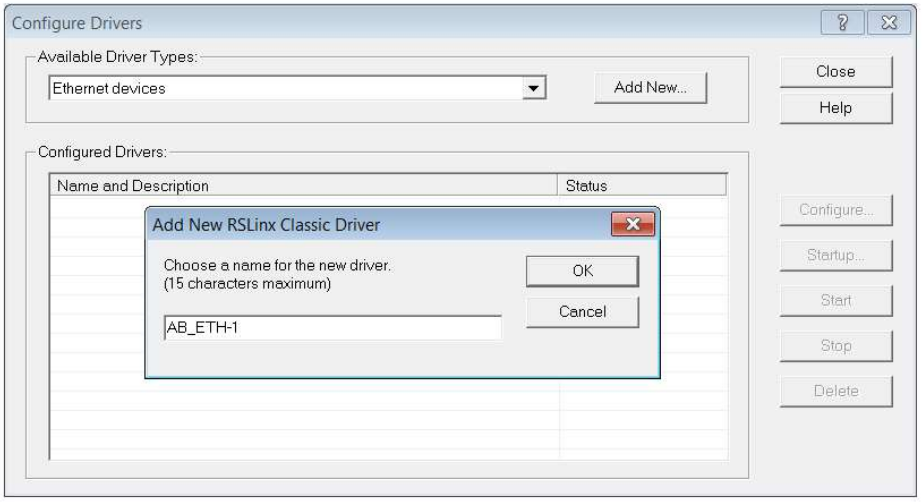

FIGURE 8 – RSLINX ETHERNET DEVICES DRIVER

Add the IP address of the DF1 Router.

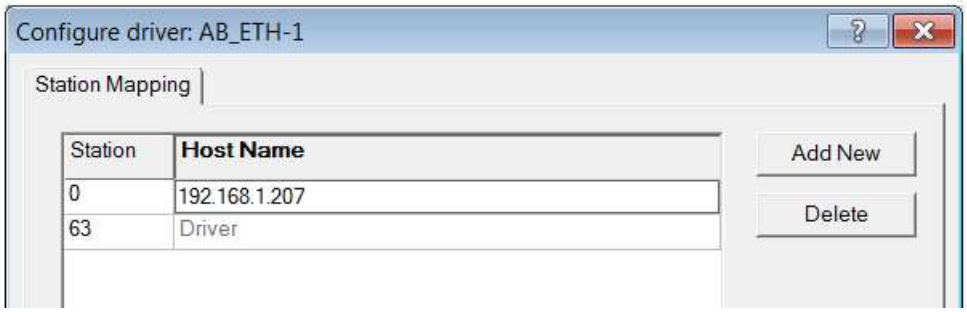

FIGURE 9 – RSLINX ETHERNET IP ADDRESS

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.

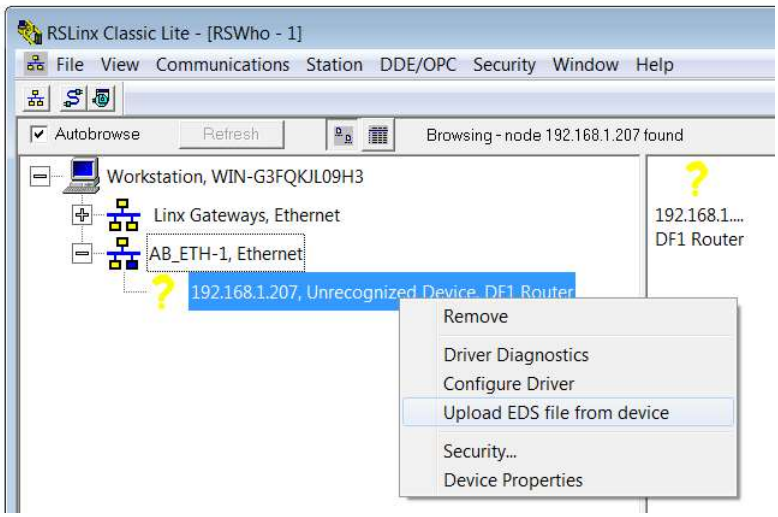

FIGURE 10 – RSLINX UPLOAD EDS FILE FROM DEVICE

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

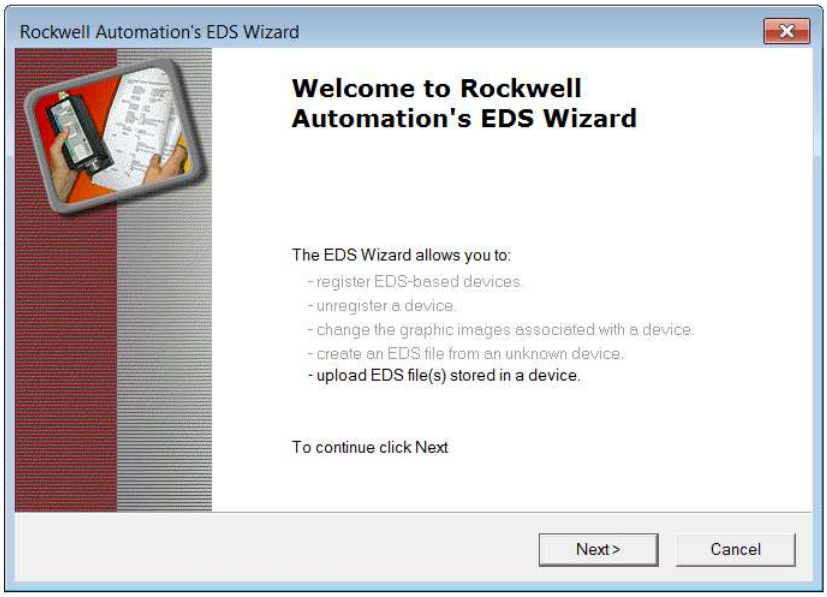

FIGURE 11 – EDS WIZARD

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.

The user will need to force the network type of the DF1 Port under the DF1 Router. This is done by right-clicking on the DF1 Port and selecting ***Properties*.**

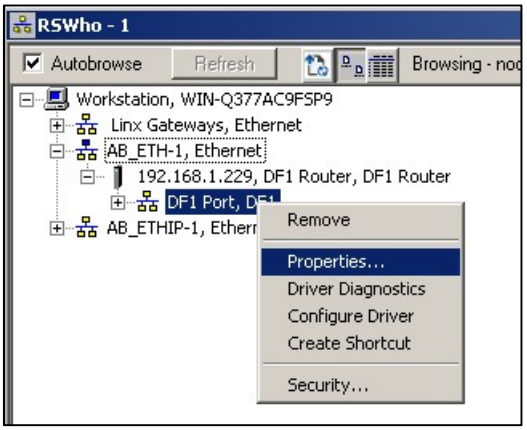

FIGURE 12 – DF1 PORT PROPERTIES

Under the Advanced Browse Settings, the user must select *Force Network Type To:* ***ControlLogix backplane***

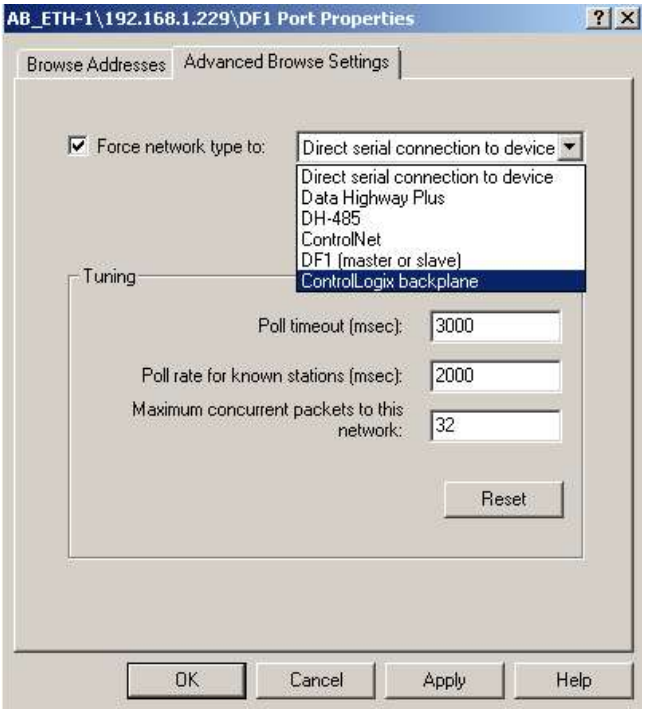

FIGURE 13 – FORCE NETWORK TYPE

It will also show the underlying DF1 Port, which, when expanded, will show the underlying Micro800 controller.

NOTE: It is normal for the RSLinx driver to show multiple Micro820 controllers.

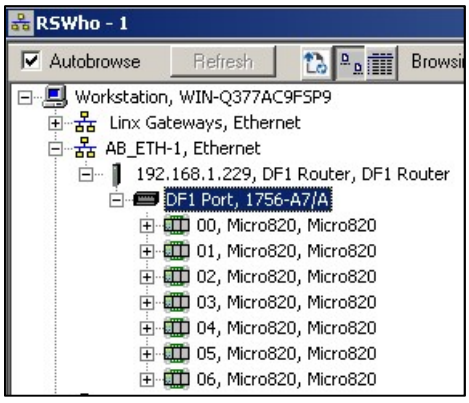

FIGURE 14 – BROWSING MICRO800 DEVICES

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***.

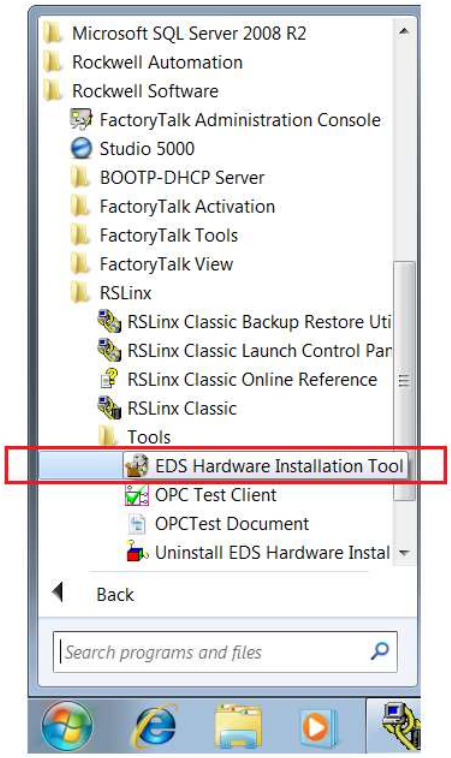

FIGURE 15 – LAUNCH EDS HARDWARE INSTALLATION TOOL

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

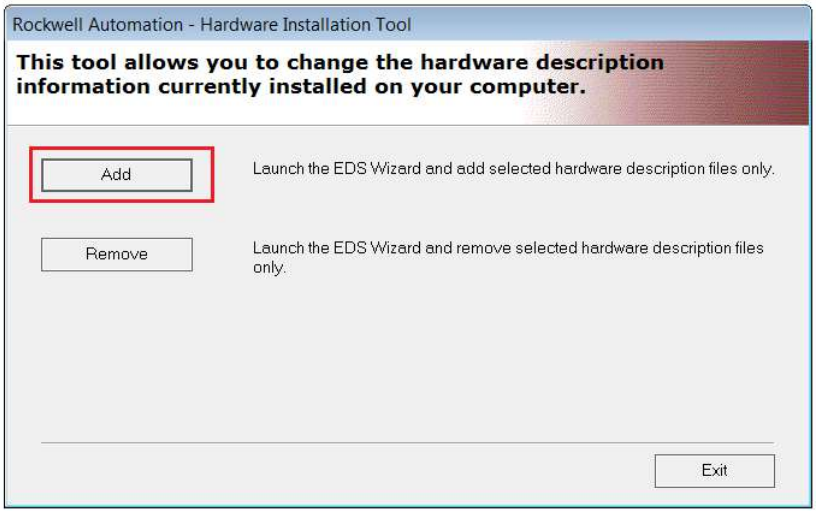

FIGURE 16 – HARDWARE INSTALLATION TOOL - ADD

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

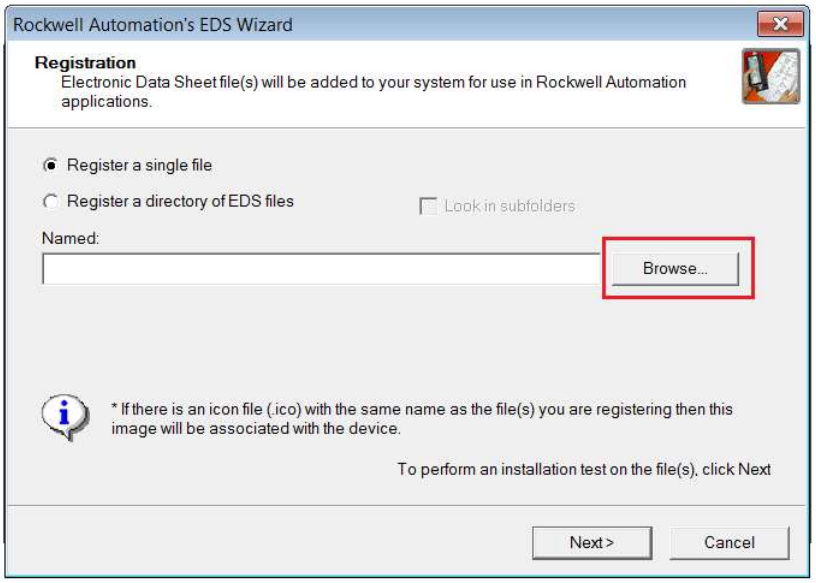

FIGURE 17 – EDS REGISTRATION

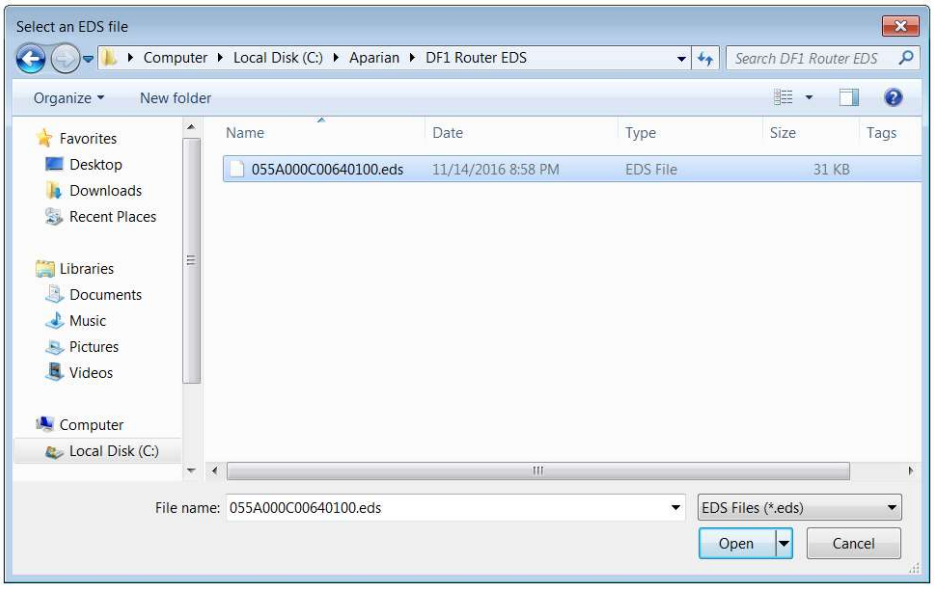

FIGURE 18 – EDS FILE SELECT

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

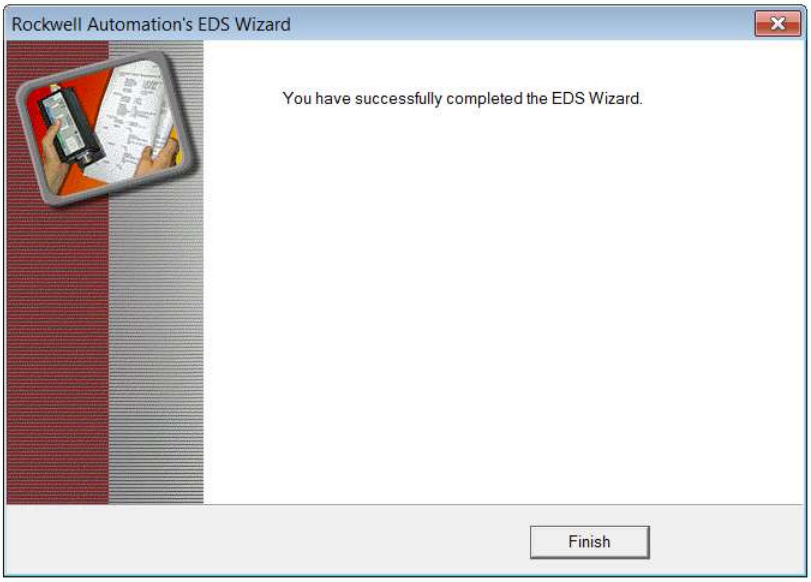

FIGURE 19 – EDS REGISTRATION COMPLETE

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. CONNECTED COMPONENTS WORKBENCH (CCW)

Programming using Connected Components Workbench (CCW) can then continue as normal. Inside CCW under the ***Device*** menu, select the ***Setup Communication Path*** item.

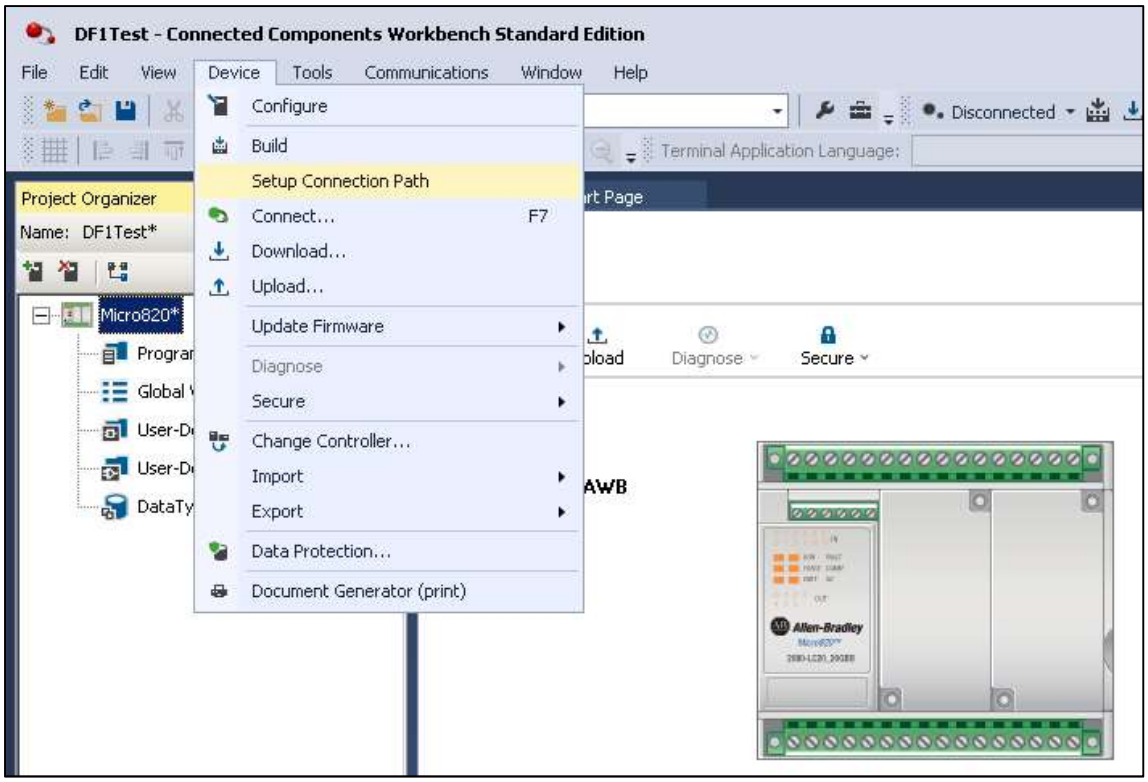

FIGURE 20 – SELECT COMMUNICATION PATH

In the Communications Path window, browse to the DF1 Router and select OK.

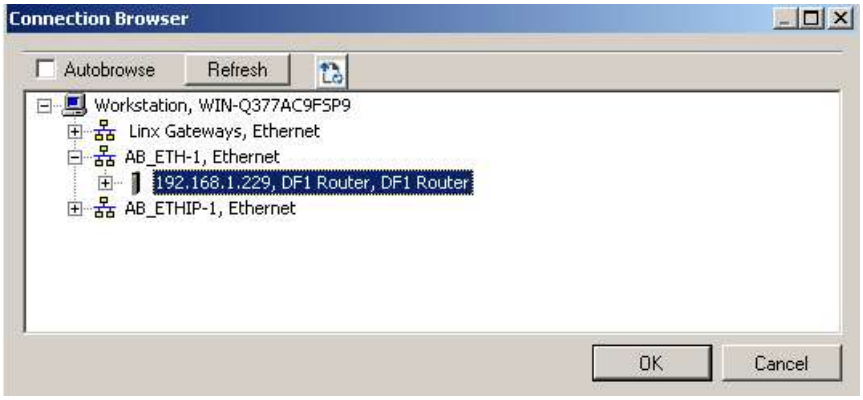

FIGURE 21 – CONNECTION BROWSER

The user will need to add the last part of the path manually because of the lack of browsing capability using the RSLinx driver over CIP Serial. The selected path shown now has the following format:

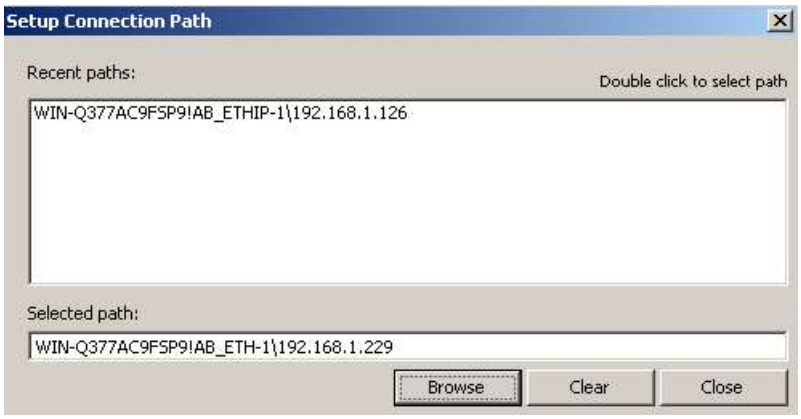

FIGURE 22 – SETUP COMMUNICATION PATH

WIN-Q377AC9FSP9!AB_ETH-1\192.168.1.229 **(PC-Name ! Driver Name \ Path)**

The user will need to add the DF1 Port as well as the destination DF1 address of the Micro800 controller (usually 1) as shown below:

WIN-Q377AC9FSP9!AB_ETH-1\192.168.1.229**\DF1 Port\1**

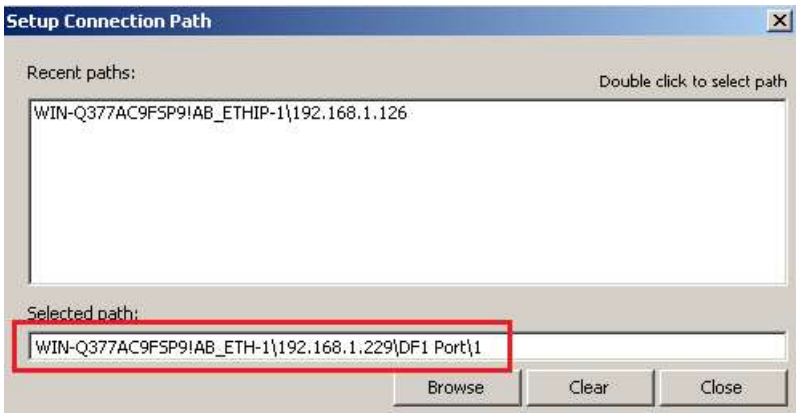

FIGURE 23 – ADJUSTED SETUP COMMUNICATION PATH

Once this is done press the close button. The user can then go online or download to the Micro800 controller.

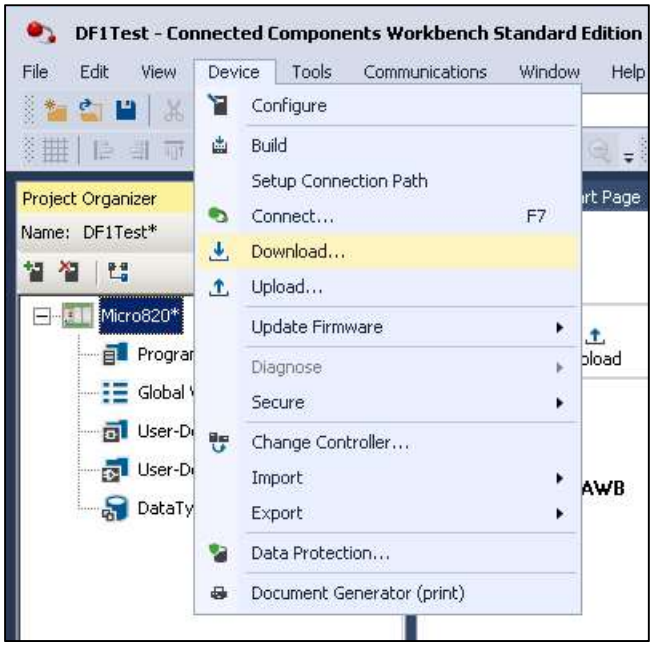

FIGURE 24 – DOWNLOAD APPLICATION TO THE MICRO800 CONTROLLER

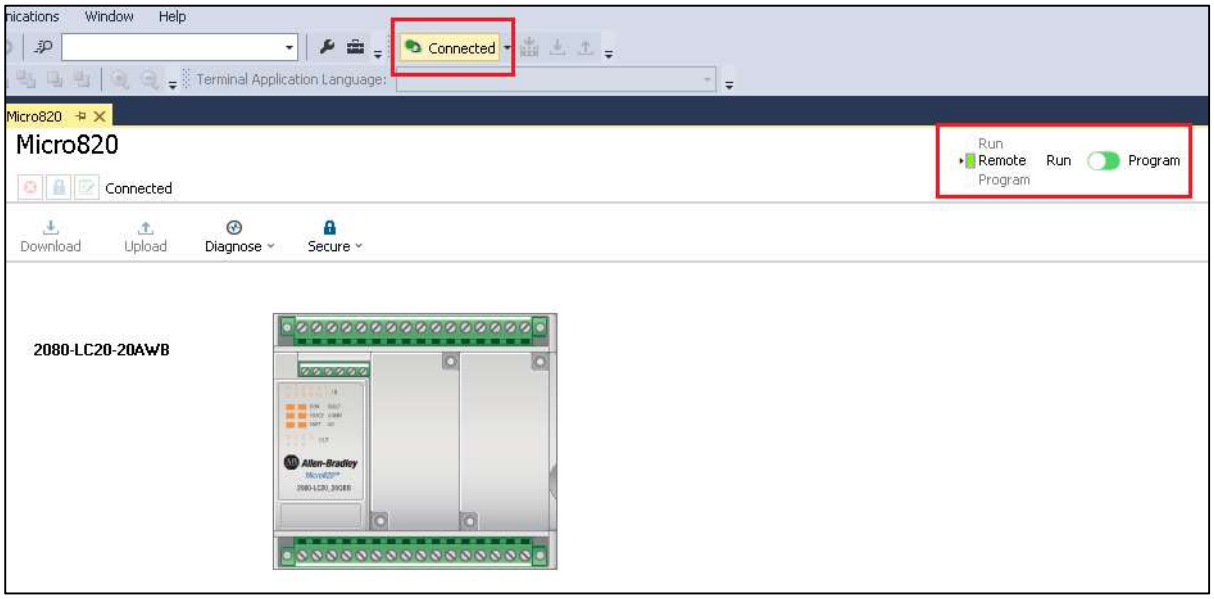

FIGURE 25 – ONLINE WITH THE MICRO800 CONTROLLER